www.tku.edu.tw

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蘭陽校園
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Tamsui Campus
No. 151, Yingzhuan Rd., Tamsui Dist.,
New Taipei City 251301, Taiwan (R.O.C.)

Taipei Campus
No. 5, Ln. 199, Jinhua St., Da'an Dist.,
Taipei City 106302, Taiwan (R.O.C.)

Lanyang Campus
No. 180, Linwei Rd., Jiaoxi Township,
Yilan County 262308, Taiwan (R.O.C.)

Cyber Campus
http://cyber.tku.edu.tw

淡江大學

Tamkang University

第一波 The First Wave

第二波 The Second Wave

第三波 The Third Wave

第四波 The Fourth Wave

第五波 The Fifth Wave

2024

AI+SDGs=∞ ESG+AI=∞

創辦人的話
Message from the Founder

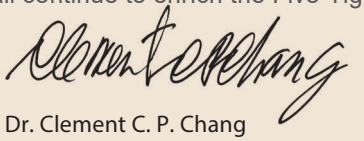
Transcending

With the rapid spread of higher education, the scarcity of government resources, and the intense competition among Taiwan's more than one hundred universities, Tamkang University must now emphasize its distinguishing strengths to further burnish the Tamkang brand. Over the years, TKU has experienced Four Waves of Development—"the Foundational Period, balancing quality and quantity," "the Positioning Period, emphasizing quality," "the Uplifting Period, featuring strategic academic internationalization," and "the Transformational Period, involving diversification, in line with the times". These waves have led TKU into a comprehensive university with four distinct campuses: the Tamsui Campus, the Taipei Campus, the Lanyang Campus, and the Cyber Campus. On the 67th anniversary of the school, we now with the help of our alumni celebrate the advent of the Fifth Wave, displaying a spirit of perseverance and transcendence, as symbolized by our new Hsu Shou-Chlien International Conference Center.

During the past sixty-seven years, TKU has practiced four models of governance: the Collegial model, the Bureaucratic model, the Political model, and the Market model. They jointly help promote the Total Quality Management. Previously, in my featured article, "Tamkang, the Fourth Wave", I pointed out the need to promote the Three Circles of Curricula—professional, general education, and extracurricular curricula—to put into practice the Five Disciplines of Education of "conduct, intelligence, physical education, teamwork, and beauty". In this decade, quite a number of students went effectively under the nurturing influence of "Triple Objectives of Education" : Globalization, Information-oriented Education, and Future-oriented Education. They have equipped themselves with the core values of the "Three Circles and Five Disciplines of Education" to truly possess "Excellence with a Soul." They now become the mainstays of the nation and society.

W. Chan Kim and Ren Mauborgne stated that "… understanding the context and right strategic moves is the key to success." The long-term performance of Tamkang has already received affirmation from all walks of life. And, our building of a conference center that reflects our worldview, will not only raise the profile of our research, but render better administrative services. This and other high quality innovations, in line with the times, duly bring into full play the " Matthew Effect". They set us on a new Sigmoid-curve arching towards the next wave's peak.

In the Age of the Fox, typified by intense change and transformation, we need to maintain our hold on the operating characteristics of TKU. We will base our strategy on the emerging trends in higher education. We should continue to take "simplicity, truthfulness, firmness, and perseverance" as the essence and accordingly deepen "Tamkang Culture." We encourage every Tamkangian to "establish a firm foothold at Tamkang University, hold the world in view, grasp the latest information, and create a brighter future." We encourage all the faculty members and students at Tamkang to meet all sorts of challenges, and to spare no efforts in carrying on our glorious mission hand-in-hand. By so doing, we shall continue to enrich the Five-Tiger Hill Saga.



Dr. Clement C. P. Chang
Founder, Tamkang University
(1929.3.15~2018.5.26)

團隊組織 Organization

董事長的話 Message from the Chairperson

Tamkang University (TKU) has used a succession of waves as the transitional hub for all of its administrative development. In 2017 TKU embarked on a new epoch, “The Fifth Wave,” with the spirit of transcendence, repositioning the dual-track transformation, using "AI+SDGs=∞" 5 times of efforts to create a smart future. Looking back, “the First Wave” unfolded the threefold foundational policy of Global Perspective, Informational Literacy, and Vision for the Future; “the Second Wave” advanced Total Quality Management (TQM); “the Third Wave” promoted international academic resources; “the Fourth Wave” ushered in the management thinking of the Market model which were integrated with the original Collegial model, Bureaucratic model, and Political model to become the Four Management Models, shaping four campuses.

The Fourth Wave took the Palace-style Buildings as an image to construct the House of Quality of TKU to link up with the mission of “To maintain Tamkang’s venerable heritage, create a positive influence on society, and nurture talented, ambitious professionals.” Utilize the six strategies: “Wave-by-Wave Development and Four Distinct Campuses,” “The Three Circles and Five Disciplines of Education and nurture excellence,” “TKU’s Triple Objectives and create an academic kingdom,” “Setting up the Sigmoid Curve and activate the Second Curve,” “Promoting the Matthew Effect and strive for social resources,” “Blue Ocean Strategy and create competitive advantage,” to establish the direction of development. Develop the full spirit of participation and continuous improvement, adjust the organizational culture so as to continue the outstanding school performance to win the 19th National Quality Award.

From the Fourth Wave to the Fifth Wave, TKU has used the five general trends of a macroscopic view policy, winning leadership team, high quality faculty and student body, sufficient resources and facilities, and clear-cut performance indicators to be the school goals responding to the changing 21st century economy, technology and industry. Using the “Map of the Learning Value Chain,” TKU has set up a system that with the student as the core while allowing the faculty and administration to support mutually and grow collectively. TKU has planned a systematic, diverse faculty improvement and encourages the overall development of teaching and academic career. TKU has implemented an overall evaluation standard of the curriculum, instruction and assessment mechanism in order to improve the quality of learning and teaching. With the aim of producing an industry-university environment that “knowledge and skills progressing collaboratively” TKU has strengthened the ability of the faculty to do research and development and the ability of students to obtain employment and thus to create another academic kingdom with a new Sigmoid Curve.

In the 2022 Global Talent Competitiveness Index (GTCI), Singapore retained its position as the number two country in the world. The key characteristics of being the top 3 in the world since 2013 include the steady improvements in the outstanding performance in formal education, the investing in life-long learning, strengthening skills, attracting and retaining global talent, etc. It has been a target of benchmark learning. TKU has been founded over 70 years and has nurtured students with the Three Circles Curricula, Five Disciplines of Education, and the Eight Essential Qualities. By promoting the forward thinking of Triple-Objective Education, TKU is capable of keeping pace with the times while possessing complete Tamkang DNA and earning the first place for 26 consecutive years in *Cheers Business Magazine* survey of the most favored private university students by enterprises. TKU, in the future, shall continue producing the most favored students by businesses and most outstanding students to promote the excellence of Tamkang Culture. Together with the support of TKU alumni worldwide, we shall establish a superbly outstanding, comprehensive world-class university.

Flora Chia-I Chang

Dr. Flora Chia-I Chang
Chairperson, Board of Trustees

團隊組織 Organization

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- 國際事務學院 College of International Affairs
- 教育學院 College of Education
- AI創智學院 College of Artificial Innovative Intelligence
- 精準健康學院 College of Precision Healthcare
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- 軍訓室 Office of Military Education and Training

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- 總務處 Office of General Affairs
- 人力資源處 Office of Human Resources
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- 推廣教育處 Office of Continuing Education
- 校友服務暨資源發展處 Office of Alumni Services and Resources Development
- 蘭陽行政處 Administrative Office of Lanyang Campus
- 環境保護及安全衛生中心 Center For Environmental Protection, Safety and Health

國際事務副校長 Vice President for International Affairs

- 國際暨兩岸事務處 Office of International and Cross-Strait Affairs

團隊組織 Organization

校長的話 Message from the President

Tamkang University (TKU) was founded in 1950. Adhering to the Triple objectives of Globalization, Information-oriented education, and Future-oriented education promoted by the Founder Dr. Clement C. P. Chang; undergoing four periods of development: “The Foundational Period,” “The Positioning Period,” “The Uplifting Period,” and “The Transformational Period,” Tamkang University was further formulated into one comprehensive university with the integrations of Tamsui, Taipei, Lanyang, and Cyber campuses. In November of 2017, the Hsu Shou-Chlien International Conference Center was inaugurated under the donations of former TKU alumni; this continues the excellent heritage of Tamkang culture. With the quick infusion of new power, the new course of development of the Fifth Wave “The Transcending Period” was launched.

As for the aspect of planning the teachers’ teaching and the curriculum, Tamkang University has upheld the concept of “the learner is the center.” From the first mile of incoming new students to the last mile of the graduating seniors, and to the first mile of facing job employment or starting a business, all require different stages of learning demands, and TKU has created a comprehensive learning plan and built a “student learning value chain” for students in their four undergraduate years. As for the aspect of students’ learning, Tamkang adopts the “Three Circles Curricula” : Professional curriculum, General curriculum, and Extracurricular curriculum, with honors program, cross-field courses, employment programs, and capstone courses as auxiliaries. TKU has not only achieved the effectiveness of intensive professionalism, learning application and advancement, and unified learning, but also has been able to deepen the five Educational Disciplines of “Conduct, Intelligence, Physical Education, Teamwork, and Beauty” to foster in students the possession of the eight essential qualities of “Global Perspective, Informational Literacy, Vision for the Future, Moral Integrity, Independent Thinking, Cheerful Attitude and Healthy Lifestyle, Spirit of Teamwork and Dedication, and the Sense of Aesthetic Appreciation,” to become an outstanding Tamkang graduate.

Tamkang has performed well in various world university ranking surveys, including *THE, QS*, and *US News & World Report*, ranking No.10-20 in the nation. The "2025 QS World University Rankings" announced in June 2024 placed our university at a global ranking of 1201-1400 and 18th in the domestic ranking. In June 2024, the "2024-2025 Global Best Universities Rankings" published by U.S. News & World Report ranked our university globally at 1,391th, 17th domestically, and 6th among private universities in the country. In "Webometrics Rankings of World Universities, WRWU" published in July 2024, the university ranked No.1087 worldwide, No.13 in the country, and the top among non-medical private universities. In June 2024, “Times Higher Education” (THE) has released the "2024 World University Impact Rankings," where our university is globally ranked between 201-300, ranking 8th domestically. The university ranked 53rd globally in "SDG 7: Affordable and Clean Energy," 2nd nationally, and 1st among private universities.

The Triple Objectives of Globalization, Information-oriented Education, and Future-oriented Education were continuously cultivated as Tamkang steps into the fifth wave. Tamkang first established an international partner relationship with the Chuo University of Japan in 1968. It has now signed an academic cooperation agreement with 279 universities in 45 countries on five continents. In 1994, the first international mobility program for domestic juniors to study abroad was established. Each year, juniors are selected to study at overseas partner institutions, and, so far, over 9,200 students had completed their dream of studying abroad. In 2015, Tamkang earned the Outstanding Internationalization Award from the Ministry of Education and thus became a model school for internationalization. In 2018, the “Tamkang Clement and Carrie Chair” was established with the hope of being able to promote more internationally renowned scholars to conduct lectures, to engage in intensive lectures series, and to do cooperative research thus promoting Tamkang’s position on the stage of the global village. As of 2024, the Tamkang Clement and Carrie Chair Fund successfully invited 28 internationally renowned scholars from 13 different countries including United States, Canada, France, Austria, Poland, Korea, Japan, Thailand, Germany, and Singapore; among them, seven scholars possess national academician qualifications, and one is a Nobel Prize laureate. This gradually accomplishes the purpose of the formation of the Tamkang Clement and Carrie Chair, achieving the founder’s vision of creating a world-class university.

As for the Information-oriented Education, Tamkang, taking “intellect” as its core spirit, implements a digital transformation, and creates the smart campus 2.0. Inaugurated in the 2020 academic year as a virtual operational hub in Tamkang University, the College of Artificial Innovative Intelligence (AII) integrates the resources of academic units on campus, promotes interdisciplinary teaching and research, strengthens the industry-academia cooperation, and combines with USR to implement the concept of local revitalization effectively, adapting to highly qualified industries, reducing learning gaps, and cultivating students’ employability in the AI cloud era. Future-oriented Education is located in having the characteristic of social responsibility in the diverse “Collaborative Foresight” as this continues to refine future studies courses, upgrading teaching instructions in order to strengthen the clear understanding of students in their Future-oriented Education and competency development. 2020 marked the inaugural year of Tamkang University’s initiative to promote the United Nations' Sustainable Development Goals (SDGs). In order to integrate the SDGs into professional knowledge and skills, and to realize the global shared value of sustainability, starting from the 2022 academic year, the university introduced two distinctive interdisciplinary courses in AI and sustainability: "AI and Programming Language" and "Exploring Sustainability," each worth 1 credit as mandatory General Education courses. These courses are complemented by over 300 AI cloud professional courses from Microsoft introduced by the College of AI Intelligence and aimed at institutionalizing the first-year university mechanism and empowering innovative faculty communities of the "XPlorer Project” (Competency-Based Higher Education Learning Innovation Project). The goal is to nurture freshmen into university students with sustainable civic action capabilities. In the 2024 academic year, the university also launched an interdisciplinary general education micro-program titled “Net Zero and Sustainable Development.” To achieve the medium and long-term vision of "Collaboratively Creating a Great Tamsui, Embracing a Smart and Magnificent Future," we are advancing towards the educational development goals of "AI+SDGs=∞" and "ESG+AI=∞," aiming to build Tamkang University into an international smart future-oriented, and cloud-based university city.

Tamkang promoted TQM since 1992 and won the 19th National Quality Award in 2009. The Chairperson of Tamkang University, Dr. Flora Chia-I Chang, won the Business Excellence Award of the 25th National Quality Award in 2018. Tamkang was the first university worldwide to confer the International Safe School status by the World Health Organization (WHO) on November 18th, 2008. In 2012, Tamkang was once again issued the International Safe School Status after passing the WHO Safe School Re-evaluation. From 2011 till 2013, Tamkang continuously received the R.O.C. Enterprises Environmental Award and received the life-time prestigious EPA Environmental Award. The quality of running a university has been affirmed by various fields.

In 2024 the immediate strength of about 330,000 graduates in different industries allowed Tamkang University to rank No.1, among all private universities for 27 consecutive years in the “Top 2,000 Enterprises’ Favorite College Graduates” survey conducted by Cheers Business Magazine, and No.10 among all institutes of higher education in Taiwan. In 2024, in Global Views Monthly magazine’s “Taiwan’s Best University Rankings,” our university was honored for the 7th consecutive year, ranking 1st among private universities in the “Humanities and Social Sciences” category and 4th nationwide. In the “Degree of Internationalization” category, we were ranked 1st among private universities. Additionally, according to the “2024 Most Favored University Graduates by Employers” survey conducted by 1111 Job Bank, the university ranked 1st among private universities and 9th nationwide. Tamkang is ecstatic to have such outstanding performance, yet this urges us to double our efforts in the future to add value to academic professionalism, strengthen teaching, enhance industry-academia cooperation, and establish a teaching ecosystem of innovative entrepreneurship. The Fifth Wave of the school, under the foundation of Tamkang Culture and the accomplishments of the Founder and other successive presidents and the outstanding achievements, should again be carried on by building upon the initial successes and by taking the spirit of the old to create the new so as to erect a superb new look in the future of the university and march forward to be a first-rate, world-class comprehensive university.

Huan-Chao Keh

Dr. Huan-Chao Keh, President

團隊組織 Organization

學術副校長 許輝煌

Dr. **Hui-Huang Hsu**

Vice President for Academic Affairs

行政副校長 林俊宏

Dr. **Chun-Hung Lin**

Vice President for Administrative Affairs

國際事務副校長 陳小雀

Dr. **Hsiao-Chuan Chen**

Vice President for International Affairs

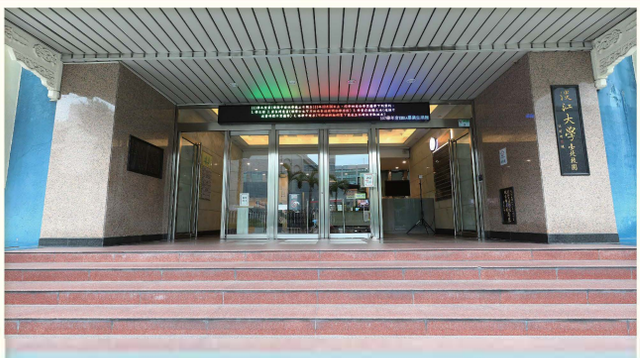
四個校園 4 Distinct Campuses

Tamsui Campus

The City of Knowledge

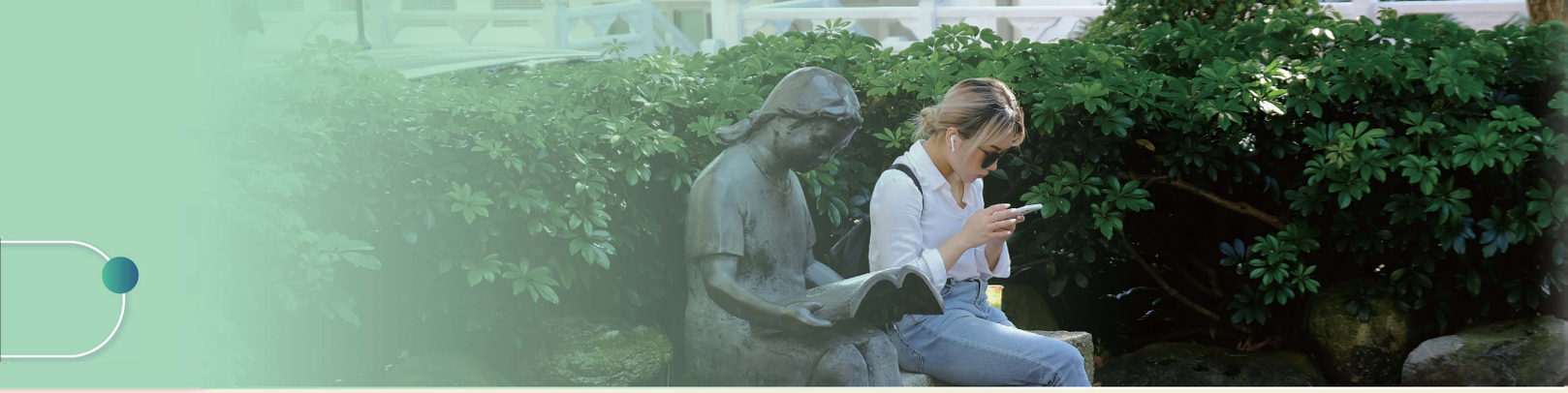
The Tamsui Campus was built with the goal of establishing a comprehensive research university, which also emphasize teaching, one that “creates knowledge.” It now is comprised of 9 colleges, 46 departments, 45 master’s programs, 13 Executive Master’s Programs, 15 doctoral programs, and 13 research centers. Challenge cutting-edge research and create outstanding research results by “transferring knowledge” and “applying knowledge” make Tamsui Campus a “City of Intellect” with academic value and prestige.

Taipei Campus



The Sea of Knowledge Navigator

The service-oriented Taipei Campus focuses on both promoting lifelong learning and continuing education worldwide. The Office of Continuing Education comprises In-Service Center, Extension Center, Japanese Language Center, Chinese Language Center, and License Center. In addition, its Office of Tamkang EMBA is responsible for providing teaching and administrative assistance in professional studies programs in business fields. The mission of the Taipei Campus is to enhance the quality of society’s human resources through continuing education.



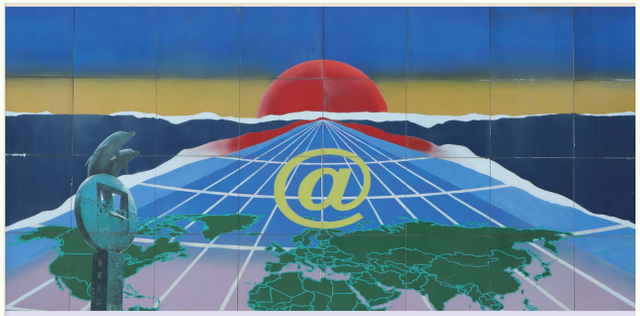
Lanyang Campus

The Garden of Wisdom

The Lanyang Campus is located at Mt. Linmei, Chiao-Hsi County, Yilan. Stretching across 40 acres of picturesque mountain scenery, the campus offers spectacular views of the Pacific Ocean and Turtle Island in the distance, as well as a breathtaking sunrise panorama.

The Lanyang campus has been recruiting students since 1994. In order to enhance the international competitiveness of students, the development of “three-round education” : 1. All juniors go abroad, 2. All courses are taught in English, and 3. All students are living in academies. Approximately 2,200 alumni graduated from this campus. In 2021, the College of Global Entrepreneurial Development was dissolved, and its four departments were consolidated back to the Tamsui campus. In 2023, the College of Precision Health and the Graduate Institute of Senior Citizen Health Care Management were established. In 2024, Graduate Institute of Intelligent Healthcare Industry was founded, while preparations for the "Yijiang Residential Long-term care Institution" continued.

Cyber Campus



The Space of Knowledge Explorer

TKU’s Cyber Campus offers a learning environment that connects the Tamsui, Taipei, and Lanyang campuses to the rest of the world through the latest information technology. It provides students the option of taking online executive master's programs offered by the TKU Department of Educational Technology, Department of Global Politics and Economics, and Department of Information and Library Science. It also cooperates with Université Jean Moulin-Lyon 3, Université de Nice (Sophia-Antipolis), Waseda University, Tokyo University of Foreign Studies, Yonsei University, Korea University, St. Petersburg University, Far Eastern Federal University, Pushkin State Russian Language Institute and other universities worldwide. According to the level of investment required for digital course management, continue to promote four types of digital courses, such as OCW (Open Courseware), blend courses, distance courses, and MOOCs (Massive Open Online Courses). Instructors can apply them according to the teaching needs. By exploring the world in this virtual platform of knowledge, learners are capable of acquiring information, share practical experiences, make good use of diverse learning resources, and fulfill their dreams of a lifelong education, anytime and anywhere.

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Personnel

Position	Name
Founder of Tamkang University	Clement C. P. Chang
Chairperson, Board of Trustees	Flora Chia-I Chang
President	Huan-Chao Keh
Vice President for Academic Affairs	Hui-Huang Hsu
Vice President for Administrative Affairs	Chun-Hung Lin
Vice President for International Affairs	Hsiao-Chuan Chen
Secretary-General	Yu-Pei Ma
Director of Carrie Chang Fine Arts Center	Ben-Hang Chang
Chief Audit Executive	Yen-Ling Lin
Director of the Center for Institutional Research	Yen-Ling Lin
Director of the Center for Sustainable Development and Social Innovation	Hui-Huang Hsu
Director of the Center for English as a Medium of Instruction	Hsiao-Chuan Chen
Director for Holistic Education	Hui-Huang Hsu
Dean of the College of Liberal Arts	Huei-Chun Chi
Dean of the College of Science	Tzenge-Lien Shih
Dean of the College of Engineering	Tzung-Hang Lee
Dean of the College of Business and Management	Li-Ren Yang
Dean of the College of Foreign Languages and Literatures	Yi-Ti Lin

Dean of the College of International Affairs	Cheng-Hao Pao
Dean of the College of Education	Kuo-Hua Chen
Dean of the College of Artificial Innovative Intelligence	Tzung-Hang Lee
Dean of the College of Precision Healthcare	Tzung-Hang Lee
Dean of Research and Development	Hung-Chung Hsueh
Dean of Physical Education	I-Cheng Chen
Director of the Office of Military Education and Training	Chin-Yen Lai
Dean of Academic Affairs	Tzong-Ru Tsai
Dean of Student Affairs	Shih-Jung Wu
Dean of General Affairs	Ruey-Shiang Shaw
Dean of Human Resources	Cheng-Hsin Chang
Dean of Financial Affairs	Ku-Jun Lin
Dean of Library	Sheue-Fang Song
Chief Information Officer	Kuei-Ping Shih
Executive Director of the Office of Continuing Education	Yi-Nan Lin
Executive Director of Alumni Services and Resources Development	Chun-Young Perng
Dean of International Affairs	Chien-Mu Yeh
Chief Administrative Officer of Lanyang Campus	Yu-Kuang Teng
Director of the Center for Environmental Protection, Safety and Health	Ruey-Shiang Shaw

【2024~2025 Academic Calendar of Tamkang University】

【First Semester, 2024】			
Week	Date	Weekday	Events
	Aug 1	Thu	First Semester Begins
	Aug 5	Mon	2024~2025 Academic Year Faculty Evaluation Committee Meeting
	Aug 6~12	Tue	First-semester Course Enrollment for Undergraduates (Excluding Freshmen) and 1st-year Graduate Students
	Aug 7~8	Wed	2024~2025 Academic Year New Departmental Supervisor Seminar
	Aug 12	Mon	Application Deadline for the PhD Program
	Aug 15~Sep 26	Thu	Enrollment Information Available Online
	Aug 20	Tue	2024~2025 Academic Year Incoming Staff Orientation
	Aug 24	Sat	New Student & Parent Meeting
	Aug 27~29	Tue	Courses Enrollment for Undergraduate Freshmen, Transferred New Students, and 1st-year Graduate Students
	Aug 28	Wed	Student Recruitment Committee Meeting
	Aug 29	Thu	2024~2025 Academic Year Incoming Faculty Seminar
	Aug 31~Sep 1	Sat	Dormitory Check-in & Move-in on Tamsui Campus
	Sep 2~30	Mon	Application for “Certificate of Credit Programs”
	Sep 3		2024~2025 Academic Year Incoming Faculty Teaching Workshop
	Sep 4	Wed	Incoming Overseas Student Orientation
	Sep 5	Thu	Freshmen Orientation and the Slope of Overcoming Difficulty Tour for Colleges of Liberal Arts, Engineering, Foreign Languages and Literatures, Education, and Artificial Innovative Intelligence. Medical Check-ups for Colleges of Science, Business and Management, International Affairs, and Precision Healthcare. Participants: 1st-year Students of Undergraduate, Graduate, and Extension Education Programs, and Transfer Students.
	Sep 6	Fri	Freshmen Orientation and the Slope of Overcoming Difficulty Tour for Colleges of Science, Business and Management, International Affairs, and Precision Healthcare. Medical Check-ups for Colleges of Liberal Arts, Engineering, Foreign Languages and Literatures, Education, and Artificial Innovative Intelligence. Participants: 1st-year Students of Undergraduate, Graduate, and Extension Education Programs, and Transfer Students. Deadline for Registration and Payment
1	Sep 9	Mon	Classes Begin
	Sep 9~20	Mon	Application to Waive “National Defense Military Training/ Nursing Courses”
	Sep 10~18	Tue	Drop/Add Week
	Sep 10~20	Tue	Application to Drop Minor/ Double Major
2	Sep 17	Tue	Mid-Autumn Festival (No Class)
	Sep 18	Wed	Student Recruitment Committee Meeting
	Sep 20	Fri	TKU Anniversary Celebration Preparation Meeting
3	Sep 23~Oct 7	Mon	Application for the Tamkang University Quality Award
	Sep 27	Fri	The 198th Administrative Meeting
4			
5	Oct 10	Thu	National Day of the Republic of China (No Class)
6	Oct 16	Wed	Curriculum Committee Meeting
	Oct 18	Fri	Student Recruitment Committee Meeting
	Oct 19	Sat	Teaching and Administration Innovation Seminar
7	Oct 21	Mon	Completion of 1/3 of the Semester (Application Deadline for 2/3 of Refunds on Tuition Payment for Deferred and Discontinued Study)
	Oct 21~Nov. 3	Mon	Midterm Teaching Performance Evaluation Week
	Oct 23	Wed	Educational Quality Management Committee Meeting
	Oct 25	Fri	Academic Affairs Meeting
8	Oct 28~Nov 15	Mon	Minor Specialty Application and Review
	Oct 28~Dec 6	Mon	Application for Graduate Degree Examination
	Oct 30	Wed	Sports Day
	Nov 1	Fri	The 92nd School Affairs Meeting (Final Account Review)
	Nov 2	Sat	TKU Anniversary Celebration, Alumni Homecoming Day, Make-up Workday (Compensatory Day Off on Jan 23, 2025)
9	Nov 4~10	Mon	Midterm Exam Week
	Nov 8	Fri	TKU 74th Anniversary
10	Nov 11~Dec 6	Mon	Submission of the List of Students Enrolled in the Credited Programs
	Nov 13	Wed	2024~2025 Academic Year Faculty Evaluation Committee Meeting
	Nov 14	Thu	1st, 4th, and 5th-Grade Class Representative Forum
	Nov 15	Fri	Student Affairs Meeting
11	Nov 22	Fri	The 199th Administrative Meeting
12			
13	Dec 2	Mon	Completion of 2/3 of the Semester (Application Deadline for 1/3 of Refunds on Tuition Payment for Deferred and Discontinue Study)
	Dec 2~6	Mon	Midterm Course-Drop Period
	Dec 2~Jan 12	Mon	Graduate Degree Examinations
	Dec 5~6	Thu	2-Day Site Visit for 2024~2025 Academic Year Third Cycle of University Institutional Accreditation
14	Dec 12	Thu	Earthquake Evacuation Drills and Promotions of Disaster Prevention Activities at Teaching Building on Tamsui Campus

【2024~2025 Academic Calendar of Tamkang University】

【First Semester, 2024】			
Week	Date	Weekday	Events
15	Dec 16~29	Mon	Teaching Evaluation Week
	Dec 18	Wed	New Faculty Allotment Meeting
	Dec 20	Fri	Student Recruitment Committee Meeting
16	Dec 27	Fri	Application Deadline for Deferred Study The 200th Administrative Meeting (Participants: Department Supervisors and Student Representatives)
17	Dec 30~Jan 5	Mon	Final Exam Week
	Jan 1, 2025	Wed	Founding Day of the Republic of China (No Class)
	Jan 3	Fri	Final Review of Tamkang University Quality Award
18	Jan 6~12	Mon	Flexible Teaching Week
	Jan 6~14	Mon	Preliminary Course Enrollment for the Second Semester
	Jan 6~Feb 16	Mon	Final Grades of the First Semester Available Online
	Jan 9	Thu	General Affairs Performance Evaluation Meeting
	Jan 10	Fri	Total Quality Management Training
	Jan 13~Feb 16	Mon	Winter Vacation
	Jan 14	Tue	Military Training Office Year-end Performance Review & Disaster Rescue and Prevention Committee Meeting (Moved to the 15th when conflicting with Taiwan's President of University/College Meeting)
	Jan 15	Wed	Student Recruitment Committee Meeting
	Jan 23	Thu	Compensatory day off (for Nov 2, 2024)
	Jan 24~Feb 7	Fri	Chinese New Year holiday
	Jan 28	Tue	Chinese New Year's Eve (Government agencies closed from Jan 25 till Feb 02 for Chinese New Year holiday)
	Jan 31~Feb 16	Fri	First Semester Ends

【Second Semester, 2025】			
Week	Date	Weekday	Events
	Feb 1	Sat	Second Semester Begins
	Feb 10	Mon	Staff & Faculty Resume Work Enquiry Deadline for the First-semester Grades
	Feb 13~Mar 7	Thu	Enrollment Information Available Online
	Feb 14	Fri	Deadline for Registration and Payment
1	Feb 17	Mon	Classes Begin
	Feb 17~25	Mon	Drop/add Week
	Feb 17~27	Mon	Application to Drop Minor/ Double Major Program
	Feb17~Mar 3	Mon	Application to Waive "National Defense Military Training/Nursing Courses"
2	Feb 27~Mar 13	Thu	Application for Teacher Education Program
	Feb 28	Fri	Peace Memorial Day (No Class)
3	Mar 5~11	Wed	Department/Graduate Institute Transfer Application for the 2025~2026 Academic Year
	Mar 7	Fri	The 201st Administrative Meeting
4	Mar 14	Fri	Campus Security Maintenance Meeting
	Mar 15	Sat	Spring Feast - Alumni Association of Departments, Graduate Institutes, and the University Invite Alumni for Homecoming Activities
5	Mar 17~May 9	Mon	Application for Graduate Degree Examinations
	Mar 19	Wed	Students Recruitment Committee Meeting
	Mar 21~23	Fri	2025~2026 Academic Year College Entrance Interviews for Applicants with Disabilities
6	Mar 24~Apr 13	Mon	Midterm Teaching Performance Evaluation Week
	Mar 28	Fri	Total Quality Management Seminar
7	Mar 31	Mon	Completion of 1/3 of the Semester
	Mar 31~Apr 2	Mon	Teaching Administration Observation
	Apr 3	Thu	Children's Day Holiday (No Class)
	Apr 4	Fri	Children's Day & Tomb Sweeping Day (No Class)
8	Apr 7	Mon	Application Deadline for 2/3 of Refunds on Tuition Payment for Deferred and Discontinued Study
	Apr 7~25	Mon	Minor Specialty Application and Review
	Apr 11	Fri	The 202nd Administrative Meeting (Participants: Department Supervisors and Student Representatives)
9	Apr 14~20	Mon	Midterm Exam Week
	Apr 16	Wed	Meeting on Total Admission Quota (Tentative)
	Apr 18	Fri	Commencement Preparation Meeting
10	Apr 21~May 16	Mon	Submission of the List of Students Enrolled in Credit Programs
	Apr 23	Wed	Student Recruitment Committee Meeting
	Apr 24	Thu	2nd-, and 3rd-Grade Class Representative Forum
	Apr 25	Fri	Educational Quality Management Committee Meeting
11	Apr 28	Mon	Tuition and Fees Deliberation Committee Meeting
	Apr 30	Wed	Student Affairs Meeting

【2024~2025 Academic Calendar of Tamkang University】

【Second Semester, 2025】			
Week	Date	Weekday	Events
	May 1~Jul 6	Thu	Graduate Degree Examinations
	May 2	Fri	Curriculum Committee Meeting
12	May 5	Mon	Earthquake Evacuation Drills and Disaster Prevention Activities for Teaching Buildings on Tamsui Campus
	May 7~20	Wed	Double Major, Minor, and Minor Specialty Application for the 2025~2026 Academic Year
	May 9	Fri	Academic Affairs Meeting Final Selection Meeting of Candidates for Teacher Education Program
13	May 12	Mon	Completion of 2/3 of the Semester (Application Deadline for 1/3 of Refunds on Tuition Payment for Defer and Discontinue Study)
	May 12~16	Mon	Midterm Course-Drop
	May 14	Wed	2025-2026 Academic Year Faculty Evaluation Committee Meeting Water Sports Day
	May 16~18	Fri	Provisional Second-Stage Interview of College Entrance Application
14	May 19~25	Mon	Teaching Performance Evaluation Week (Subjects Offered to Graduating Students)
	May 21	Wed	Final Review of Departmental Development Award
	May 22	Thu	Organizing and Training of the Protection/Rescue Team of Tamsui Campus
	May 23	Fri	Graduating Student Application Deadline for Deferred Study (Including Students with Extended Study) The 203rd Administrative Meeting (Preliminary Budget Review)
15	May 26~Jun 1	Mon	Examinations for Graduating Seniors (Undergraduates and Five-Year Architecture Program)
	May 26~Jun13	Mon	Final Grades of Graduating Seniors Available Online
	May 26~Jun 8	Mon	Teaching Performance Evaluation Week (Subjects Offered to Non-graduating Students)
	May 27	Tue	Provisional Student Recruitment Committee Meeting (Set by the Schedule of the Second-Stage Application)
	May 28	Wed	2025-2026 Academic Year Faculty Evaluation Committee Meeting
	May 29	Thu	General Affairs Meeting & 2nd Meeting of the Disaster Rescue and Prevention Committee
	May 30	Fri	Dragon Boat Festival Holiday (No Class)
	May 31	Sat	Dragon Boat Festival (No Class)
16	Jun 2~30	Mon	Application for Credit Program Certificates
	Jun 6	Fri	The 93rd School Affairs Meeting (Budget Review)
	Jun 7	Sat	Application Deadline for Deferring or Discontinuing Study (Non-Graduating Students) TKU Commencement, Make-up Workday (Compensatory Day Off on Jul 10)
17	Jun 9~15	Mon	Final Exam Week
18	Jun 16~22	Mon	Flexible Teaching Week
	Jun 16~Jul 31	Mon	Final Grades of the Second Semester Available Online
	Jun 21~22	Sat	Dormitory Check-out on Tamsui Campus
	Jun 23	Mon	Summer Vacation Begins
	Jun 23~27	Mon	2025~2026 Academic Year Student Club Leader Seminar
	Jan 24	Tue	TKU Flag Awarding Ceremony for Students Going Abroad for Study in 2025~2026 Academic Year
	Jun 25	Wed	Student Recruitment Committee Meeting
	Jul 1~Aug 31	Tue	Staff Summer Break (All Fridays Off, 4 Rotational Days Off)
	Jul 10	Thu	Compensatory Day Off (Make-up Workday on Jun 7)
	Jul 14~17	Mon	(Week Off from Jul 14 till Jul 17)
	Jul 21	Mon	Enquiry Deadline for the Second-Semester Grades
	Jul 30	Wed	Student Recruitment Committee Meeting
	Jul 31	Sat	2024~2025 Academic Year Ends

TAMKANG UNIVERSITY
HISTORY AND DEVELOPMENT

Established as a junior college of English in 1950, Tamkang University was the first private institution of higher education in Taiwan. In 1958, Tamkang Junior English College was renamed as the Tamkang College of Arts and Sciences. In 1980 it became known as Tamkang University.

The university was inaugurated in 1950, on a campus located at Chen Li Street, Tamsui. At the time, the college offered non-degree undergraduate programs in courses relevant to English language and literature. Shortly thereafter, courses related to Chinese literature, mathematics, business administration, and chemistry also became available.

However, the campus on Chen Li Street soon became too small for Tamkang's purposes, and planning for a new and larger campus in a different part of Tamsui began. This new campus was completed in 1955 and consisted of six traditional Chinese classrooms and a library. Since then, new buildings have been built almost every year to accommodate the ever-increasing number of students. These new buildings include the TKU Maritime Museum, the leading edge Chueh-Sheng Memorial Library, the Carrie Chang Fine Arts Center, the Chueh-Hsuan Classical Chinese Gardens, the Shao-Mo Memorial Natatorium Complex, the College of Foreign Languages and Literatures, the Shao-Mo Memorial Gymnasium, the Shao-Mo Memorial Activity Center, and Hsu Shou-Chlien International Conference Center.

While the new campus was still in its blueprint stage, the TKU Board of Trustees established a separate campus on Po Ai Road, downtown Taipei (1951), where English extension programs for adults, as well as regular credit courses, were offered. Subsequently, in 1965, the buildings on the Taipei Campus were donated to the government. A few years later, a new city campus was built on Kinghua Street. The new Taipei Campus consisted of two buildings, which from 1962 to 1989 served as business and management colleges during the day and continuing education centers at night.

In 1956, after Tamkang gained the right to issue bachelor's degrees, it discarded its system of non-degree programs. Up to that time, there were only five departments: English, Chinese, Mathematics, Chemistry, and Business Administration. By 1960, a five-year program for junior high school graduates was added. This program, together with other new courses in water and soil conservation heralded Tamkang's entrance into the field of engineering studies—an area in which the university has since excelled.

With the rapid increase in the number and size of its departments, Tamkang College's administrative and teaching work grew to unprecedented levels. In 1966, in order to manage the college more effectively, the board of trustees divided the school into four colleges: the colleges of Liberal Arts, Science, Engineering, and Business Administration. There was also an evening program, which soon evolved into an independent college. In 1968, the College of Business Administration became the College of Business, and later, the College of Management was established. As Tamkang's library and teaching resources expanded, it instituted an MA program in Western Languages and Literature (1969), an MS program in Mathematics (1970), and a Ph.D. program in Chemistry (1975).

Currently, Tamkang University offers 15 doctoral programs in Chinese Literature, English, Applied Sciences, Civil Engineering, Water Resources and Environmental Engineering, Mechanical and Electro-Mechanical Engineering, Chemical and Materials Engineering, Electrical Engineering, Computer Science and Information Engineering, Banking and Finance, Industrial Economics, Management Sciences, the European Studies, International Affairs and Strategic Studies, Foresight for Educational Leadership and Technology Management. There are now 46 master's programs, covering such fields as Chinese Literature, History, Information and Library Science, Mass Communication, Mathematics, Physics, Chemistry, Architecture, Civil Engineering, Water Resources and Environmental Engineering, Mechanical and Electro-Mechanical Engineering, Chemical and Materials Engineering, Electrical Engineering, Computer Science and Information Engineering, Aerospace Engineering, English, French, Japanese, International Business Management, Banking and Finance, Risk Management and Insurance, Industrial Economics, Economics, Business Administration, Accounting, Statistics, Information Management, Transportation Management, Public Administration, Management Sciences, Business and Management (English-Taught Program), TKU-QUT Dual Master Degree Program in Finance

(English-Taught Program), Big Data Analytics and Business Intelligence, Digital Business and Economics, European Studies, International Affairs and Strategic Studies, China Studies, Latin American Studies, Japanese Political and Economic Studies, Educational Technology, Educational Policy and Leadership, Educational Psychology and Counseling, Futures Studies, Curriculum and Instruction, Taiwan and Asia-Pacific Studies (English-Taught Program).

As for undergraduate programs, Tamkang has developed from a junior college offering only English courses into a comprehensive university with 8 distinctive colleges: The Colleges of Liberal Arts, Science, Engineering, Business and Management, Foreign Languages and Literatures, International Affairs, Artificial Innovative Intelligence, and Education. Tamkang University's 8 colleges are made up of 52 various departments, 46 master's programs, and 16 doctoral programs.

After 70 years of development, Tamkang now has a student enrollment of over 23,000, more than 2,000 faculty and staff, and four campuses: The Tamsui Campus, the Taipei Campus, the Lanyang Campus, and the Cyber Campus. In addition to educating undergraduate and graduate students, Tamkang University hosts a number of international conferences, facilitates cultural interaction, offers technological services to the northern Taiwan community, provides professional skills and language training courses for adults, and carries out academic cooperation and exchange programs with over 190 institutions of higher education in Northeast Asia, the Americas, Russia, Europe, and Australia. In recent years, through frequent visits, seminars, and conferences with a number of prestigious national universities in Mainland China, Tamkang University has also played a significant role in promoting academic Cross-Strait relations.

From 1950 to 1964, four scholar-educators served as President of Tamkang College. They include Ching-Sheng Chang (1950-1951), En-Chu Chu Chang (1951-1953), Hao-Jan Chu (1953-1956), and Wei-Lun Chen (1957-1964). From 1964 to the present, five scholar-educators served first as President of Tamkang College and later as President of Tamkang University. They are Dr. Clement C.P. Chang (1964-1986), Yea-Hong Chen (1986-1989), Louis R. Chow (1989-1992), Yun-Shan Lin (1992-1998), Horng-Jinh Chang (1998-2004), Flora Chia-I Chang (2004-2018), and the current President Huan-Chao Keh, who assumed his presidency on August 1, 2018. Of these scholar-educators, Dr. Clement C.P. Chang—the former president and founder of Tamkang University—deserves distinctive remarks. Due to his foresight and global perspective, Dr. Chang has played a significant role in formulating many current trends in Taiwanese education.

Tamkang University's undergraduate program provides the ideal environment for students hoping to pursue the career of their choice. They may aspire to become writers or scholars, engineers, scientists, economists, or specialists in the fields of humanities, science, technology, business, and other fields of human knowledge. To achieve this goal, students are required to undertake both classroom learning and independent research. In the classroom, students apply the latest learning techniques; while in the research labs, students invariably draw on both theory and practice.

TKU believes that physical growth and education is just as important as academic or moral education. For this reason, it requires students to take courses in physical education, military training, national history, and recreational and extracurricular activities. Through such courses, TKU hopes to instill in students a sense of responsibility and to produce students who go on to make substantial contributions to the community and the nation.

TKU graduate programs prepare graduate students for life-long careers as scholars or experts in their chosen field. Such programs encourage independent study and the exchange of ideas and research findings between professors and students. TKU believes that independent research helps to develop students' academic abilities and results in great advances in specialized human knowledge.

TKU's graduate institutes provide financial assistance to students and faculty involved in carrying out research. They encourage researchers to formulate policy for local, industrial or commercial corporations, or for the government. The graduate institutes also support the publication of research findings and sponsor national and international conferences to promote cultural and academic exchange. The university's main objectives are to embrace globalization, and promote information and future-oriented education. At its present stage of development, Tamkang aims to strengthen its competitiveness, develop a distinctive TKU culture and, above all, maintain its leading position as the foremost private university in Taiwan.

TAMKANG'S TRIPLE OBJECTIVE OF GLOBALIZATION, INFORMATION-ORIENTED EDUCATION, AND FUTURE-ORIENTED EDUCATION

Tamkang University's "Triple Objectives of Education" include globalization, information-oriented education, and future-oriented education. These objectives were formulated by the Founder of TKU, Dr. Clement C. P. Chang. Through these "triple objectives," TKU hopes to equip students with a global perspective; to train students to seek the most current information, to create the future and, to put it in Dr. Chang's words, "achieve research excellence, instructional improvement, and enhancement of social welfare."

Globalization

Since the founding of Tamkang University, we have attached great importance to internationalization. So far, our efforts have achieved very substantive results. TKU values fostering students' world views and building students' proficiency in foreign languages. At present, TKU maintains academic cooperation agreements with 280 well-known higher education institutions worldwide and in mainland China. This cooperation encompasses faculty and student exchanges, joint research projects, dual-degree programs, and mutually beneficial educational ventures. TKU sponsors the Tamkang Clement and Carrie Lectures, inviting outstanding overseas scholars to give lectures. So Far, 21 specialists have been invited. The University also encourages teachers to participate in international and cross-straits symposia or give talks. TKU also supports the departments to invite international scholars to attend the conference or to teach intensive courses.

TKU provides a high-quality and globally-oriented learning environment. It remains committed to transforming its campuses into a more fully integrated global village. TKU has established eleven-degree programs taught entirely in English and one-degree program taught in Spanish. English-taught courses total more than 800 right now. In 2024 the number of international students at TKU reached 1,457, representing as many as 61 countries. Our University is, indeed, profuse in language and cultural resources. In 2014, we took part in the Assessment Project for Internationalization which the ROC Ministry of Education held and proved to be one of the top two performing universities.

In 1994 TKU was the first University in Taiwan to launch a Junior Year Abroad program. To date, the number of students going abroad to study during their junior year is around 9,100. They will learn an entire year overseas. In addition to this, significant efforts have been made to increase the students' globally mobile learning experience; these programs include short-term off-site study, overseas training, international volunteer service, and international internships.

Information-Oriented Education

Tamkang University has long been a pioneer in information technology. Since the establishment of the Information Processing Center (now the "Office of Information Services") in 1968, Tamkang has applied computer technologies to administration, teaching, research, and services. Its mission is to cultivate outstanding and innovative digital competitiveness, with the vision to build an internationally renowned smart campus and to provide impressive and satisfactory information services.

Tamkang is the first academic institution in the world to receive the ISO 20000 certificate, the international standard for an IT Service Management System. It is also the first academic institution in Taiwan to receive the ISO 27001 certificate, the international standard for an Information Security Management System (ISMS).

Since 2020, Tamkang has strategically formed an alliance with Microsoft and Far EasTone, and continues to develop a fast and convenient campus network, powerful school information system, a multi-layer security network, and an innovative iClass learning management system. Together, these features make TKU the most attractive AI-cloud-enabled campus.

Tamkang is currently working in collaboration with mobile telecommunication businesses to set up an all-new borderless and wireless university. According to the July 2024 Webometrics Ranking of World Universities, Tamkang ranks No. 1,0874 among 30,000 universities and research institutes worldwide, No. 287 in Asia, No. 13 in Taiwan, and the 1st among domestic private non-medical Taiwanese universities.

Future-Oriented Education

The third of Tamkang University's major objectives is future-oriented education. Future-oriented education at Tamkang University dates to 1968, when Dr. Clement C. P. Chang published the article "The Future Trends of World Civilization," which emphasized the importance of "futures studies." In doing so, he introduced futures studies to Taiwan. He further enhanced the public's awareness of future studies by publishing Mandarin translations on the titles, such as *Knowledge Explosion*, *Catch the Future*, *The Limit to Growth*, and *The Birth of the World of Tomorrow*. Subsequently, a monthly report on futures studies was inaugurated by Tamkang University on January 10, 1975. Dr. Chang's *Education in the Twenty-First Century*, published in 1978, laid a solid foundation for Tamkang's educational philosophy, which emphasizes a "global perspective and future-oriented education." Most important of all, in 1980, Tamkang enhanced its status, transforming from a "college" to a "university." At the time, Dr. Chang wrote the article "Looking Forward Thirty Years in the Future: 1980-2010," which identified the academic role Tamkang should play and provided a guideline for future development. Under this direction, Tamkang's objective for future-oriented education was "to recognize the future, adjust to the future, and create the future," to enable students to recognize the changing world, confront it, and, moreover, to create their own future.

To realize this objective, Tamkang has set the following goals: (1) to strictly carry out the design and instruction of core curriculum in futures studies; (2) to make general courses future-oriented; and (3) to make future-oriented innovations in instruction, research, administration and service. Accordingly, Tamkang University has for many years offered a "Futures Studies" course open to all majors. And beginning in 1993, the university sent faculty and students to attend the annual Conference of futures research organization, such as the World Future Society (WFS) or World Futures Studies Federation (WFSF) Conference.

In order to fully carry out this policy, the Division of Futures Studies was inaugurated in 1995 under the Center for Educational Development. The Division offered undergraduate courses in five major areas: futures studies in society, technology, economy, environment, and politics. It also designed several graduate courses related to futures studies. In 2000, the Division was elevated to the status of 'Center', and became the Center for Futures Studies. The Center publishes a quarterly Journal of Futures Studies, actively orders and exchanges essays, journals, and books, coordinates scholarly dialogue through international conferences, workshops, and websites, and co-sponsors seminars with WFS, WFSF, and the Foundation for the Future (FFF). The Institute also received a four-year research grant from the Ministry of Education to integrate undergraduate futures-related courses into a futures research program during 2001 and 2005. Most importantly, in Fall 2002, the Graduate Institute of Futures Studies was established. Its goals are: (1) to equip students with the ability to perform environmental scanning, scenario building and visioning within an integrated context of social change; (2) to shape students into future leaders who possess critical and innovative thinking in the fields of education and social sciences; (3) to enhance students' ability as policy and planning experts with knowledge of local and global issues. In 2015, the Center for Futures Intelligence and Research (C-FAR) was established, with missions to: (1) advocate futures thinking to the general public and organizations, (2) help enhancing organizations' capacity in strategic foresight, (3) improve ways of application of futures theories to practices in business, government, education sectors, (4) provide consultancy services in strategic futures, and (5) cooperate with various sectors to create preferred futures for Taiwan and the world. In 2021, the Graduate Institute of Futures Studies is merged with two other Masters in Education programs into the Department of Education and Futures Design. Based on these visionary efforts, Tamkang University was granted "WFSF Futures Award" in 1999. Moreover, Tamkang University and President Flora Chia-I Chang received "Hawaii Research Center Award for Excellence and Innovation in Institutional Foresight" in 2016.

In 2021, the transition of futures studies education at Tamkang University (research, courses and programmes) from the Graduate Institute of Futures Studies (GIFS) to the Department of Education and Futures Design in the College of Education. It was evident that this transition indicated the maturity of the programmes in that they were more closely aligned to the market, graduate outcomes and employability pathways. Futures Studies education at Tamkang University takes place in primarily four areas: a) core university-wide courses, b) an undergraduate BArts (Education Design) degree, c) a postgraduate Master of Arts (Futures Studies) degree and d) research activities and publishing (Journal of Futures Studies). Further, the institutional dedication to futures studies education was evident across the university in its branding, publications and a dedicated museum (Dr. Clement C. P. Chang's Memorial Hall) recognizing the founder and his affinity with Futures Studies.

In addition to Tamkang University's triple objectives of globalization, information-oriented education, and future-oriented education, TKU is currently re-engineering its "Fifth Wave" to realize its ultimate goal of becoming a first-class international university.

ADMINISTRATIVE OFFICES AND LIBRARY

The Board of Trustees

The Board of Trustees of TKU acts as the legal agent of the University. The Board holds the authority and responsibility to ensure the fulfillment of the University's mission. They are ultimately responsible for the financial health of the University by setting policies and controlling the budget, as well as overseeing and approving all university functions. The Board is, by law, a governing body of the University; it selects a President according to the approved rules, and the President is responsible for the daily operations and management of the University vested in him. The Structure, Composition, Governance, Authority, and Responsibilities of the board are well-defined and documented.

Office of the President

The President is the chief executive and chief academic officer of the university. The President has full responsibility under the Board of Trustees for long-term policy as well as day-to-day decision-making. The Office of the President is located in the Administration Building, Tamsui Campus.

Office of the Vice President for Academic Affairs

The Vice President for Academic Affairs is responsible to the president for all matters related to teaching and research. The vice president oversees the operation of Tamkang's nine colleges, as well as the Office of Research and Development, the Office of Physical Education, and the Office of Military Education and Training.

Office of the Vice President for Administrative Affairs

The Vice President for Administrative Affairs is responsible for each aspect of Tamkang University's administrative functions, including academic affairs, student affairs, general affairs, human resources, finance, the library, information services, continuing education, alumni services and resources development, Administrative Office of Lanyang Campus. The Office of the Vice President for Administrative Affairs is located in the Business & Management Building on the Tamsui Campus.

Office of the Vice President for International Affairs

The Vice President for International Affairs supervises the operations related to international exchange and education, and is the chairperson of the Internationalization and International Exchange Committee. The Vice President for International Affairs also heads the Cross-Strait Exchange Task Group. The Vice President for International Affairs essentially guides the day-to-day performance of the Office of International and Cross-Strait Affairs. The office's primary duty is to promote international academic cooperation for the faculty and students. This office is located in the Ching-Sheng Memorial Building on the Tamsui Campus.

Office of the Secretariat

The Secretariat is responsible for the secretarial functions and public relations of the university. The Office of the Secretariat also provides staff services to the TKU president and vice presidents. The Office of the Secretariat is located in the Administration Building on the Tamsui Campus.

Carrie Chang Fine Arts Center

The Carrie Chang Fine Arts Center was established in the year 2000. It is a two-story exhibition hall that is frequently home to both local and international art displays. The center consists of several subsidiary bodies: The Carrie Chang Music Hall, the Research Office of Chinese Calligraphy, and the TKU Maritime Museum. The Maritime Museum has a collection of more than sixty model ships from fifteen countries, ranging from 15th~17th century ships to futuristic superconductor-powered vessels.

Tamkang University founded the arts center to elevate the standard of artistic education at Tamkang, to increase artistic appreciation and interest by means of exhibitions, performances, instruction, promotion, collection, and to facilitate exchange among teachers, students, society, and the international community, with the hope of integrating art with education; the campus with the community.

Office of Quality Assurance and Audit

The Office of Quality Assurance and Audit is responsible for assuring and enhancing the quality of academic and administrative excellence. The Office administers the following assessments: Institutional Accreditation, Program Accreditation, Teaching Assessment, University International Ranking and academic and administrative total quality management. The Office also organizes the Academic and Administrative Innovation Conference, Total Quality Management Conference, Quality Control Circle Competition, and Education Quality Management Committee. Moreover, systems and activities of Internal Audit are designed and implemented by the Office to ensure the effectiveness and continuous improvement of university operations.

Center for Institutional Research

The Center for Institutional Research is devoted to the application of Total Quality Management for continuous improvement; and offers timely, adequate, and evidence-based analysis and research as references for University self-evaluation and decision-making. It does this through the collection of institutional data from the teaching, research, student learning, as well as administrative departments. The main function of the Institutional Research is to provide directions for research schemes that are in accordance with trends of higher education development, as well as to support University learning development and decision-making.

Center for English as a Medium of Instruction

The Center for English-Medium Instruction (EMI Center) is at the forefront of promoting English language education in Taiwan. Our primary mission is to facilitate a smooth transition to using English as the medium of instruction across diverse academic disciplines. We provide extensive support services, including language training, curriculum development, and pedagogical resources, to enhance both the English proficiency of our students and the teaching capabilities of our faculty. Through our dedicated efforts, we strive to foster international communication and equip our students for success in a globalized environment.

Office of Research and Development

The Office of Research and Development was established to help spur national development and advance the quality of research conducted by TKU faculty. The Office deals with all administrative aspects of faculty research, including research applications, signing of contracts, bridging on-site research capabilities and external industries, and budget formulation for full-time TKU faculty. It also helps promote research results and apply for intellectual property rights. As of August 2022, the Office consists of 11 research centers.

Center for Holistic Education

In order to continue Lanyang Campus’s unique characteristic of holistic education, and its continuous promotion at Tamsui Campus, the Center for Holistic Education was established in 2023 with the aim of implementing plans and policies such as "all English teaching, all studying abroad in the junior year of college, and all residential campus." It also plans to implement the whole-person development curriculum of the Holistic Education bachelor's program, study abroad counseling, and all residential campus activities to cultivate high-quality professionals with international competitiveness, social participation, interpersonal interaction, and other strengths.

Office of Physical Education

The Office of Physical Education is responsible for the design and teaching of physical education courses, sports competitions for teachers and students, and the management of sports facilities. Students are also encouraged to organize teams for intercollegiate competition or for intramural sports such as basketball, baseball, table tennis, tennis, soft tennis, badminton, soccer, volleyball, golf, taekwondo, fencing, billiards, judo, kendo, track & field and swimming.

Office of Military Education and Training

The office of Military Training provides military instructions, also counseling services and assistance to students in times of need and in emergencies. The course is two-hour noncredit taught military training lessons and prerequisite for all freshmen. Elective military courses are also provided for sophomores, juniors and seniors. The training involves lectures and drills of military basic contents.

Office of Academic Affairs

The Office of Academic Affairs provides both students and teachers with academic support services. These include services related to student enrollment, applications for transcripts and certificates, and support with issues related to teaching and research. The Office is divided into several sub-offices based on administrative function. These include the Center for Registration-Curriculum Development, Center for Teacher Professional Development, Center for Admission Strategies and The Center for General Education and Core Curriculum (CGECC).

Office of Student Affairs

The Office of Student Affairs is responsible for processing students' requests for academic leave, helping students apply for insurance, and dealing with all matters related to student associations. It also provides student counseling services on mental health and academic studies, and organizes on-campus student housing. The 'Student Office' (as it is commonly referred to) is divided into separate sections located throughout the Tamsui Campus.

Office of General Affairs

This office is responsible for overall campus planning and management of administrative affairs. The Office of General Affairs is committed to creating sustainable campuses that do more than just satisfy the requirements for teaching, research, learning, and life guidance. Core tasks for this office include maintaining campus health and safety, ensuring energy conservation and carbon reduction, and other related services that require efficient and effective delivery.

Top priorities in the 2022-2023 academic year are to ensure the sustainable management of current resources while introducing new and innovative campus features, implementing more efficient management practices, overseeing improvements in personnel management and service provision, and enhancing the overall aesthetics of each Tamkang campus.

Office of Human Resources

The Office of Human Resources (HR) provides professional and technical support in human resources development by helping employees enhance their personal strengths and creating a work environment that allows talented personnel to grow and contribute at the highest possible level. This is achieved by providing employees with information, programs and services that support employees' professional and personal needs both at work and at home. For example, the Office provides employees with expertise and information on recruitment, insurance, professional growth and retirement benefits.

Office of Finance

The Office of Finance is responsible for managing the university budget, monitoring financial operations and maintaining accounting records. The functions carried out by the office are able to help

all departments to utilize resources efficiently and effectively, in order to enhance their performance. This, in turn, has facilitated the steady development of Tamkang University.

Chueh-Sheng Memorial Library

The Chueh-Sheng Memorial Library provides information resources and services that facilitate the processes of learning, teaching, and research. In addition to the main library, the university library has three branches, located respectively on the Taipei Campus, the Lanyang Campus and in the Chemistry Building on the Tamsui Campus.

At present, the university library stores more than 1.34 million printed volumes; 2.93 million electronic books; 73 thousand periodical titles (including electronic journals); 140 thousand non-book items; and 453 electronic databases. All materials are managed by the cloud-based library services platform named Alma. In addition, Gallery of Tamkang History & The Founder Dr. Clement C. P. Chang's Memorial Hall were established in 2020 to collect important documents and cultural relics of the institution.

Office of Information Services

The Office of Information Services (OIS) offers computing and networking services to university administration, instructors, students, and off-campus agencies. It comprises the Chief Information Office (CIO) and several sections, including the Project Development Section, the Education Support Section, the Administration Information Section, the Network Management Section, the Advanced Technology Section, and the Center for Distance Education Development.

The OIS has applied computer technologies to administration, teaching, research, and services. To establish the most appealing information-centric campus, it ensures a secure, reliable, and rapid information environment, thereby unifying information capabilities and applications on campus. The office is also partnering with global companies to develop a cutting-edge cloud-based smart campus.

Office of Continuing Education

To promote national development, meet the needs of society, and enhance cooperation between academia and industry, on August 1, 2003, Tamkang University merged the Extension Education Center and the Public Service Center to create the College of Continuing Education. The new college not only provided courses for on-the-job students, but also offered bachelor and master credit courses. Then in August, 2005, the college was changed its name to become the Division of Continuing Education. In August 2019, it was amended to the Office of Continuing Education. The Office composes of five centers: The In-service Center, the Extension Center, the License Center, the Chinese Language Center, and the Japanese Language Center.

Office of Alumni Services and Resources Development

The Office of Alumni Services and Resources Development was established in 1995 to meet the demands of a rapidly changing society, to promote closer relations with alumni, and to raise funds and advance TKU’s academic standards. The Office, which was known as the “Office of University Development” until August 2001, is comprised of the Alumni Liaison Section and the Fundraising Section. For organizational restructuring, unit mergers are not grouped from August 2018.

As of July 2023, the total number of Tamkang alumni has reached 310,000. Tamkang graduates have successfully organized up to 151 alumni associations based on departments and graduate institutes, regions, businesses, and other venues.

Office of International and Cross-Strait Affairs

The Office of International and Cross-Strait Affairs is responsible for all aspects of exchange and interaction between students, faculty and staff from TKU and its overseas partner institutions. The

Office consists of three subsidiary bodies: The International and Cross-Strait Exchange Section, the International and Mainland Student Guidance Section and the International Foundation Program. The International and Cross-Strait Exchange Section deals with matters related to exchange between TKU and its partner universities. The International and Mainland Student Guidance Section provides study assistance to international, overseas Chinese, and Mainland Chinese students. The International Foundation Program provides a 1-year Chinese learning program and 4-year department courses.

International Exchange Committee and the Cross-Strait Academic Cooperation Committee are chaired by the Vice President for International Affairs. It supervises the Office of International and Cross-Strait Affairs and oversees various facets of international interaction between TKU and its partner universities abroad.

Office of Lanyang Campus Administration

In Lanyang Campus was approved by the Ministry of Education to establish the "College of Precision Healthcare" in 2023, and established the "Graduate Institute of Senior Citizen Health Care Management" (contains: Intelligent Management Division, Precision Health Division); in 2024, will establish the “Graduate Institute of Intelligent Healthcare Industry” (contains: Intelligent Healthcare Division, Gerontechnology Division). We cultivate students' ability to comprehensive the care process for the elderly group, and have the literacy for the management of the elderly care industry. And be able to use different AI tools and industry expertise to meet the needs of development and management strategies.

STUDENT LIFE

All new students are required to attend orientation programs before their coursework begins in order to better understand the history, organization, personnel, facilities, and policies of the university. The orientation involves a daylong series of talks by senior administrative personnel and faculty members.

The university has adopted a tutorial system in which a full-time teacher is invited by the Office of Student Affairs to serve as an advisor to groups of students. He or she helps them in matters of personal, moral, and academic development as well as other aspects of daily life. In order to gain a better understanding of the students, each advisor organizes a schedule to meet with students on a regular basis and then reports to the Office of Student Affairs at the end of each semester.

The Student Health Clinic of Tamkang University is located in Tamsui Campus. It provides students with convenient and high-quality medical services. It is open from Monday to Friday, 8:00-17:00 and 18:00-21:00. Medical care is provided free of charge for TKU students, staff and faculty members.

Accommodation

Sung-Tao Hall 1, 2, 3 are on campus dormitories for females only. These three buildings are made of concrete with six floors in total (no elevator included), the material of the roof is made of fireproof building materials. Every room has temperature detectors and fire alarms that are examined every half year, with fire drills held every September. each room can house two or four students. Each room contains beds (no mattress included), desks, chairs, desk lights, closets and window shades for students to use. To increase living standards, each room's air conditioner uses top up air conditioning cards. The public area includes lounges, study rooms, washing area (includes washing machines, dryers and dehydrators which are activated by coins), and also provides fridges, microwaves, ovens, hot plates, rice cookers, drinking fountains and mailboxes to fulfill student's everyday needs.

Sung-Tao Hall 4 and 5 are newly built suites for female students that can house up to ten students. Hall 4 has four floors while Hall 5 has five floors (no elevator included), the material of the roof is made of fireproof building materials. Every room has temperature detectors and fire alarms that are examined every half year, with fire drills held every September. each suite includes sofas, dining tables, microwaves, hot plates and fridges; every suite in Hall 4 includes washing machines, dryers, dehydrators and space to hang clothes to dry. Each room includes beds (no mattress included), desks, chairs, desk lights, closets, sheer shades, Wi-Fi and phones, air conditioners, and bathrooms for students to use. To increase living standards, each room's air conditioner uses top up air conditioning cards. The public areas includes multiple use areas (coffee bar counter, study rooms and learning areas), smart vending areas, administration offices, reading lounges, small dancing rooms, self service washing area (includes washing machines, dryers and dehydrators which are activated by coins) and a patio. Each suite has its own mailbox. There is a path that connects the two halls together.

The Tamkang International Hall Dormitory is located about 15 minutes (on foot) from the Tamsui Campus and is a 14-floor building (it houses female and male students separated by floors). Near the dormitory there are many restaurants, as well as banks, a post office, convenience stores, supermarkets and community libraries.

The dormitories have a capacity of 2,393 female students and 735 male students respectively. Please check our website for information relating to housing. Sung-Tao Hall hires residential assistants who are organized in shifts to ensure the security of female students in the dormitory. Tamkang International Hall offers 24-hour protection with security personnel at the lobby.

Extracurricular Activities

The university regards extracurricular activities as an integral part of the total educational experience. Students are therefore encouraged to participate in the widely diversified clubs and associations organized on campus.

To provide a venue for extracurricular activities, the university set up a Student Activity Center on the Tamsui Campus in 1964. This center is home to most student activities and provides office space for each officially registered student association.

There are 178 student associations and clubs at Tamkang University. These student associations and clubs can be classified into nine main categories: academic and literary groups, athletic clubs, recreational clubs, voluntary clubs, alumni associations, departmental associations, religious associations, musical clubs, and autonomous organizations. Popular activities include speech contests, intramural and intercollegiate sports, field trips, lectures, movies, musical performances, drama performances, festival exhibitions, picnics and alumni events.

In 2011, extracurricular activities became a compulsory component of the curriculum. Through informative classes and practical activities held by clubs and societies, students learn important life skills, such as the value of teamwork and the spirit of sacrifice and responsibility. They will also receive training in a number of areas, with the aim of refining students' ability to plan, organize, communicate, coordinate, make decisions, assess options, and solve problems.

ADMISSION AND FINANCIAL AID

Requirements for admission to Tamkang University vary based on the nature of the program for which one wishes to apply. The university only admits applicants who provide sufficient evidence of their educational background, academic abilities, possible work experience, and interests.

Undergraduate Admissions

Local and Overseas Chinese Students

Before being admitted to study at TKU, local students undergo a screening process that involves a review of applicants' credentials and examination results. Applicants hoping to study at TKU should fulfill one of the following criteria: (a) a high school graduate or equivalent; (b) a 3 or 5-year junior college graduate.

Foreign nationals of Chinese descent may apply for admission with the University Entrance Committee for Overseas Chinese Students or consult the Taiwan Representative Office in their country of residence. They may also apply for direct admission to TKU through the Center for Admission Strategies, Office of Academic Affairs.

International and Mainland Chinese Students

International students may apply for direct admission to TKU through the Center for Admission Strategies, Office of Academic Affairs. Applicants must hold at least a senior high school diploma and have basic Chinese language skills. Application guidelines and important dates are available on the university website. Mainland Chinese students may apply for admission with the University Entrance Committee for Mainland Chinese Students.

Transfer Students

Each year, Tamkang accepts a fixed number of transfer students into its undergraduate program. Local students and overseas Chinese students who have completed at least one year of study at another recognized college or university, or who have graduated from a three or five-year vocational college, are eligible to apply for transfer into programs related to their previous training. Admission is highly selective and based on scores earned in the transfer examination held each July at TKU.

International students may apply directly in the third round of application of Fall Semester with the Center for Admission Strategies or Registration Section of the Office of Academic Affairs for transfer into a department related to their previous specialization. After their first semester, all TKU freshmen may apply to transfer to another department. However, admission is very competitive; only those who pass the transfer exam with high scores will be admitted.

Graduate Admissions

Tamkang graduate programs offer both doctoral degrees and master's degrees in various fields. Tamkang currently offers fifteen Ph.D. degrees in Chinese, English, Management Sciences, International Affairs and Strategic Studies, Computer Science and Information Engineering, Water Resources and Environmental Engineering, Civil Engineering, Electrical and Computer Engineering, Banking and Finance, Industrial Economics, Mechanical and Electro-Mechanical Engineering, Chemical and Materials Engineering, and European Studies, Doctoral Program in Foresight for Educational Leadership and Technology Management, Doctoral Program in Applied Sciences. Master's programs are available in over forty-fields, including liberal arts, science, engineering, business, management, foreign languages and literatures, international studies, education and precision healthcare.

Local and Overseas Chinese Students

Local students who apply for admission to graduate programs (both Master and PhD) should sit for written and oral examinations. Only those who pass the examinations with high scores are admitted. The written examination usually includes English, Chinese, and other subjects related to each program.

Overseas Chinese students who graduated from a Taiwanese university can choose either to take the entrance exams with other local Taiwanese students or apply for admission with the University Entrance Committee for Overseas Chinese Students.

Master's Programs

Applicants must be graduates from an accredited university in a field related to the graduate program concerned or must have completed coursework demonstrating knowledge equivalent to a bachelor's degree in a related field.

Applicants who are graduates from three-year junior colleges should have self-studied or have been employed in a position related to their respective studies for at least two years.

Applicants who are graduates from two-year or five-year junior colleges must have self-studied or been employed in a position related to their specific studies for at least three years.

Ph.D. Programs

Applicants must hold a master's degree in related fields.

Applicants must submit a master's thesis and other related publications.

M.A. candidates may directly proceed to the doctoral programs should they meet the following conditions: (a) They have completed one year or two years of coursework with excellent standing and their academic records must be rated in the top 30% of their respective classes. (b) They must be approved by the departmental/graduate institute committee and, ultimately, by the university president.

Bachelor's degree holders who are graduates from departments requiring six years to graduate can apply if they have received training in their specialized fields for over two years and can submit a thesis equivalent to a master's thesis.

International and Mainland Chinese Students

International students who intend to pursue graduate studies leading to a master's degree or a doctoral degree must hold a bachelor's degree or a master's degree respectively. Applicants must file an application directly through the Center for Admission Strategies of the Office of Academic Affairs. Mainland Chinese students must apply for admission with the University Entrance Committee for Mainland Chinese Students.

Exchange Students

Students from Tamkang's partner institutions who wish to study at Tamkang University as exchange students should apply directly to the International Office at their respective universities.

Scholarships and Financial Aid

Over 200 scholarships and financial subsidies contributed by public and private organizations, corporations, academic institutions, associations, and individuals are offered to TKU students each year. These scholarships differ in nature. Some are offered to students in specific academic fields or from certain areas around Taiwan. Others are set up specifically for foreign or overseas Chinese students. In general, scholarships and other financial aids are offered only to underprivileged students with consistently outstanding grades and good behavior.

Student internships are occasionally offered in the form of part-time jobs to help underprivileged students with their tuition and living expenses. The jobs, which vary in their nature and requirements, are offered on a competitive basis or via examination. Applications should be made to the Office of Student Affairs.

A student loan system has been established to help students pay for university tuition, books, dormitory fees and living expenses. It may differ from other types of loans in that the interest rate may be substantially lower and the repayment schedule may be deferred while the student is still studying. For more information about student loans, please direct your enquiries to the Office of Student Affairs.

TUITION AND FEES FOR THE 2024-2025 ACADEMIC YEAR

Tuition and academic fees for each academic year are stipulated by the Ministry of Education of the Republic of China. The following fees for the international and Mainland Chinese students are subject to change accordingly.

Undergraduate Student Tuition Fees

Colleges	Tuition per semester (NT$ per semester)	Miscellaneous Fees (NT$ per semester)
Liberal Arts Education International Affairs Foreign Languages and Literatures	39,000	17,260
Science College of Precision Healthcare	40,800	24,310
Engineering Artificial Innovative Intelligence	40,800	24,860
Business & Management	39,000	18,110

Departments	Tuition per semester (NT$ per semester)	Miscellaneous Fees (NT$ per semester)
Mass Communication	40,800	24,860
Information and Communication	40,800	24,860
Information Management	40,800	24,860

Graduate Student Tuition Fees

Colleges	Tuition per semester (NT$ per semester)	Miscellaneous Fees (NT$ per semester)
Liberal Arts Education International Affairs Foreign Languages and Literatures	39,975	17,685
Science College of Precision Healthcare	41,820	24,925
Engineering Artificial Innovative Intelligence	41,820	25,490
Business & Management	39,975	18,560

Departments	Tuition per semester (NT$ per semester)	Miscellaneous Fees (NT$ per semester)
Mass Communication	41,820	25,490
Information and Communication	41,820	25,490
Information Management	41,820	25,490

Items	Other Fees (NT$ per semester)
Physical Education	2,700
Military Training	2,700
Computer Laboratory	930

UNIVERSITY ACADEMIC REGULATIONS

Grading System

Tamkang University uses a numerical grading system. The scores and their alphabetical equivalents are as follows: 80-100 (A; GPA: 4), 70-79 (B; GPA: 3), 65-69 (C; GPA: 2), 60-64 (D; GPA: 1), 59-0 (F; GPA: 0). The passing grade is 60 for undergraduate students and 70 for graduate students.

Guidelines for Grading

1. After being submitted to the Office of Academic Affairs by the course instructor, students' grades may no longer be changed.

2. If students have doubts surrounding their semester grade, they must submit a written letter to the Office of Academic Affairs within three weeks after the grades have been posted on the internet for viewing. If a correction to the submitted grades is required, the course instructor must provide a written explanation accounting for the error, and attach the course grade sheet as well as any other related documents or information. The submission will be reviewed by the Office of Academic Affairs in accordance with related regulations.

Guidelines for Credit Offering

1. One credit point is awarded for each hour of class time taken per week. For example, if the class is two hours per week, the course will be worth two credit points.

2. Some required courses credit is not count in graduation credit , for example, Physical Education.

3. The university grants transfer credits depending on individual department and institute guidelines. The transfer of credits will be reviewed, and credits will be awarded if the courses previously taken by the applicant are similar to those offered by Tamkang University. Each department or institute may individually determine how many transfer credit points should be awarded.

4. All freshmen, sophomores, juniors, and Architecture seniors are expected to enroll in at least 12 credits. Freshmen are not permitted to enroll beyond the maximum number of 27 credits, while others are not permitted to enroll beyond the maximum number of 25 credits. All seniors and Architecture 5th graders are expected to enroll in at least 9 credits and not permitted to enroll beyond the maximum number of 25 credits. For those whose GPA is over 4 (or 80 points and above), additional courses of up to six credits per semester may be granted. Graduate students may individually decide how many courses to take per semester and no less than one subject. The maximum number of credit points for graduate students is 15 per semester.

Graduation Policy

1. The duration of bachelor degrees is four years (five years for Architecture). Undergraduate students may delay graduation for no more than two years.
2. The duration of master degrees is 1-4 years; while doctoral students will take 2-7 years to complete their Ph.D.

Total Credits Required for Graduation

Undergraduate Programs

Students are required to complete at least 128 credits (for Architecture majors, 143 credits are required) to be eligible for graduation.

Those who meet all of the following conditions may graduate one semester or one year early:

(1) Completion of all required credits (compulsory and elective);
(2) Grades average above 80 each semester;
(3) Grade average for behavior/conduct exceeds 80;
(4) Overall performance within Top 10% of academic department; school transfer students based on their transferring years.
(5) Meeting all university, college and department requirements**.**

Graduate Programs

1. Master's candidates must complete at least 24 credits, excluding a Master's thesis, to graduate.

2. Ph.D. candidates must complete at least 18 credits, excluding a doctoral dissertation.

Dismissal

Students are subject to dismissal from the university under the following conditions:

Graduate Students

MA and Ph.D. students are subject to forced discontinuation of studies under the following conditions:

(1) MA program students whose 4-year course of instruction and Ph.D. program students whose 7-year course of instruction are about to expire, and who fail to take all the required courses and earn all the necessary credits.

(2) Students who are permitted to study for a Ph.D. degree directly and who fail to take all the required courses and earn all the necessary credits when their 7-year course of instruction is about to expire since the time they entered the Ph.D. program.

(3) Ph.D. candidates who fail twice in their comprehensive examinations.

(4) Students who fail in their degree examination but are not qualified to take it again, or they are qualified to take it again but fail in it again.

(5) Entrance qualification or studies of instruction is forged or cheated.

(6) Students who have been verified to have plagiarized or cheated in the submission of a dissertation, innovative work, exhibition, performance, or a written or technical report, for which they received a graduate degree.

Language Laboratory -language majors -non-language majors	 850 640
Student Life Insurance (per semester)	225
E-Learning Computer Laboratory fee (per semester)	1,540

In-Service Student Tuition and Fees

Master's Program

Colleges	Credit Fees (NT$ per credit per semester)	Miscellaneous Fees (NT$ per semester)	Thesis Advisement Honorarium (NT$ pay once in the first semester of the second year)
Liberal Arts Education International Affairs Foreign Languages and Literatures	5,900	20,380	6,000
Science College of Precision Healthcare	6,525	21,130	6,000
Engineering Artificial Innovative Intelligence	6,525	21,130	6,000
Business & Management	8,260	23,210	6,000

Others

Teacher Education Program

1. Regular students:

$1,350 per credit subject to the fees set for students in the College of Liberal Arts.

2. Delay of Graduation:

A. Those who take more than 9 credits in a semester have to pay full tuition as required by their specific departments or graduate institutes (including those in the Teacher Education Program).

B. Since 2014-2015 academic year enrolled graduate students, those who take less than 10 credits in a semester have to pay extra miscellaneous fees NT$4,500.

JUNIOR YEAR ABROAD AND INTERNATIONAL EXCHANGE STUDENT PROGRAMS

A Pioneer in Overseas Study Programs

Tamkang University was the first tertiary institution in Taiwan to introduce a Junior Year Abroad Program. In July 1992, when the Ministry of Education (MOE) put forth regulations for undergraduates studying abroad, Tamkang students had already been participating in short-term seminars overseas. Due to Tamkang's tireless efforts, in 1994 the MOE finally approved Tamkang's petition to permit male undergraduates to spend their junior year studying abroad. Under this program, the credit points earned by students at their host universities were transferred back to their undergraduate degrees at Tamkang University. This initiative signaled a milestone in Taiwan's policy of higher education.

Each year since 1994, Tamkang University has sent juniors overseas to undertake a year of study at one of TKU's sister universities. To date, around 9,100 students from Tamkang University have studied at Tamkang's overseas partner universities under the Junior Year Abroad Program.

A Brief History of Tamkang's International Exchange Student Programs

Tamkang University's International Exchange Program enjoys formal academic ties with over 280 partner universities around the world. Under the International Exchange Program, Tamkang has sent undergraduate, master and doctoral candidates to study or conduct research at a variety of overseas universities, such as California State University—Sacramento & Long Beach, Suffolk University, Winona State University, and many others.

Conversely, about 1,500 overseas students are now studying at Tamkang University, either as exchange or self-enrolled fee-paying students. The university provides international students Chinese language classes to help such students gain proficiency in Mandarin and prepare for regular university classes. Additionally, Tamkang offers several courses specifically designed for international students on Chinese culture, history, language, and aesthetics, and offers more than 800 courses taught in English, to meet the demands of both local and international Tamkang students. Thanks to its continued efforts over the past decades, Tamkang University is now an international university that transcends geographic and ethnic boundaries, a miniature "global village."

TAMKANG RESEARCH CENTERS

CHAMPION INCUBATOR CENTER

Director: Po-Shen Pan（潘伯申）

The Champion Incubator Center (CPIC) assists start-ups and small companies by offering business and technical support from university experts and industry consultants. It also leases office space upon request. In addition, the CPIC encourages faculties to work on joint research projects funded by government agencies and large industrial sponsors. Research findings are further modified toward practical solutions and delivered as commercial products. The scope of the research includes, but is not limited to, the following:

1. Multimedia, information technologies and software applications
2. Robotics, artificial intelligence (AI), and manufacture automation technologies.
3. Chinese E-commerce and internet information services
4. Cultural and creative industries
5. Biotechnology and environmental technologies
6. Marketing strategy analysis and management consultation
7. Enterprise Digital Transformation
8. Enterprise ESG related transformation

RESOURCE CENTER FOR THE VISUALLY IMPAIRED

Director: Tzong-Ru Tsai（蔡宗儒）

Tamkang University began to enroll visually impaired students in 1969. For over four decades, TKU has dedicated itself to the development of a friendly learning environment for the visually impaired. The staff members at the Center of Resources for the Blind have successfully developed adaptive computer systems, established the “Barrier-Free World Wide Web system” (the Chinese-based e-library for the visually impaired), and produced textbooks, journals, and magazines in Braille.

The Center’s objectives include:
1. Providing academic, vocational, emotional, and life assistance to students with disabilities;
2. Developing and promoting a comprehensive information system for the blind;
3. Establishing the Assistive Device Center for college students with visual impairments;
4. Providing other related services.

WIND ENGINEERING RESEARCH CENTER

Director: Jen-Mu Wang（王人牧）

Established in 1998, the Wind Engineering Research Center at Tamkang University (WERC) is the leading wind engineering research institute in Taiwan. The goal of WERC is to pursue academic excellence and provide solutions to engineering problems. Its research team covers a wide range of areas in the field of wind engineering, such as tall building aerodynamics, cable supported bridges, large span roof structures, mitigation of wind-induced vibration, indoor and urban ventilation, wind tunnel testing,

Computational Fluid Dynamics (CFD) simulation, full scale monitoring, information technology applications, and wind code developing.

Over the past two decades, the center has conducted numerous integrated research projects for government agencies, such as the National Science and Technology Council (NSTC) and the Architecture and Building Research Institute (ABRI), and held international conferences, workshops, and seminars. In terms of engineering, aside from conducting a great number of wind tunnel tests for pedestrian comfort evaluation and design wind load, the center has also developed a user-friendly system that conforms to current Taiwanese wind code practice. This wind code system has been made available for free public use, and has received positive feedback from industry experts. On the other hand, the results of academic research not only help to boost the reputation of academic staff, but also bring benefits to students and enhance the overall reputation of a university. The long-term objective of the center is to become a world-renowned wind engineering research institute and a first-class solution provider for the local wind engineering community.

RESEARCH DEVELOPMENT CENTER OF CONSTRUCTION LAW (CLC)

Director: Su-ling Fan（范素玲）

The Research Development Center of Construction Law (CLC) was established in August 2010. The center offers consulting services based on demand from industry, government, and academia. The services rendered by CLC include:

1. Construction and legal-based consulting services
2. Construction technology evaluation services
3. Construction and legal education training and promotion
4. Handling of forensic examination for court-appointed engineering dispute affairs
5. Big data, BIM API, AI and VR related projects.

THE INTELLIGENT AUTOMATION AND ROBOTICS CENTER

Director: Ching-Chang Wong（翁慶昌）

Established in 2011, the Intelligent Automation and Robotics Center is an interdisciplinary research center that employs specialists from the TKU departments of Electrical Engineering, Mechanical and Electro-Mechanical Engineering, and Computer Science and Information Engineering. The goals of the center are to undertake projects in accordance with the national development strategy for intelligent automation, to integrate resources efficiently to conduct research and development in automation and robotics, and to enhance Taiwan’s international competitiveness in the automation and robotics industry. The center’s major tasks include: conducting research and development in the field of intelligent automation and robotics, carrying out personnel training, strengthening ties between Tamkang and related industries, promoting academic exchange and cooperation at home and abroad, and providing consulting services for the design and development of industrial automation and robotics. Research efforts involve combining the domain knowledge of mechatronics, robotics, Artificial Intelligence (AI), sensing and perception, machine learning, machine vision, human machine interfaces, embedded systems, information control and other knowledge to design new technologies in the area of automation and robotics. The center’s vision is to partake in long-term collaboration with the National Science and Technology Council (NSTC), the Ministry of Economic Affairs, and related industry partners to commercialize newly discovered technologies and to produce robots that will prove useful in the real

world. The center intends to promote these new technologies in new markets, thereby creating a vehicle for Taiwan's future economic growth.

TRANSPORTATION AND LOGISTICS RESEARCH CENTER

Director: Chao-Che Hsu（許超澤）

With the emerging information and communication technologies applied to transportation and logistics, Transportation and Logistics Research Center was established in 2014 to undertake projects in accordance with the development strategy for intelligent transportation and logistics systems worldwide, to integrate resources efficiently to conduct international or domestic research and development among government, universities and industries. The center's major tasks include: conducting research and development projects in the field of intelligent transportation and logistics systems, carrying out educational training, strengthening linkages among government, Tamkang and related industries, promoting academic exchange and cooperation at home and abroad, and providing consulting services. Research efforts involve combining the domain knowledge of transportation, logistics, internet of things (IoT), cloud computing, big data and other domain know-how to provide useful tools for existing and future transportation and logistics systems. The center's vision is to partake in long-term collaboration with the Ministry of Transportation and Communications (MOTC), the Ministry of Science and Technology (MOST), the Ministry of Economic Affairs (MOE) and related industrial partners to commercialize newly deployed technologies in the field of transportation and logistics.

CENTER FOR MURAKAMI HARUKI STUDIES

Director: Chiu-Kuei Tseng（曾秋桂）

Haruki Murakami is a contemporary famous writer of Japan known globally. He has been a Nobel Prize candidate repeatedly to the present. Although he has not received the award yet, he is a writer representing Japan. The members of this project, who belong to the Department of Japanese at Tamkang University, have established the "Haruki Murakami research laboratory" since 2011 and contributed to promoting Haruki Murakami research in Taiwan by organizing twelve Haruki Murakami international symposiums. Although our laboratory is not yet twelve years old, the outcomes of our academic activities have been highly recognized and evaluated among various academic circles. Encouraged by the past academic achievement and well-received evaluations, we propose project based on a careful analysis of Taiwan's advantages and disadvantages and thorough planning of effective growth strategies to reduce the school's weakness. By steadily accomplishing each year's objectives, the project aims to produce notable results in Haruki Murakami research, and ultimately plans to invite Haruki Murakami himself to Taiwan. In doing so, we would like to promote Haruki Murakami research as one of the distinctive educational and research characteristics of Taiwan, which will raise our country's international recognition further.

The Center's objectives include:
1. Improvement of the academic and facility features of Haruki Murakami Studies,
2. Advertising and marketing of Haruki Murakami Studies,
3. Promotion of international academic interchange of Haruki Murakami Studies,
4. Holding and development of Haruki Murakami international symposia.

INFORMATION CENTER FOR WATER ENVIRONMENT

Director: Li-Chiu Chang（張麗秋）

The Center for Water Environment (ICWE) was founded to promote research, create effective applications, integrate information systems, and strengthen academic work related to the field of water resources and environment. Through the combination of academic studies and practical research in cooperation with public and private business, the Center has sought to make tangible, positive contributions to society. The implementation and integration of information technology, accomplished through the efforts of the Center, allows considerable strengthening of related fields, as well. In order to meet the market demand for professional talent, the mission of the Center is to engage in teaching and practical and research training for undergraduate and graduate students to improve the quality of professionals. The Center for Water Environment (ICWE) maintains the spirit of innovation, information integration, forecasting, and the further development of new research values through closer integration of research teams.

CENTER FOR OCEAN AND UNDERWATER TECHNOLOGY RESEARCH

Director: Jin-Yuan Liu（劉金源）

The Center was established in 2016, aiming at developing ocean and underwater technologies and cultivating talents. The main areas of present and near-future interests include sonar technology, survey and educational outreach of underwater cultural heritage (UCH), and applications of deep ocean water resource. Since its establishment, the Center has carried out more than 45 projects with total budgets about 110 million. The major results of the past three years include: underwater noise monitoring, professional training courses in "Underwater Detection Technology" and "Underwater Cultural Heritage Interpretation" for underwater cultural heritage specialists, and underwater cultural heritage surveys for projects such as the Tainan Seawater Desalination Plant, Dongsha Island Seaway, and Hwan-Yang offshore wind farm. Additionally, the center has signed cooperation agreements with over ten private companies to establish technical cooperation platforms in areas such as underwater acoustics technology, maritime instrumentation and artifacts, and underwater photography. The center has consistently been rated as an excellent unit in annual school evaluations and will continue to deepen collaborations within and outside the university. It aims to become a base for marine and underwater technology talent cultivation and industry-academia research and development, promoting the university’s growth in the marine field. Through the integration of internal and external teams, the center seeks to establish an industry-academia alliance mechanism across academia and industry, progressing towards the goal of becoming a high-quality and sustainable research and development center.

CENTER FOR ADVANCED TECHNOLOGY

Director: Ming Hsien Wong（翁明賢）

The Centre for Advanced Technology（CAT） is a multi-disciplinary research centre combining research across fields including international relations, security, strategy, military and war-gaming. The CAT was established on 3rd August 2010. To fulfil the new market demands of green energy and environmental protection from which are the changes of international political regulations and national energy strategy thought adjustments, by adopting the crossover and innovation thinking, CAT is defined as a bridge to the cooperation between industry, government and academia. It is essential to integrate

cultural, social, and scientific studies into an organic knowledge economic system in a diverse and changing world. The CAT transforms the traditional research pattern to build the linkage of industry, market, and academy, coordinating different research teams within Tamkang University to create a new value of the knowledge-based economy

CENTER FOR EUROPEAN UNION STUDIES

Director: Prof. Dr. Li-Jiuan Chen-Rabich, LL.M(陳麗娟)

The EU Studies have been emphasized for a long time and a special feature at Tamkang University. The Center for European Union Studies has contributed not only to enhancing EU research and to broadening the EU knowledge of the public. The Center for European Union Studies is one of the consortium members of the EUTW. The Center for European Union Studies actively undertakes activities, including academic forums and conferences, events, winter school, research projects, and provision of legal consultation for government, academic exchange, and cooperation with partner universities in the EU.

CENTER OF ADVANCED SPECTROSCOPY AND SMART INSPECTION FOR MATERIAL RESEARCH

Director: Chao-Hung Du (杜昭宏)

The center was founded in 2023.

The use of x-ray spectroscopy on the material research has long been a history and a good achievement in the Department of Physics. To moving forward to be an international research center and promoting the spectroscopy research to the industry applications, we established a new research center “Center of Advanced Spectroscopy and Smart Inspection for Material Research”.

The objectives of the Center are:

1: Focus on cutting-edge materials research

Based on the sustainable development of SDGs, we will integrate research manpower and resources of the campus, make good use of large-scale research facilities such as synchrotron radiation sources, and join international research teams to conduct material research on novel physical phenomena of cutting-edge materials.

2: Promote the development and the integration of industry and academia research

Through the collaborations between the center and the technology industries, we will support the industry's innovative research and help the industry to solve the problems in their R&Ds.

PROGRAMS OF STUDY

CENTER FOR GENERAL EDUCATION AND CORE CURRICULUM

Director: Shun-Jie Ji(紀舜傑)

The Center for General Education and Core Curriculum (CGECC) was established in 1995 for the purpose of reforming Tamkang University's General Education Program. This reform was based on the belief that students must be equipped not only with specialized knowledge, but also with the ability to adapt to a rapidly changing society. Through its well-rounded approach to education, the center instills in student's self-responsibility and a conscientious attitude toward the broader community and the global environment.

Currently, more than 400 faculty members from the center or related departments teach courses in the CGECC's General Education Program. The center functions as an independent department and is responsible for course design, teaching support, and other tasks. The faculty members hired by the center are divided into three major fields: social analysis, philosophy and religion, and arts appreciation and creation. The center also caters to students' needs by offering elective courses.

Mission

The center was established in the hope of developing curriculum programs to fulfill the ideal of general education. Its courses enable students to more efficiently access information, develop a view for the future and a global vision on which to base their future goals and objectives.

The Center aims to improve the quality of general education and prepare students for a changing world by instilling in them the following qualities:

1. A global perspective
2. Information literacy
3. A vision for the future
4. Moral integrity
5. Independent thinking
6. A cheerful attitude and healthy lifestyle
7. A spirit of teamwork and dedication
8. A sense of aesthetic appreciation

Faculty

Professors
Pei-Yee Lee (李珮瑜); Kuei-Hsiang Han (韓貴香); Yung-Ying Gan (干詠穎)

Associate Professors
Chih-Ming Wang (王志銘); Chia-Jwu Tai (戴佳茹); Angela Hung-Yen Sung (宋鴻燕) ;
Hui-Yun Chen (陳慧勻) ; Wen-Chi Wu (吳文琪)

Lecturers
Yen-Wei Hu (胡延薇); Yih-Lin Hwang (黃奕琳); Yu-Ying Teng (鄧玉英)

The Program

The General Education Program consists of three types of courses: fundamental courses, general education and core courses, service and extra-curricular activities.

Fundamental Courses: 12 credits

1. Language Expression: (10 credits)
   a. Ability of Expressing in Spoken and Written Chinese (2 credits)

This course aims to improve students' communicative competence and to enable them to express themselves in an articulate and succinct manner.

b. Foreign Languages and Drills (8 credits)
This course equips students with a basic knowledge of a foreign language and the culture(s) in which the language is spoken. The course aims to heighten students' interest in learning and to improve their communication skills.

2. Learning and Development (1 credit)
This course aims to equip students with the skills needed to complete their university studies and to become capable, independent, and self-motivated learners.

3. Extracurricular Activities and Team Development (1 credit)
By giving students the chance for practical participation in student clubs, this course hones students' skills in the fields of teamwork and leadership, project planning and practice, creative thinking and problem solving, and communication/coordination.

General Education and Core Courses: 12 credits

1. Exploring Sustainability (1credit required)

2. AI and Programming Language (1credit required)

3. Humanities (2 credits required, 1 out of 4 categories)
a. Literature and Classics
Through the analysis and appreciation of Eastern and Western novels, poetry, prose, and well-known literary works, students are led into the realm of world literature, where they gain insights into a diverse range of classics.
b. History and Culture
This course develops students' ability to view and analyze historical events and helps students gain an objective and practical knowledge of history.
c. Philosophy and Religion
Philosophy and Religion courses aim at promoting understanding and respect of diverse cultures and religions, and reflection of differing moral values and their grounds of justification. Students are to be trained and encouraged to achieve these aims with independent thinking.
d. Arts Appreciation and Creation
The art disciplines invite students to appreciate and analyze music, dance, theater and/or the visual arts and introduce various styles and techniques in the fascinating world of the arts.

4. Society and Culture (2 credits required, 1 out of 4 categories)
a. Global Outlook
This course familiarizes students with concepts relevant to international relations and heightens students' global awareness and their understanding of the modern world.
b. Futures Studies
Futures Studies encourages a forward-looking perspective and a view for the future that encompasses society, technology, the economy, the environment, and politics.
c. Social Analysis
This course domain aims to arouse students' interest in social problems and to urge them to contemplate the moral standards of modern society. It also helps students face their difficulties head on and live a healthy life.
d. Civil Society and Participation
This course provides students with a firm grounding in the general principles of constitutional law. It aims to equip students with basic legal knowledge and produce well-rounded citizens.

5. Scientific Inquiry (2 credits required, 1 out of 3 categories)
a. Information Education
Education in Information Technology: The courses are designed not only to enhance students' computer knowledge, including programming, network management, network communications, multimedia, and video graphics, but also to improve their abilities for retrieving the desired

information from the Internet. Meanwhile, related topics such as e-commerce, malware, and information security are introduced such that students can have enough skills for further investigating and learning more advanced techniques and applications.

b. Global Technological Revolution
This course describes the development of science and technology in the past and its potential impact on our future and the environment.

c. Natural Sciences
This course helps students explore the laws of nature and learn the principles of natural sciences, while also providing non-science majors the opportunity to broaden their horizons.

Service and Extracurricular Activities: 0 credit

1. Physical Education
2. National Defense Education and Military Training
3. Service and extra-curricular activities
4. Common Elective Courses
5. Sport competition and performance
6. Art competition and performance
7. Other activities

The Organization of the General Education Committee

Fundamental Courses and Coordinators

1. Ability of Expressing in Spoken and Written Chinese
Coordinator: Chair of the Department of Chinese Literature

2. Foreign Languages and Drills
Coordinator: Chair of the Department of English

3. Learning and Development
Coordinator: Chair of the Graduate Institute of Educational Psychology and Counseling

4. Extracurricular Activities and Team Development
Coordinator: Chief of the Extracurricular Activities Guidance Section

General Education and Core Courses

1. Literature and Classics
Coordinator: Chair of the Department of English

2. History and Culture
Coordinator: Chair of the Department of History

3. Philosophy and Religion
Coordinator: Coordinator of Philosophy and Religion courses

4. Arts Appreciation and Creation
Coordinator: Coordinator of Arts Appreciation and Creation courses

5. Global Outlook
Coordinator: Chair of the Department of International Tourism Management

6. Futures Studies
Coordinator: Chair of the Department of Education and Futures Design

7. Social Analysis
Coordinator: Coordinator of Social Analysis courses

8. Civil Society and Participation
Coordinator: Chair of the Department of Public Administration

9. Information Education
Coordinator: Chair of the Department of Computer Science and Information Engineering

10. Global Technological Revolution
Coordinator: Chair of the Department of Mechanical and Electro-Mechanical Engineering

11. Natural Sciences
Coordinator: Chair of the Department of Chemistry

Course Descriptions

Fundamental Courses

Ability of Expressing in Spoken and Written Chinese

A1376 Ability of Expressing in Spoken and Written Chinese (2): This course aims to improve students' oral and written ability in Chinese and to help them appreciate the value and beauty of the Chinese language.

Foreign Languages and Drills

T0466 English (I) (2/2): The objective of this course is to enhance students' overall English skill and to promote students' understanding of and respect for multiple cultures so that they can develop a global perspective. Students will acquire knowledge in linguistics, pragmatics, and rhetoric while reading extensively in class. Students also will develop skills of collecting and analyzing ideas generated out of different disciplines and areas of scholarly inquiry.

T0467 Japanese (I) (2/2): Japanese (I) is an introduction to Japanese language and culture and is designed for students who have had little or no experience learning Japanese. The goal of this course is to develop the four basic skills in modern Japanese: speaking, listening, reading, and writing. Students will learn how to read and write Japanese *hiragana*, *katakana* and *Kanji*, and learn everyday conversations and express themselves in simple sentences.

T0468 Russian (I) (2/2): This course is an introduction to living Russian for the beginners. The objective of the course is to ensure the rapid output of language material to speech based on interconnected learning for all types of speech activity. Communicative approach to learning provides introduction of grammar aspects through useful real life situations. Modern authentic material (video, audio, short texts of everyday situations) encourage students to actively use their newly acquired skills. The program corresponds to A1+ level of TORLF. So it is not for native, second native and advanced Russian speakers.

T0470 Spanish (I) (2/2): This course is an option for liberal education. It is aimed at students who haven't learned Spanish or who are interested in Spanish learning to develop general concepts of Spanish grammar, from conjugation of verbs to simple sentence patterns, and elementary oral and written communication skills in Spanish within social, and in some cases, professional contexts at various communicative levels.

T0479 French (I) (2/2): This course teaches students the basic vocabulary and grammar of French. After previewing French songs and films, the class will partake in group discussions that allow students to share their opinions and improve their level of expression. The course also consists of cross-cultural comparison of French and Chinese culture.

A0766 German (I) (2/2): This course is designed to familiarize students with daily spoken German as well as listening and speaking skills. The content includes a wide variety of authentic multimedia materials, as well as audio and video texts. Regular group discussion and role-play is also an essential component of the course content.

A0050 English (II) (2/2): The objective of this course is to enhance students' overall English skills and to promote students' understanding of and respect for multiple cultures so that they can develop a global perspective. Students will acquire knowledge in linguistics, pragmatics, and rhetoric while reading extensively in class. Students also will develop skills of collecting and analyzing ideas generated out of different disciplines and areas of scholarly inquiry.

A0175 Japanese (II) (2/2): Japanese (II) is a continuation of Japanese (I). Upon successful completion of this course, students will be able to express themselves on a variety of topics in Japanese, in the manner that is both grammatically accurate and socially appropriate.

A0767 German (II) (2/2): This course is designed to familiarize students with daily spoken German as well as listening and speaking skills. The content includes a wide variety of authentic multimedia materials, as well as audio and video texts. Regular group discussion and role-play is also an essential component of the course content.

A1328 Spanish (II) (2/2): This course is a continuation of the basics of Spanish (I), the teaching content of this course is intermediate grammar. Students should be familiar with verb conjugations and correctly formed compound sentences.

A1329 French (II) (2/2): This course covers French grammar and vocabulary and helps students improve their speaking, reading and writing skills through daily conversation.

T0469 Russian (II) (2/2): This is an elementary Russian course for those (non-native Russian) students who already have some basic knowledge of Russian. In this course we are going to learn basics of everyday Russian and practice it in class imitating real life situations. This course emphasizes all aspects of language with a special accent on listening, speaking and reading. A variety of modern textbooks and authentic materials is used. This course is NOT suitable for native or advanced Russian speakers.

Learning and Development

T0863 Learning in University (1): This course aims to provide students with the basic knowledge and skills required by university students and to help students gain a better understanding of their own learning styles, learning strategies, and ways of adjusting.

T0871 Motivation and Stress Management (2): The main purpose of this course is to help students learn theories concerning motivation and the application of stress management. The course covers the psychological aspects of motivation and stress, stress management skills and strategies, and other related topics.

T0951 Learning Adaptation and Management (2): This course provides theoretical and practical aids to facilitate whole person growth among students. Through this course, students learn, adapt and grow by developing skills in a diverse range of areas: academic, psychological, social and career-based. During the course, students take part in various activities and group work, and complete assignments and tests that train their skills in the following fields: time management, self-exploration, career assessment, learning and study skills, and interpersonal skills.

T2921 College Student Career Development (2): This course is designed to help students understand the diverse aspects of career development and to inspire students' self-personality traits, career interests, values, career beliefs, and to explore the world of work. The impact of family expectations on career decisions enhance students' career planning knowledge essential to creating a self-ideal future.

T2977 Thinking Skills and Techniques (2): This course offers the learners self-training in logical and analytic abilities with knowledge and application of thinking skills and techniques. The learners will cultivate their own thinking attitudes and habits to engage in self-directed learning and become independent thinking college students.

Extracurricular Activities and Team Development

T0800 Service-Learning of Association (2): This course integrates volunteer activities with concepts of service-learning to guide student learning by doing and growing through self-reflection. The course also emphasizes knowing organizational management through teamwork and cooperation.

T2637, T2638, T2639 Learning and Practice of Clubs (1): Through this course, students will gain a basic knowledge of how clubs are organized, how events are planned, and how communication and cooperation works within teams. By participating in student clubs, students learn to accept a diverse range of opinions, as well as learning about interpersonal relations, problem solving and other essential life skills.

General Education and Core Courses

Humanities

Literature and Classics

A2928 Selected Readings in Chinese Literature: Love and Life (2): This course is for students to examine classical literature, to cultivate their ability of contemporary interpretations, and to reflect over the meaning of love and life.

A2929 Selected Readings in Chinese Literature: Society and Life (2): This course is for students to examine classical literature, to cultivate their ability of contemporary interpretations, and to reflect over the meaning of society and life.

A2930 Selected Readings in Taiwanese Literature (2): This course guides students in understanding and exploring the stages of development in Taiwanese literature and its important issues. This is then complemented by readings and investigations linking such issues to Taiwan's literary history, so as to provide a clear understanding of the historical development of Taiwan literature.

A2931 Science Fiction (2): The aim of this course is to read and discuss noteworthy examples of science fiction literature, along with a selected study of and introduction to the latest works in science fiction, including analysis of classic science-fiction movies.

A2932 Modern Classics of English and American Literature (2): Modern Classics of English and American Literature" introduces students to a selection of poetry and prose from the twentieth and twenty-first centuries. The two main reference texts for the course are *The Norton Anthology of English Literature (NAEL)* and *The Norton Anthology of American Literature (NAAL)*. Students will learn about and critically respond to the selected poetry and prose by situating them in historical and political contexts as well as formal/aesthetic contexts. In addition, students will learn about several important perspectives in contemporary literary theory and criticism: postcolonial criticism, ecocriticism/ecofeminism, and animal studies. Grading will be based on a PowerPoint presentation, a written assignment, participation in class, and attendance.

F0807 Japanese Literature and Translation (2): This course introduces Japanese literature in a chronological sequence to enable students to better understand literary texts. Through translation, students will appreciate Japanese literature and acquaint themselves with the essence of Japanese culture.

F1134 Spanish and Latin American Literature (2): The aim of this course is to teach the students how to appreciate a masterpiece of western literature by its forms of expression, thoughts, and all the

dimensions of Humanity to give the students a good discipline to learn how to think deeply and how to increase their capacity of expression, so that they can be a good leader in this digital and global age.

F1135 Selected Readings in German Literature (I) (2): The course aims to introduce the major works of German literature and to help students appreciate German literature through the exploration and discussion of the works as well as related literary trends.

F1136 Introduction to Russian Literature (2): The aim of this course is to read and discuss the most famous Russian novels during the 19th century: Pushkin's *Snowstorm*, Tolstoy's *Anna Karenina*, *War and Peace*, and so on.

F1137 French Literary, Life and Culture (2): The aim of this course is to read and discuss the most famous French novels during the 18th, 19th and 20th century.

F1138 Selected Readings in German Literature (II) (2): The course aims to introduce the major works of German literature and to help students appreciate German literature through the exploration and discussion of the works as well as related literary trends.

F1139 Introduction for the Modern and Contemporary French Literature (2): Modern and contemporary French literature (basically with a choice of texts from the 19th to 20th centuries, thus the class can focus on the 20th century according to the need of the students)

F1140 Masterpieces of Hispanic Literature (2): To appreciate the masterpieces of literature of Hispanic world.

F1147 Extension Lectures for Murakami Haruki Studies (2): Extension lectures for Murakami Haruki Studies.

History and Culture

Category I: History of Taiwan

A3454 The Exploration of Taiwan History (2): This course is designed to increase students' general knowledge of Taiwan history and culture.

T2972 Maritime History and Culture of Taiwan (2): The purpose of this course is to help students understand the Maritime history of Taiwan like the Chinese Junk, Trade, Underwater archaeology, and further more to let the student learning more about humanities.

T3251 Learning History by Walking and Field Research (2): Through practical experience in the preservation of cultural assets, we can deeply understand the history and culture of Taiwan.

Category Ⅱ: History of Society and Culture

A1813 European Civilization (2): This course presents an introduction to Western civilization with a focus on its rise and decline.

A2020 Esthetics: Sinological Arts (2): This course discusses paintings, calligraphy and other related topics in ancient China.

T3250 Introduction to Southeast Asia (2): This course combines literature, videos, and breaking topics to lead students into/close to the daily life of contemporary Southeast Asia, grasp the rich and diverse historical and cultural characteristics of Southeast Asian countries, to gain in-depth knowledge and immersed experiences. This course will also introduce various social connections and transnational activities between Taiwan and Southeast Asia, helping student to cultivate international vision and global mobility.

Category III: Persons in History

A2062 Chinese History and Historical Figures (2): This course places historical figures in their historical contexts, enabling students to view the interaction between people and time.

A2368 Modern Historical Events (2): Through analyses of important historical events and aristocracies, this course reveals truths, and the relationships between historical events. This course also discusses the features of key historical figures.

A2505 Western History and Historical Figures (2): This course covers two sections. The introductory section explains how to analyze and assess historical figures. The other section aims to choose major historical figures in Western history and provide critical studies of their lives, actions, and outstanding contributions.

T3250 Introduction to Southeast Asia (2): This course combines literature, videos, and breaking topics to lead students into/close to the daily life of contemporary Southeast Asia, grasp the rich and diverse historical and cultural characteristics of Southeast Asian countries, to gain in-depth knowledge and immersed experiences. This course will also introduce various social connections and transnational activities between Taiwan and Southeast Asia, helping student to cultivate international vision and global mobility.

Philosophy and Religion

1. Basic Courses

T0099 Ethics (2): This course provides an overview of Ethics. Proceeding the discussion by connecting daily life experiences with moral topics. Guiding students to reflect on moral rules and review the justification of moral norms. This course aims to cultivate students' ability to use philosophical approaches to examine moral-related topics.

T0100 Introduction to Philosophy (2): In this course we will explore some everlasting philosophical issues, appreciate the established responses in the history, and, then, try to raise our own answers to those questions. The exploration starts from reflective considerations on ordinary daily experiences, the phenomena that are too often taken for granted by most of us. And then the students are invited to move from common sense to the more abstract understanding of what is experienced. The goal of this intellectual journey is to appreciate the world and living from reflective aspects.

T0338 Selected Readings in Philosophy (2): Studying classics is not only for the inheritance of the traditional wisdom, but also for widening our thinking horizon, in order not to indulge in our own bias or willful blindness. This course introduces important works of more than 10 philosophers, and aims not only to encourage the students to think with the company of the masters, but furthermore, to encourage the students to challenge and query the past masters. Besides, this course aims to cultivate the students' competences in cooperation and immediate response.

T0339 Introduction to Religion (2): This course introduces several world religions, explores some basic existential questions, and address the issues of health and miracle. This course also helps students to respect the peoples with different religious backgrounds.

T0340 Introductory Reading In Religious Scriptures (2): The course mainly introduces and guides the core classics of several religions in the world. It cuts into the classics from the perspective of each religion's theology, thereby helping students understand the value, significance and impact of religion on human spiritual life, and further cultivates students' reading. Sensitivity of text and etymology of religious classics to establish the correctness of religious classics.

T2917 Logic and Philosophy (2):
Logics provides us with a set of skills for evaluating arguments. These skills are important to students and future citizens. On this course the lecturer will introduce the elements of logics

2. Applied Ethics

T0348 Study on Thanatology (2): The course will help (1) comprehend death (2) eliminate anxiety for

death (3) understand cancer patients' psychology with assistance (4) comprehend issues relating to thanatology of eastern and western, next life, funeral, sorrows of losing the beloved, euthanasia, abortion, suicide, and death sentence.

T1238 Environmental Ethics (2): The students will explore the ethical issues of the problems of the environment of animals, plants and humans, and be encouraged to learn ecological knowledge and to reflect ethical issues.

T1810 Professional Ethics (2): We will discuss several moral issues through actual examples in various careers, introducing the weight and the roles these issues play in our personal and professional lives. The aim of the course is to cultivate the ability and practice of reasonable thinking, communicating, and reasonable choices of the moral issues.

T2919 Aesthetics: Theory and Practice (2): This course will introduce students to three kinds of art, i.e., literature, photography and music. Through the practice of writing, photography and composing, students will explore the aesthetic experience of language, visual and auditory. Furthermore, they are encouraged to review the relevant aesthetic theories according to their own experience.

T2918 Sexuality and Philosophy (2): Sex and love are the core problems in sexuality, which are also the important problems in life. The principal philosophical works are analyses of concepts and studies of justification. Thinking about sexual problems in philosophical way can cultivate the critical thinking for students. It also lifts the sensibility of sexual issues and moral relevance.

T2971 Taiwanese Religions (2): This course attempts to promote the better understanding for the religious culture of Taiwan. The first part of the course gives an overall introduction of Taiwanese religions, including the Taiwanese folk religion, Buddhism, Christianity, and some religions. The goal is to teach students to respect different religions. The second part of this course addresses religious change. By observing how religion responds to changing times including the new social arrangements and the challenge of scientific progress, students enhance their ability of critical thinking.

T3054 Gender: Theory and Practice (2): This course is designed to introduce contemporary gender theory and how "doing gender". We will focus on key issues such as sex and gender, masculinity and femininity, identity politics and difference politics, queer theory and LGBTIQ rights movement. By discussing papers and movies in classroom, the learners will be expected to cultivate the art of critical thinking about gender relations and inequalities.

T3184 Philosophy and Artificial Intelligence (2): This course will first explain the artificial intelligence discussed in the course, distinguishing between Artificial General Intelligence (AGI) and Artificial Narrow Intelligence (ANI), and briefly outlining the relevant debates encountered. Next, the philosophical issues related to AGI will be explored by introducing the "mind-body problem." After that, moral issues related to AGI will be discussed. Finally, the challenges related to artificial intelligence introduced in the course will be recapitulated to facilitate further understanding of the related arguments.

T3253 Religion and Healing: Sex and love are the core problems in sexuality, which are also the important problems in life. The principal philosophical works are analyses of concepts and studies of justification. Thinking about sexual problems in philosophical way can cultivate the critical thinking for students. It also lifts the sensibility of sexual issues and moral relevance.

Arts Appreciation and Creation

A0457 Performance Arts (2): 'Performing Arts' is an umbrella term, which contains wide definitions. This module could be divided into two sections: Euro-American contemporary theatre and Asian theatre. Images, videos, play texts and theatrical exercises will be applied as materials to introduce intercultural performing arts to the students. In addition to introducing various performing forms, the students will also be asked to conduct a theatre piece in order to further understand the making of theatrical works.

A0544 Introduction to Music (2): The goal of this course is to introduce ideas and listening strategies to deepen your relationship with music. Music as the central axis, horizontal to explore the western classical music development and evolution of styles, vertical understanding of the nature and structure of music, musical instruments, types of musical forms, and musician biographies, etc. Finally, among

the great classical works, students will have a deeper knowledge and appreciation of the history, aesthetics, techniques, forms, and genres of Western classical music.

A2938 The Introduction of Taiwanese Theater (2): In this module, Taiwanese theatre related researchers and practitioners will be invited to give an overall understanding of various aspects of Taiwanese theatre, from traditional theatre in Qing dynasty to contemporary theatre, from Xingju in the postwar era to improvisational theatre. In addition, this module also emphasizes on connecting students with local theatre groups, which are based in the Tamsui area, in order to help students, learn arts outside the university.

T0336 Introduction to Digital Arts (2): Digital arts include publishing, archive, visual arts, animation, music, and game. Activities include appreciation, criticism, analysis, exploring, and designing of digital arts.

T1287 Music Master Works Appreciation and Interpretation (2): The goal of this course is to introduce ideas and listening strategies to deepen your relationship with music. Music as the central axis, horizontal to explore the western classical music development and evolution of styles, vertical understanding of the nature and structure of music, musical instruments, types of musical forms, and musician biographies, etc. Finally, among the great classical works, students will have a deeper knowledge and appreciation of the history, aesthetics, techniques, forms, and genres of Western classical music.

T2013 The Appreciation of Western Opera (2): Opera was invented to combine the best of all possible worlds--Music, Literature, Drama. This course is to introduce the beginning and develop history of Western Opera, about the stories and authors. At the same time analyze and interpret Opera the style of their creation.

T2016 The Basic Sketch Skill of Model Art (2): The content of this course is not only a technical of drawing, but also including other abilities training, such as: to recall our sensibility to things, to think independently, judgment to beauty, aesthetic literacy, flexibility in using media, and etc., besides, to take into account to the content and skill of a works, and to realize the progression of mind and thought of an artist while a creative activity is in processing.

T2104 The Art of Piano (2): This course will introduce the beauty of piano music, various styles including classical, jazz and popular will be included. After film discussions, students will be able to conclude what becomes a pianist.

T2105 The Dialogue Between Music and Art (2): This course will introduce the basic elements, structure, and styles of music and arts. With in-depth listening and analysis, students will learn how to appreciate great works of music and arts. They will be able to connect feelings between various forms of arts.

T2657 Art and Life--Dialogue with the Great Artists (2): “Art & Life”, a series of art lectures concerning visual art, architecture and music, intending to enrich one’s cultural acknowledgement and to cultivate one’s character. In this course, we invite Taiwan famous artists to give talks to our students. Through sharing their works and life experiences, we hope this may bring to our students a broader cultural and international of viewpoint, furthermore, to elevate a student’s ability of critical thinking and the potential creativity in one’s mind.

T2916 Developing Nonverbal Expression Through Dancing Arts (2): Dance is a human instinct, existing in everyone's life all the time. As it is promoted to theatrical art, people gradually drift away from it. This course will lead students to regain the dance power that everyone has, to enjoy the fun of dance, to experience life, to let the nonverbal bodymind express feelings, and to learn about themselves. Moreover, through the appreciation of contemporary dance art, they can enhance humanistic and aesthetic qualities. Ultimately, through practical collective creation, they can increase mutual communication and problem-solving skills and stimulate creativity.

T3050 The Practice of Play-reading (2): Theatre is the combination presentation of multiple artistic forms. Through executing ‘Playing Reading’, the rhythms and musicality of a play would be sensed; the hidden emotions and meanings would be revealed. This module – The Practice of Play Reading will be

categorized by different subjects. Students will be instructed to explore the meaning of different scripts, and the various ways of presenting scripts.

T3051 European Culture and Art Tour (2): This course introduces the artistic concepts from the Greek period to the present, as well as the differences in their development and changes. Through the sub-topics planned (such as "Understanding Art", "Classification of Art", "Art and Non Art", "Art Viewing and Appreciation", "Art and Aesthetics", and "Using Art as a Cognitive Approach"), understand how the visual culture of the representative period is closely related to history and culture, and the trend of thought of the times, so as to enhance the appreciation of European culture and art and aesthetic training.

T3052 Introduction to New Media Arts (2): This course provides an overview of the theories and practices of emerging New Media Arts. The topics include but not limited to Interactive Art, Sound Art, Lighting Art, Bio Art and Maker Culture. Students will also learn how to generate creative concepts and how to reflect on them through practical activities. Various professional new media artists, artworks and creative projects will also be introduced through organized lectures.

T3179 Exploring Dance as Nonverbal Communication Through Environments (2): Dance is ubiquitous. Everyone has dance genes. But with the development of dance art and its academic status, people gradually forget that it is human instinct. This course will lead students to re-feel, explore and develop various possibilities within the bodymind, to regain the original intention and fun of enjoying dance. By interacting with people and things around and exploring environmental spaces, it will help them develop creativity. The course is project-oriented service learning. It aims to practice the understanding of life and care of society through group creation and performance.

T0263 Performance Arts-Traditional Theatre Appreciation (2): The definition of performance arts is rather broad and unlimited. For a long time, the modern western drama has been taken as mainstream, and relatively neglected Taiwanese tradition theatre/drama, however, both are essential to modern performance arts. This course focuses on traditional Taiwanese theatre, and adopts pictures, films, scripts and fieldworks as teaching materials for leading students to appreciate the beauty of traditional theatre.

T3178 Art as Accompanying (2): The course will be analyzed in a series of unit exercises, so that students can learn to have a deep dialogue with themselves through art, and then flexibly experience and encounter with others.

Society and Culture

Global Outlook

T0831 Current International Politics (2): This course focuses on international relations. It consists of two main elements: an introduction to the major global agents in various regions and an analysis of international trends of globalization and regionalism.

T0833 Global Environmental Protection (2): This course focuses on the following topics:
Part 1: General environmental topics such as energy sources, global warming /climate change.
Part 2: Pollution and protection in Asia, America, Europe, Australia, and Africa.
Part 3: Sustainable development and major environmental treaties.

T0834 The EU and Its Integration (2): This course introduces the creation and historical evolution of the European Union. Its primary goal is to provide a broad understanding of the EU's past, present and future. Made up of several EU-related themes, the course describes how the EU operates as well as its achievements in public policy.

T0835 Globalization of Culture (2): One of the goals of this course is to develop students' multi-cultural awareness. This is achieved through comparisons of cross-strait culture and education. Another course objective is to provide students with the knowledge necessary to interact with people of various cultures.

T0837 East Asia and World Affairs (2): In the 1980s, East Asia emerged on the world scene as a powerful economic entity. Ever since, it has been working hard to achieve greater economic prosperity,

political stability and environmental security. The goal of this course is to explore present-day East Asia as it moves toward the formation of a united Asian community.

T0838 China's Rise: Building a Harmonious World (2): This course explores the status quo, problems, and prospects associated with Taiwan/China relations in the context of today's rapidly changing global system.

T0839 Economic Globalization (2): This course explores how politics have been used to shape the economic system. It presents a comprehensive discussion on how economic globalization works (including foreign trade, multinational direct foreign investment, movement of short-term portfolio funds, technological diffusion, and cross-border migration) and how it can be improved.

T**0840 The America Today (2):** The course aims to provide a panorama of the American political, economic development and social change. The course is designed to present an overview of region's development, and then is followed by an introduction of the current development of key countries in the region. In addition, current regional issues are highlighted in order to facilitate further discussion. The course aims to enhance students' understanding of the continent and further cultivate their interests toward the American issue.

T0841 International Non-Governmental Organizations (2): This course aims to explore how civil societies build democratic governments. One of the objectives of INGOs is to show their dissatisfaction with the state and government and to build a tight knit global society.

T2899 Jean Monnet Module the EU and Its Integration (2): This course provides an introduction of the European Union. It presents different theoretical perspectives and case studies to engender an appreciation of the complexity of European Integration. Included are not only the historical evolution of internal politics and political-economics but also contemporary issues of EU commercial policy, economic rivalry, and multilateral cooperation for the management of globalization.

T0536 Problems of World Human Rights (2): This course will introduce the development of the human rights of three generations. Besides it will deal with three issues of the most importance, namely distributive justice, multicultural society and transitional justice. The impact of globalization on the above mentioned three issues will be emphasized. The course will introduce the international institutions protecting human rights too. Finally, the intervention based on the human rights will be examined.

T2943 Strategic Position of Taiwan (2): the course (1) informs students about Taiwan's relative position in the region and the world; (2) promotes an understanding of Taiwan through industrialization, globalization, democratization; (3) explores Taiwan's strategic position in various perspectives; and (4) analyzes Taiwan's strategic position through war game.

T2898 Jean Monnet Chair The Eu And Its Integration (2): The EU is one of the most important international organizations in the international community. The EU has its own legal system. This course provides basic knowledge of the EU such as internal market, EU's institution, four fundamental freedoms, common commercial policy and Euro area.

H0002 International Etiquette (2): The educational goal of this unit of study is to help all TKU undergraduate students develop a foundational outlook on the world. It aims to help them develop a global perspective, and to equip them with the capacity to constantly strengthen their grasp.

Futures Studies

T0864 Futures Studies in Environment (2): This course will introduce local and worldwide environmental problems as well as the possible trends and development in the future to deal with these challenges. The topics included are global warming, water resource, energy transition, air pollution, recycle of wastes and resource sustainability.

T1178 Futures Studies in Economics (2): The purpose of this course is to help students create economic alternatives and to assist them in rethinking and reshaping their future.

T1179 Futures Studies in Society (2): This course suggests different ways of looking into the various possible futures of society. Developing sociological and future-oriented attitudes is a key element to becoming a social scientist and to developing an epistemological basis from which to predict the future.

T1180 Futures Studies in Technology (2): This course presents an introduction to the general aspects of the future development in technology, the impacts of technology on our life, and the effects of technology on social and environmental changes.

T1208 Futures Studies in Politics (2): This course focuses first on the definition, principles, characteristics and the framework of future studies in politics; second, on providing students with a brief history of the development of human society. It also analyzes the causes and effects of political cultures, political behaviors, political participation and political negotiation.

D0737 Futures Studies in Education (2): This course introduces the application of Futures theories, concepts and methodologies in explaining and analyzing how education is evolving. The course also encourages students to apply Futures in exploring the preferable futures of education.

Social Analysis

A1636 Interpersonal Relationships and Communication (2): The purpose of this class is to teach students the basic knowledge of psychology and use it in daily life to inspire students' interests in Psychology and enhance their understanding of behaviors about other peoples, groups, and themselves.

A1970 Introduction to Economics (2): This course will equip students with the principles they need to make sense out of the conflicting and contradictory discussions of economic conditions and policies, such as the unemployment rate, the inflation rate, productivity, the interest rate, the government budget, and the current account.

T0066 Social Psychology (2): The purpose of this class is to teach students knowledge of social psychology and to use it in related daily life such as to understand people's behaviors from the perspective of social psychology.

T0169 Human Rights and Social Justice (2): The purpose of this course is to provide knowledge on concepts, theories and practices of human rights and social justice. This course will then focus on the issues of human rights, social justice, equality and welfare. It will thus deepen the understanding on related issues seen in daily life.

T0830 Well-being and Economics (2): Empirical research shows that income levels and economic growth have not brought about the increase of people's happiness. If the aim of government's policies is to realize the greatest happiness, it is necessary to approve the majority's happiness through social policies.

T1822 Principal of Psychology (2): The purpose of this class is to teach students the basic knowledge of psychology and to use it in related daily life such as to understand their own and people' s behaviors from the perspective of psychology.

T1832 Principal of Sociology (2): This course aims to enhance students' understanding of foundational sociology and gain insight from contemporary sociological theories and research. Students can obtain a broad view of the core of sociology, key concepts, and methods but also endeavour their abilities to think as sociologists, to invest in and understand the complex social phenomena.

T1891 Principal of Political Science (2): The purpose of this course is to provide entry level knowledge of political science. It would introduce as well as analyze issues of democracy, government and political party systems, election affairs and human rights. It would thus strengthen students' understanding of the theory and practice of politics.

T2882 The World of Finance and Economics in Daily Life (2): This course is an introduction on both academic and practical knowledge of business finance and economic concepts in daily life. This course covers 3 main sessions – Introduction on Business Finance and Economics, Entrepreneurship, and Crowdfunding. It is required to complete a reward-based crowdfunding team project at the end of the semester.

T3047 The Sense and Sensibility to Happiness (2): Happiness research is an interdisciplinary and professional course that equips students with the ability to draw knowledge from economics, sociology, psychology and music art etc. In the form of collaborative teaching, aim to assist students to lead a happier, meaningful, and more satisfying life. This course includes the subjective and objective index of happiness, analysis the association of brain and happiness, economics and happiness, science of sound and communication of happiness etc.

D0425 Positive Psychology (2): The movement of Positive Psychology has offered the discipline of psychology multiple thinking and strategies. This course will organize learning topics derived from theory, research, and practice, including well-being, cultivation of positive emotions, practices for savoring strategies within the ecological contexts of family, school, workplace, and socio-culture to enhance students to fulfill their learning goals through participation on campus learning activities and to be connected to the society.

T3048 Political Psychology (2): Political psychology is not a traditional subject matter in the social sciences. It is interdisciplinary, using psychology knowledge to explain political behavior. And, it is crucial to understand the psychological causes of political behavior if we want to promote patterns of behavior that are beneficial to humanity or, redirect patterns of behavior that are harmful to humanity.

T2944 Gender and Society (2): This course provides basic concepts and important theories of gender equality and how gender differences may affect the development of personal and societal aspects. The goal is to encourage students reflect their own gender values, attitude toward relationships and become more aware of the gender related issues in our society.

T0113 Psychology of Personality (2): Personality psychology aims to introduce students the main schools and theories in this field and how nature vs. nurture affects. In this class, we will also tell the findings in research, to let students know how we can use these theories in our daily life to improve our life quality.

T2944 Gender and Society (2): This course provides basic concepts and important theories of gender equality and how gender differences may affect the development of personal and societal aspects. The goal is to encourage students reflet their own gender values, attitude toward relationships and become more aware of the gender related issues in our society.

Civil Society and Participation

T3182 Nonprofit Organization and Global Issues (2): The surge of the non-profit organization (NPO) has changed contemporary socio-political culture and public-private boundary drastically. This course will deal with the NPO's institutional and organizational domain as well as its strategic action and management issues. These will enhance our conception of socio-political consciousness, public policy development and personal career planning.

T0805 Business and Law (2): The major objective of this course is to introduce students to the basic rights and obligations of an enterprise under the Civil Code and Company Act, regulation regimes for enterprises, corporate governance and management, and employee disputes. This course will also refer to real life cases to illustrate the practical application of laws and regulations.

T0806 Life and Law (2): In this course, we will introduce fundamental legal concepts using common legal problems in our daily lives. Based on categories used in the legal arena, this course will be divided into the following subsections:
1. Public law: topics include administrative organizations and human rights in constitutional law.
2. Civil law: in this section, the topics we will cover range from buying a coke to consumer protection.

3. Penal law: topics will include criminal behavior, prosecutors, court acts.
During the course, students will be divided into groups. Each group will be responsible for three 40-minute and 15-pages summary reports.

T0808 Democratic Politics (2): This course provides a comprehensive introduction to democratic politics. It covers the classic topics**:** concepts of politics, definitions of democracy, models of democracy, democracy and globalization, and democracy and its critiques. This course also examines a number of contemporary issues as well as future prospects of democratic politics.

T0809 Civil Society (2): This course introduces basic concepts of civil society and general rights and obligations of citizens. It also discusses how civil society helps advance social justice, accumulate social capital, strengthen democracy, and increase our capacity to deal with crisis and to fight against climate change. Finally, the course discusses how the development of social media affects the civil society.

T0813 Civil Culture (2): This course provides an in-depth exploration of how collective life is organized in various political regimes, focusing on the diverse ways people come together outside direct state control. Students will examine the motivations behind civic engagement both within individual states and on a global scale, gaining insights into the different structures and functions of civil society across contexts.

M1884 Science Technology and Civil Participation (2): This course will introduce various theories of public participation ranging from classic political thought to contemporary political science. Some approaches to participation in political practice will also be explored in the course. The teacher and students will discuss real cases of civil participation in modern policy that they have encountered abroad or in Taiwan.

T2207 Constitutional Law and Human Rights (2): This course discusses the defense of human rights based on the Constitution of the Republic of China, including previews of real life cases in Taiwan.

T2211 Information and Laws (2): This course starts with the role of law in the digital era and introduces the legal system in the field of information technology. It covers Internet IPR laws, telecommunications laws, electronic signature laws, computer-processed personal data protection laws, laws for consumer protection in electronic commerce, laws for cybercrime, etc.

T2610 Intellectual Property Rights and Law (2): This course introduces the impact brought about by the advancement of technology upon the legal system and how the system can be adjusted to resolve the issues emerging from the interaction between technology and law.

T3181 Social Innovation (2): Social enterprise is a rapidly developing field in which entrepreneurs are using business methods to tackle social problems, improve communities, provide people access to employment and training, or help the environment. Whether operated by a non-profit organization or by a for-profit company, a social enterprise acts as a catalyst of change, identifying social problems and introducing solutions to them. Unlike NPOs, social enterprises are not designed to sustain themselves through donations. Social enterprises have a revenue source similar to private businesses and use that revenue to carry out their social mission. Through case study, lecture and student presentations this course will explore this emerging field. Students will learn what a social enterprise is and how it is the same as well as different from other types of business and NPOs.

Scientific Inquiry

Information Education

E3527 Introduction to Computer Science and Its Applications (2): This is a fundamental course for computer science, which will help students understand how to apply such techniques to improve daily work and solve basic problems. The course will include introduction to Windows operations, Internet applications, Office Word and PowerPoint and basic multimedia tools.

E3528 Network and Information Technology (2)： In this course, students will learn not only fundamental knowledge of network and information technology, but also the applications and their impact on our lives and technology. We will cover the following topics: WWW, Web commerce, impact of network on human life, basic principles of networks and communications, wireless cellular and data networks, RFID, sensor networks, Internet of Things (IoT), smart mobile devices, cloud computing, and the future of the Internet.

E3529 Microsoft Office Specialist Certification (2): This course introduces the skills of the Microsoft Office including Word, Excel, PowerPoint. The related training forms the basis for Microsoft Office Specialist Certification.

E3530 Application of Network and Cloud Computing (2): This course will help students understand many resources available in Cloud Computing, while training students to enhance efficacy of daily work and learning via actual practice.

E3531 Introduction to Multimedia (2): This course will help students build a solid understanding of multimedia technologies and tools, while inspiring students to further explore various aspects and applications of multimedia as well.

E1034 Introduction to Computers (2): This course is designed for freshmen, not only to enhance their computer knowledge, including programming, network management, network communications, multimedia, video graphics and others, but also to improve their abilities for obtaining desired information from the Internet. At the same time, related topics, like e-commerce, computer virus and information security, are introduced such that students will have sufficient skills for further investigating and learning more advanced techniques or applications. Finally, students can apply those abilities and skills to their daily life.

T0205 Web-Based Programming (2): The goal of this course is for students to understand web development environments, learn basic web program languages (php, html and CSS), and write interactive web applications.

E3739 Smart Phone Programming (2): This course will incorporate "Design thinking" into "program design course" to design the conceptual steps of thinking, to train students through the discussion of operational thinking, and improve students can use the impact of their application and future life. This course covers the following elements: Learn the basic elements of mobile programming, understand the basic principles of mobile phone design, layout and interactive interface, the integration of the use of Bluetooth technology and trends. Most of all, we pay attention to student participate design and results sharing.

E3861 Python Programming Language (2): This course will introduce the concept of Python programming language. At beginning of this course, I will also introduce the basic idea of computational thinking. Then, the course contents will cover the basic input/output, logical control, functions, loops control, data structure, and string processing of Python.

E3862 Introduction to Computer and Computational Thinking (2): C programming language is a kernel technology of computer technology. Its development is highly related to algebra. This course will start from well-known algebraic expressions, arrays expressions, and then extends to string expression and manipulations. Have students to enter the programming world in a natural way.

E4296 Introduction to Cyber Security Management (2): Starting from the potential threats in the information and communication network environment of everyday life and work. This course aims to help students understand the information security risks in various aspects of life and work, thereby raising their awareness of information security. It then introduces related functions and basic technologies of information security, such as cryptography, security protection mechanisms, intrusion detection, penetration testing, as well as international information security standards and relevant laws and implementation regulations in our country.

Global Technological Revolution

S0920 Earth's Ecosystems and Environment (2/2): This course introduces the essential issues related to the ecosystems and environments on the Earth.

E2523 Biotechnology (2/2): In this course we introduce the trends in technological and scientific developments. Subjects include biotechnology, earth science, ecosystem and environments etc.

S0922 Energy and Materials Technologies (2/2): The course presents an introduction to the historical background and general aspects of the global technology revolution. The potential impact and influence of a variety of technologies on the future will be discussed; however, the points of our interest will be focused especially on energy and materials technologies.

S0923 Electronics and Computer Technology (2/2): This course is for students to study science and technology and to increase their basic knowledge and understanding of science and technology. Additionally, the potential impacts of the Internet of Things, Big Data and Artificial Intelligence on the future will be of particular interest.

S0924 Marine Technology (2/2): Regarding Taiwan surrounded by the ocean and sea, this course introduces the fundamentals of marine technology. It includes the topics of ocean environment, fluidic machinery, underwater technology, ocean engineering, offshore wind power and the related innovative inventions.

S0925 Sustainable Development of Technology (2/2): This course will start from introducing the conception of sustainable development, and then followed by exploring the direction of sustainable technologies in the future, through discussing the sustainable environment, sustainable economics and sustainable society.

S0926 Planning of Intelligent Living Style in Green Building Environment (2/2): This course mainly discusses issues about the update development of new technologies such as energy technology, biomedical nanotechnology and so on.

S0927 Evolution of Technologies (2/2): The purpose(s) of this course is to let the students know about the display technology, the VR, AR, and MR technology, the AI, the blockchain, the crypto currency, the self-driving car technology, the IOT, the "FakeApp", the hologram technology and so on.

S0928 Global Robot Industry Trend Analysis and Practicum (2/2): This course mainly discusses issues about the development of robots and robotic industries. Hopefully students will combine their specialty and knowledge from this course for further applications.

E3628 History of Machines (2/2): The course presents an introduction to the historical background, progressing aspects of the machine/manufacture technology, and catapult competition.

Natural Sciences

S0358 Physics and Living (2): The background about the physical mechanism in the fields of daily life and modern production will be introduced.

S0362 Exploring the Universe (2): This course presents an introduction to the solar system, stars and galaxies, and the universe as a whole, including a brief account of major advances in astronomy, modern physics, and cosmology.

S0368 Chemistry, and Society (2): This course centers on the local environmental issues and discusses related social problems as well as proposes possible solutions.

S0369 Chemistry, Medicine and Society (2): This course introduces the basic chemistry concepts related to medicine and discusses significant social events related to both medicine and chemistry. Topics include basic drug chemistry, mind chemistry, vitamin chemistry, love chemistry, cancer chemistry, as

well as the chemistry of traditional medicine.

S0377 Life Sciences: The Subtlety of the Human Body (2): This course covers the following topics: the body plan, the world inside the womb, growth and change, nimble limbs, cold and warm, the confusing brain, heart and vessels, breathing, blood as the spring of life, viewing these processes through our own body, and the body's defense system.

S0690 Life Sciences: Gene Technology and Health (2): This course is an introduction of the recent progress in DNA, genes, modern biotechnology, and general health care.

S0727 Light, Photography and Vision (2): This course offers an introduction to the basic properties of light, photography, holography, eyes and vision, and optical instruments.

S0738 Chemistry in Life (2): This course explores the general principles of the chemistry we encounter in our daily life, such as in foods, medicine, the environment, materials, electronics, detergents, plastics, and natural and synthetic fibers.

S0747 A Tour of the Wonder that is Mathematics (2): This course deals with many interesting aspects of mathematics, such as mathematical games, puzzles, as well as popular mathematical myths. The course also describes the relevance of mathematics to our daily life. By presenting the life stories of famous mathematicians, this course also offers an overview of the development of mathematics.

S0748 The Way Science Works (2): Using easy-to-understand stories and pictures, this course explains to students the science principles and mechanism behind the technologies and products used every day. This course is most relevant to "How Things Work" types of knowledge.

S0749 Semiconductor in Living (2): The lecture will introduce the characters of the semiconductor, and its application: field effect transistors, optoelectronics and logical elements. This lecture is for students who are not studying in science or engineering departments.

S0751 Life Sciences: The Era of DNA Technology (2): This course is to introduce the recent developments in DNA-related technology. It also discusses the impact of such progress on life sciences, medicine, and society from legal and moral perspectives.

T2166 A Voyage to Science (2): What is science? What does science mean to us? This course offers an opportunity to examine the path of science and to search for the true meaning of a scientific civilization.

T2167 Chemistry Food and Society (2): This course introduces the basic chemistry concepts regarding food and discusses social events related to food and chemistry. Topics include basic nutrition molecules, vitamins, cancerous foods, soft drinks, wine, healthy food, gene food, and so on.

T2973 Statistics in Daily Life (2): This course will introduce to the phenomenon or problems that are related to statistics or probability. The necessary analyzing software and knowledge of mathematics will be taught, too.

S1025 Gender and Science (2): This Course explains the origin of sexual differentiation from the evolutional biology point of view. How that affects the human society today and form gender issues is also a focus of discussion. Historically famous non "man" stream (female and homosexual) scientists will be plotted to contemplate the meaning and the future of gender equality

S1024 Science within Gender Education (2): This course will introduce to the phenomenon or problems that are related to science within gender education. The gender balance will be focused.

COLLEGE OF
LIBERAL ARTS

COLLEGE OF LIBERAL ARTS

Dean: Huei-Chun Chi (紀慧君)

Brief History

The College of Liberal Arts is one of the longest-established academic division in TKU, comprising the Department of Chinese Literature, the Department of History, the Department of Information & Library, the Department of Mass Communication, and the Department of Information & Communication.

Motto and Goals

The college integrates communication studies with humanity concern, aiming to provide a learning environment with “oriental perspectives, global vision, international connections, and creative innovation’. Quality courses are offered from five disciplines: Multiple Means of Expression, Cultural Review, Data Analytics in Digital Humanities, Interdisciplinary Narrative, Digital Content, equipping our students with core competences derived from theoretical knowledge and internship programs. Apart from lectures, students can also enroll in the Cultural Creative Industry Program, Program of Intelligence and Humanities on Practice and Innovation to carry on their interdisciplinary learning.

Future Development

The College of Liberal Arts not only helps student to develop a deep understanding in professional study, but also nurturing cross-domain technology. The Program of Intelligence and Humanities on Practice and Innovation provides students with a wider scope of professional knowledge and core capabilities, for what they need after entering workplace. The College of Liberal Arts also makes an effort on Regional Revitalization in recent years, and dedicates to USR and SDGs.

Course Descriptions

A2353 Creative Digital Genes (0/2): This course aims to explore creative ways of thinking and elements of creativity and digital thinking by analyzing creative artwork and thereby inspiring students to explore their own internal creativity.

A2530 Digital Arts and Interface Design (2/0): This course focuses on investigating the artistic possibilities of science and technologies. Various topics of interactive art installations and new media artworks are introduced, analyzed and discussed in order to improve students' abilities of art appreciation. Some artistic activities are also included in the class for encouraging students' creativity and ability of critical thinking.

A2559 Story-telling Project (2/0): This course is designed to provide students with guidelines to explore their imaginative potential to create a story, to build up the structure of a drama, to create potentially interesting subjects for a story, and to develop a story outline.

A2569 Seminar on Global Cultural and Creative Industry (0/2): This course invites guest speakers from different areas of the cultural and creative industries to talk on special topics. It also features lectures by TKU instructors and extended discussions on various issues.

A2590 Special Project on Cultural and Creative Industries (2/0): This course aims to help students design projects on cultural and creative industries. Students will make use of their knowledge of innovation and entrepreneurship to develop a proposal.

A3250 Diverse Cross-Domain Applications in Animation Industry (2/0): This course provides a detailed overview of animation in the cultural & creative industry. It discusses the current situation in Taiwan, including factors that have contributed to the success of the industry in Taiwan and in other major computer animation countries to understand the importance of animation, and try to learn to use it in the practice of the cultural and creative industries.

A3131 Information Visualization (2/0): This course cultivates talent in utilizing visualization tools for effective data analysis and presentation. Topics include image communication, fundamental visualization concepts, data characteristics, analysis methods, and statistical techniques. Focusing on graphic narration, students interpret key insights from data swiftly. Tools like Excel, PowerBI, and Word Cloud are extensively used, providing hands-on experience. Upon completion, students proficiently communicate data-driven findings and leverage visualization as a powerful tool for data exploration and communication.

A3199 Production of Podcast (2/0): This course urges students to do brainstorm through this module and producing creative Podcast. Fostering students to note and consider things around themselves, which would become the subject material of a Podcast, and making students learn how to produce Podcast.

A3200 Historical Culture and Art Appreciation (2/0): Through studying the culture connotation of the Chinese historic artifacts, students are training to be capable of thinking about causes to the historic key points in the artifacts, so that they could realize the heritage significance and culture value of historic artifacts, and enhance themselves the capability of appreciating and enjoying the cultural splendor of historic artifacts.

A3248 Multiple Intelligences and Creative Expression (2/0): This course is based on Professor Howard from Harvard University in the United States. Based on the theory of multiple intelligences proposed by Howard Gardner in 1983, it is expected to integrate a variety of different types of classic and popular texts (styles include novels, essays, poetry, movies, micro-films, short videos, etc.) to guide The independent thinking of young students strengthens the new generation's ability to integrate fragmented information, thereby maintaining innovative expression and humanistic influence with human subjectivity in the AI era.

A3249 Brand Marketing Communication (2/0): This course aims to guide students in understanding the role and function of brand marketing communication in the current (digital age), learning relevant basic knowledge, applying theoretical knowledge through practical experience, analyzing brand cases, and cultivating students' interest and sensitivity in brand marketing communication. The course will also encourage students to use AI tools to assist in branding projects.

DEPARTMENT OF CHINESE LITERATURE

Degrees Offered: B.A., M.A., Ph.D.

Chairman: Shan-Pei Yin (殷善培)

The Department

The Department of Chinese Literature seeks to promote Chinese culture by combining classicism and modernism. It believes in the nurturing spirit of the humanities and promotes cultural equality through an in-depth view of traditional Chinese culture, and inquiries into the relationship between traditional Chinese learning and contemporary culture.

The Department also offers an evening bachelor's program for those who are unable to pursue their studies during the daytime.

Founded in 1988 (M.A.) and 1999 (Ph.D.), The Graduate Institute of Chinese Literature combines Chinese literature and aesthetics, traditional society and culture. The M.A. and Ph.D. degrees require two or more years of intensive study and research in the field of Chinese literature, arts, philosophy, and culture.

Faculty

Professor Emeritus
Chim-Lan Ho (何金蘭) ; Po-Yuan Kao (高柏園)

Specially Appointed Professors
Ben-Hang Chang (張炳煌)

Professors
Der-Liang Chou (周德良)

Associate Professors
Ming-Hao Ma (馬銘浩) ; Shan-Pei Yin (殷善培) ; Wei-Ping Shu (許維萍) ; Ta-Tao Chen (陳大道) ; Wei-Shu Lin (林偉淑) ; Wen-Chien Huang (黃文倩) ; Ya-Chun Lo (羅雅純) ; Hui-Ru Li (李蕙如) ; Ru-Chi Hou (侯如綺)

Assistant Professors
Yi-Chieh Liu (劉依潔) ; Min-Chi Hsieh (謝旻琪)； Yang, Su-Mei (楊素梅) ; Chen, Ji-Jing (陳姞淨)

Degree Requirements

1. Requirements for a B.A. in Chinese:
   Students must complete 128 course credits, including 74 credits of required courses, 20 credits of elective Chinese literature course, and 34 credits of elective courses.

2. Requirements for a Master's degree in Chinese:
   Master's students of the Department of Chinese Literature must complete their degree program within 2-4 years. During that period, they must take a minimum of 32 credits, excluding their thesis. Master's students are not allowed to take more than 15 credits each semester, but need to be enrolled in at least one course per semester. Master's students are required to take the course "Academic Research Methods."

3. Requirements for a degree in Ph.D. in Chinese:
   Ph.D. students must complete their degree within 2-7 years. During that period, they must take at least 18 credits (excluding their dissertation). Students are not allowed to take more than 15 credits per semester but need to be enrolled in at least one course each semester. The Topic of Chinese Academic

History is a required course.

Course Descriptions

Undergraduate Courses

A0104 History of Chinese Literature I (2/2): This course is designed to arouse students' interest in Chinese literary works by exploring the history, characteristics, and styles of Chinese literature.

A0105 History of Chinese Literature II (2/2): This course introduces the interaction between literary development and socio-political factors in different periods of history and a study of the formation of literary styles and characteristics.

A0150 Chinese Paleography (2/2): This course focuses on the study of the structure of Chinese characters.

A0168 Introduction to Literature (2/2): This course introduces some basic concepts of literature, as well as Chinese and Western literary theory and criticism to develop students' competence in appreciating and critiquing literary works.

A0384 Children's Literature (2/2): This course offers an introduction to renowned authors and works in the area of contemporary children's literature.

A0563 Chinese Semantics (2/2): This course offers an introduction to exegetical methods, regulations, semantic analysis, and classical annotation style.

A0589 Introduction to Chinese (2/2): This course offers an introduction to Chinese culture and literature.

A0715 Readings in Chinese Poetry (2/2): Through analysis of ancient Chinese poetry and classical poetry, students will be able to grasp the spirit of classical poetry and its cultural landscape and thus gain a basic understanding of classical Chinese poetry.

A0757 General Linguistics(2/0) : The purpose of this course is to lead students to understand the core of linguistics—phonetics, phonology, morphology, syntax, semantics and historical linguistics. Enable students to have basic knowledge of the linguistics.

A0758 Script Writing (0/2): This course is based on classical literary studies, writing theory teaching, and practical group creation, so that students possess the ability to write movies and TV drama scripts. Through the process of creation and actual performance, students can learn to analyze, comment, and correct the attitude and skills of reinforcing script creation.

A0823 Lun Yu and Meng Tsu (2/0): Through this course, students will learn about basic Confucian and Mencius' moral principles.

A0829 Selected Readings in Chinese Literature (II) (2/2): This course offers an introduction to Pian Wen in the Six Dynasties and an in-depth analysis of *Chao Ming's Literary Anthology* and its influence on the history of literature.

A0852 Chinese Phonology (2/2): Through the phonology of the media, students will be able to recognize and understand the phonological structure of language, phonology books, audio systems, to understand the link between dialects by using phonology, and to appreciate the beauty of Chinese literature.

A0991 History of Chinese Philosophy I (2/2): This course surveys the origin and development of Chinese philosophy, tracing the spirit and value of Chinese culture.

A0992 History of Chinese Philosophy II (2/2): This course surveys the origin and development of Chinese philosophy and traces the spirit and value of Chinese culture. It is a continuation of "History of Chinese Philosophy I."

A0994 News Reporting and News Writing (2/2): This is a course that integrates basic writing training, news coverage, and special reports. It is set up in the Chinese language department. It is written in the Chinese department for professional reading. It combines journalism and interview coverage with special reporting capabilities to prepare students for news interviews. Skills, understand the principles and principles of report writing, and conduct practical interviews.

A1051 Special Topics—Poems (2/2): This course is based on Li Bai's poems and is aimed at understanding the issues related to the two poetics.

A1376 Expression in Spoken and Written Chinese (2/0): This course is designed to enhance students' ability to speak and write Chinese by analyzing theories and case studies, and taking part in exercises and discussions.

A1487 Composition (2/0): This course aims to teach training in creativity, words, text, structure, composition.

A1724 Graduation Project (0/2): In order to meet the objectives of the Capstone course, students are expected to complete specific works through deepening what they have learned in the Chinese Department.

A2142 The Study of Literature and Art Editing (2/0): Actual editing and publishing applications of various fields will lead students to understand the science and practicality of being a literary editor.

A2322 Sel. Reading in Chinese Liter. **(2/2):** Based on the dignified characteristics of the self-description of "Le Zui" and the hardship of trained procedures, the superstition of fortune-telling and the fear of death were broken, and thus developed the philosophy of life and death.

A2457 Modern Literature History of Taiwan (2/2): This course is to introduce the Taiwanese literature during 1895-1945.Try to combine the knowledge with literature, society and history to understand the trend of thought, many kinds of social movement and a mass movement etc.

A2458 The Selected Readings of English Sinology Writings (2/0): This course introduces students to some Chinese writings translated into English. They are, chronologically, The Analects of Confucius, Tang poetry, Tang and the Ming Chinese short stories, as well as articles concerning modern literature in the May-fourth period.

A2518 Introduction to Chinese Drama (2/2): The goals of this course are to introduce students to Chinese drama, including its history, art forms, etc. to obtain a basic knowledge about Chinese drama.

A2535 Reading and Writing in Chinese Poetry (2/2): This course will focus on music literature, the state of mind of literature, research on Ci characters, scenes, emotional types of change, and the general characteristics of mood.

A2625 Poetry, Calligraphy, Painting and Cultural Creative Industry (0/2): This course describes the relevance of poetry and painting to contemporary times and how to help influence fashion culture. It combines creative content with industry and traditional arts to equip students with extensive knowledge in arts.

A2626 Introduction to Creative Sinology Industry (0/2): This course introduces students to poetry and painting as relevant to current life and their potential to become the art of living of the times, and open up a new fashion culture. This course focuses on linking creative products of traditional culture and arts with industry, and thereby allowing for further social development.

A2791 English for Sinology (2/2): The course instructs students in sinology by reading English sources.

A2792 Applied Mandarin Writing (2/0): The course is an introductory description of prose, plays, publishing and other fields; practical exercises will promote the students' writing skill.

A2895 Selected Readings of the Chinese Classical Novel (2/2): The course 1. Cultivate students'

ability to appreciate and criticize classic novels. 2. Cultivate students' understanding of the history of Chinese novels. 3. For the classic modern interpretation, let the classics spread and settle our existence and emotions.

A3021 Creative Applications of E-pen (2/2): This course is the first digital pen in science and technology at home and abroad. How to combine with traditional ink and modern painting, there will be a new digital tool application in the field of design and painting aesthetics. The course begins with the study and creation of traditional calligraphy and painting to understand the use of digital e-pens.

A3390 Basic Calligraphy (1/1): This course will focus on calligraphy teaching and writing exercises. In this semester students will review and strengthen official script of the Han Bei and the Han Dynasty; and practice line, cursive, and relevant information.

A3391 Advanced Calligraphy (2/0): This course takes calligraphy fundamentals as a cornerstone and explores further various types of calligraphy. This course uses textbooks dealing with traditional calligraphy theory to enable students to associate theory with practice in their creation of contemporary calligraphy.

A3394 Introduction to Modern Popular Novels (2/2): The main purpose of this course is to introduce students to basic knowledge regarding popular novels in the modern era and the Qing Dynasty. This basic knowledge includes an examination of the definition, history, and works of the era.

A3460 Modern Poetics: This course offers the basic knowledge of poetry. Training students to understand the aesthetic meaning of the literary genre, and thus achieve the goal of deconstructing poetry into its core elements.

A6036 Modern Drama (2/0): The course aims to explore the development of modern drama, and introduce representative troupe works.

Master's Program

A0444 Research Methods (2/2): This course offers a study of the significance and influence of language analysis in contemporary philosophy; it offers a guide to academic research by providing clear concepts and logical arguments.

A2394 Selected Topics on The Six-Dynasty (2/0): Taking the Six Dynasties as a generation, in-depth discussion of the germination of Chinese humanities and art, and the context of literary change.

A2689 Topics on The Chinese Culture of Food (2/0): This course is intended to explore the various changes and causes of the period from Taiwan's Japanese rule to 1997, and to understand the different aspects of cross-cultural diet, and to appreciate the complex and colorful features and special connotations.

A2985 The Ancient History of Cross-Cultural Exchanging & Western (0/2): This course takes history as the main axis and introduces the cultural exchanges between China and the West. The course is divided into semester. The next semester is about contemporary from the Ming and Qing dynasties. The scope of the lectures is very wide. The traffic from the west and the west, the economic exchanges, the introduction of religion, music, art, food, and the interaction of architecture are all discussed.

A2986 The Modern History of Cross-Cultural Exchanging & Western (2/0): This course takes history as the main axis and introduces the cultural exchanges between China and the West. The course is divided into semester. The relationship between the Han Dynasty and the Western Regions in the last semester talked about the cultural communication and exchanges between the Tang and Song and Yuan.

A3006 Topics on The Legend of Tang Dynasty (2/0): This course is cut into the significance of the Tang legendary text, to cultivate students' mastery of the cultural and historical diversity of the text, and then to explore the purpose and purpose of the Tang legend creation from the perspective of the times.

A3007 Topics on Classical Novels of The Ming & Qing Dynasties (0/2): This course aims to explore the ancient Chinese literature, characteristics, achievements and influence on later literature and carry

out the question.

A3072 Selected Topic on Contemporary Neo-Confucianism Studies(I): This course introduces the thought of Neo-Confucianism, especially focus on Mou Zong-San, Tang Jun-Yi, Xu Fu-Guan, Fang Dong-Mei, Lao Si-Guang. On the other hand, metaphysics, theory of human nature, ethics are the reference points in interpretation of theoretical exposition to Neo-Confucianism. In the end, the analysis and re-definition will be provided.

Ph.D. Program

A2413 Selected Topics on Chinese Learning (2/2): This course focuses on the development of traditional Chinese academic trends, ranging from public opinion and rhetoric to textual interpretation.

A2714 Topics on Chinese Character Culture (0/2): This course uses the medium of Chinese characters to enable students to recognize and understand the structure of Chinese text. An emphasis will be placed on six notable books illustrating the theories and cultural meaning of the ancients, enhancing contemplative analysis, while inspiring an appreciation of the beauty of Chinese characters.

A2993 Historical Trends in Literature-Historical Affairs (2/0): Literature and Historical conformity research is a cross study and a very important method to rise the Chinese literature study. First from the literature and the historical conformity of subsequently may extend to the literature studies research the territory with other. In the first semester, 16 subjects will be taught, and the second semester, 10 to 16 research paper may be discussed.

A2994 Historical Trends in Literature-Historical Data (0/2): Literature and Historical conformity research is a cross study and a very important method to rise the Chinese literature study. First from the literature and the historical conformity of subsequently may extend to the literature studies research the territory with other. In the first semester, 16 subjects will be taught, and the second semester, 10 to 16 research paper may be discussed.

A3079 Topics on The Classic Literature of Confucius Study (2/0): The purpose of this lesson is to enable the practitioners to change the history of the classics and their changes, to master the outlines, to teach each other through the lectures of the teachers, and to cultivate the ability to solve various problems in the history of the classics.

A3080 The Aesthetics of Literature(2/0): This course is tried by the development of landscape → View → Writing (Literature) →- painting (art) that tells the kind of literary aesthetics of life aesthetics. This semester first to painting as the main object of discussion, and then into the literary creation of the picture.

A3082 Modern Literary Theory Study (I) (2/0): Through the trend of postmodern, cultural studies and contemporary literary trends, several important concepts are discussed, which are related to the development of poetry and novels in the past 100 years, and possible future development trends. In the face of various literary trends in the 21st century and the ever-changing theoretical ideas, a comprehensive analysis and discussion.

A3138 Research on Calligraphy (2/0): This course explores calligraphy at three different levels: calligraphy (correct writing, beautiful and tangible), calligraphy (connotation art, personal style), calligraphy (spiritual life, academic truth).

DEPARTMENT OF HISTORY

Degrees Offered: B.A., M.A.

Chairman: Chi-Lin Lee (李其霖)

The Department

The Department of History was founded in 1966 to train historians in cultivating the wide realm of historiography. At present, the department has five professors, three associate professors and three assistant professors. A special feature of this department is a chair for the expertise in historical studies, carrying out the prospect of both classroom education and fieldwork. In addition to inviting specialists and scholars to give lectures, students and professors also make field trips to famous local sites to conduct on-site analyses. Established in 1998, the master's program aims to train students' ability in conducting historical research, especially on the relationships between China and foreign countries and the history of Taiwan.

Faculty

Professor Emeritus
Yun-Chih Lo (羅運治) ; Tsung-Hsien Chou (周宗賢)； Jiann-Chen Huang (黃建淳); Tzeng-Chyuan Liou (劉增泉)

Professors
Chen-Jung Lin (林呈蓉) ; Huang-Ta Lin (林煌達)； Chi-Lin Lee (李其霖); Chia-Chi Lin (林嘉琪)

Associate Professors
Ming-Yung Wu (吳明勇) ; Shang-Wen Kao (高上雯) ; Yi-Ching Ku (古怡青)

Assistant Professors
Yu-Lu Tsai (蔡育潞) ; Tsung-Yuan Chen (陳琮淵)； Jing-Jie Wu(吳景傑)

Degree Requirements

1. Requirements for a Bachelor's degree in History:
   A student must complete of 128 credits of courses, including 84 credits of required courses and 44 credits of elective history courses.

2. Requirements for a Master's degree:
   Completion of 28 credits of courses, including 4 credits of required courses and 24 credits of elective courses. Students are also required to submit a master's thesis completed under the supervision of a faculty member, and pass an oral examination.

Completion of 28 credits of courses, including 4 credits of required courses and 24 credits of elective courses.

Course Descriptions

Undergraduate Courses

General Courses

A0281 Historical Methodology (2/2): This course is designed especially for advanced scholarship in history. Stress is placed on practical exercises; the purposes, materials and techniques of historical scholarship; and theory, practice and criticism of historical research methods.

A0282 Introduction to Historiography (2/2): This course offers an introduction to the great historians

of the world. Classroom activities include studying and seminar discussion of selected historical documents dealing with major events and trends in historiography.

A1139 History of Taiwan (3/3): Fieldwork and seminar of Taiwan history studies are central to this course. This is an advanced course that continues the initial course “Introduction to Taiwan History” and will discuss related topics in more depth.

A1212 World History (3/3): This course surveys Western civilization from antiquity to the modern Period.

T0031 General History of China (3/3): This course offers a survey of Chinese civilization beginning from antiquity to the modern Period.

A0287 Seminar on Taiwan History (2/2): Selected topics (political, economic, social and intellectual history of Taiwan from the 16th to the 21st century) will be discussed in this course.

History of China

A2742 History of Pre-Chin, Chin and Han Dynasty (3/3): This course introduces Chinese history before 221 B.C., which includes the archeological Stone Age, mythological Three Sovereigns and Five Emperors and the historical development of the Dynasties of Xia, Shang, Zhou.

A2743 History of the Wei-Jin to Sui-Tang Dynasties (3/3): History of the Six Dynasties is the interface between the Qin-Han dynasties and the Sui-Tang dynasties. This curriculum is composed of the Sui Dynasty, the Tang Dynasty, and the Five Dynasties and Ten Countries period history events.

A2745 History of Sung and Yuan Dynasties (3/3): This course follows the admonition by Yan Fu of the late Qing Dynasty who claimed that the Four Histories should be read as literature. Much of what we today call Chinese was created during the Song and Yuan Dynasties. Thus, the course considers the development of Song and Yuan dynasty and relates these to the great transformation of Chinese politics, economy, society and culture.

A2746 History of Liao, West Xia and Jin (3/3): This course is concerned with the rise and fall of the Kitan, Tangut, and Jurchen clans during the 10th through 13th centuries. It analyzes each clan’s development and evolution. The course also explains the Liao, Xixia, and Jin Dynasties in their attempt to preserve the character of their own clan. These clans created new political, military, social, economic, and cultural developments. Finally, the course analyzes the connections and influences of those dynasties with the developments of Chinese history.

A2747 History of Ming and Qing Dynasties (3/3): To realize the history and culture of Qing Dynasty.

A2748 History of Modern and Contemporary China (3/3): To realize the development of Chinese modern history and able to critical and reflection the process of Chinese modernization.

T2170 The Modern and Present History of Taiwan (3/3): The course analyses the basic structure of Early Modern Taiwan's economy, culture, thoughts, literature, arts, social transition to explain how different early modern culture in Taiwan were formed.

History of Western

A0313 The Ancient Western World (2/2): This course focuses on the history of the origins of Western civilization to the fall of Rome.

A0314 Medieval European History (2/2): This course gives an overview of the political, economic, social, and intellectual history of the Middle Ages.

A0325 Modern European History (2/2): This course gives an overview of political, economic, social and intellectual history from the Peace of Westphalia to the fall of Napoleon.

A0326 Early Modern European History (2/2): This course deals with the political, cultural, economic,

and social developments in the Western world from the 16th to 18th centuries. It describes how the modern age was shaped.

A1213 Twentieth Century World History (2/2): This course gives an overview of political, economic, social, and intellectual history from the fall of Napoleon to the present.

A1240 History of Modern Japan (2/2): This course offers a general survey of the people, ideas and intellectual forces of 20th-century Japan.

Special Topics on History

A0123 Intellectual History of Modern China (2/2): This course offers a close analysis of people, ideas, and intellectual development of China from 1844 A.D. to 1911A.D.

A0132 History of Chinese Art (2/0): In this course, students will be engaged in historical analyses of selected works of painting, sculpture, temples, majestic palaces from antiquity to the present.

A0335 History of Western Fine Arts (2/2): This course offers a historical survey of selected works of painting, sculpture, and architecture from antiquity to the present, and an introduction to the major artistic movements in Western art.

A1268 Social and Cultural History of Japan (2/2): This course offers a survey of social and cultural history of Japan from the earliest times to the present.

A1379 History of Japanese Diplomacy (2/2): In this course, students will study the history of diplomacy of Japan, and discuss its importance in Japan as well as in the world, especially in East Asia.

A1435 History of Chinese Society (2/2): This course focuses on how Chinese society was formed and shaped.

A1437 History of Chinese Political Systems (2/2): This course offers a close analysis of China's bureaucracy transformation and how the government system works.

A1496 Women in Chinese History (2/2): This course studies the status of Chinese women in history and the oppression of patriarchy inflicted upon them.

A2501 The Development of Oceans in Taiwan (2/2): The current course introduces a collection of materials related Taiwan's Oceans and technology. Students will understand Taiwan's Ocean and technology and then continue to expand on the interesting parts.

A2592 Cultural Tourism and Socioeconomic Development in Taiwan (2/0): This course introduces topics relevant to cultural tourism and socioeconomic development in Taiwan. Students will understand the importance of cultural tourism and socioeconomic development in Taiwan.

A2641 The Guide of Local Culture and History in Taiwan (2/2): The purpose of this course is to help students understand local culture and history in Taiwan, and to advance their ability of organizing and interpreting local historical sources, therefore, increasing opportunities for them to gain related jobs.

A2697 The Industrial Development of Taiwan (2/2): This course discusses The Industrial Development of Taiwan. The course also analyzes the basic structure of Modern Taiwan's economy, culture, thoughts, literature, arts, and social transition to explain how different modern cultures in Taiwan were formed.

A2699 Taiwan Forestry History (2/2): This course discusses the study of Taiwan Forestry History. The course also analyzes the historical materials about Taiwan Forestry History, the basic structure of Taiwan's Forest economy, culture, thoughts, and social transition to explain how different cultures in Taiwan Forestry were formed.

A2700 Chinese Jade Culture and Ancient Fine Arts (2/0): Through studying the culture connotations of the Chinese Jades, students will be capable of thinking about the historic key points in the artifacts, so

that they could realize the significance and cultural value of Chinese Jades, and enhance their capability of appreciating and enjoying the cultural splendor of Chinese Jades.

M0031 Economic History of China (2/2): This course focuses on the origins of the Chinese economy, providing a historical analysis of economic change and growth from the earliest time. Emphasis is placed on the precondition and consequences of industrialization.

A2858 Historical Demography and Application (2/2): The main purpose of this course is to provide students with historical demographic theories and examples of quantification. Furthermore, the course integrates social and economic development of local society with the geographic information system (GIS). In this course, we talk about population and family changes in Taiwan. Topics covered include birth, death, marriage and migration.

A2808 Scholarly Publish & Historical Writings (2/0): The course trains students how to understand scholarly publications and how to write historical books. It teaches them to classify the annual style, legend style, report style, and biography style.

A2303 History of the Renaissance (2/2): In this course, students will study the origin and development of famous writers and painters in the Renaissance age.

A2502 History of Modern European Culture (2/2): This course offers an overview of the economic, social, and culture history of modern Europe.

A3065 The Military History in Taiwan (2/2): This course is mainly studied about Taiwan's military history. The content contains the military regime, military facilities as well as the occurrence of major battles to the government's approach. From their observations, students can learn the evolution of Taiwan's military development.

A2971 Historical Geography (2/2): This course is to explore the historical changes of the geographical conditions and geographic distribution of China's historical development, strengthen the thinking and training intertwined in the dimensions of space and time. It is also one of the important fields of humanistic studies today that we approach history from the perspective of historical geography and regional studies.

A2816 Field Investigation and Oral Report (2/2): Students Get guided knowledge and skills. Teach students to perform drama and script creation.

A2973 Tombs and Cultural Relics of Archaeology in China (2/2): Described the life of the human being is limited, the death of the individual or even the ethnic group, the attitude of death, the treatment of the dead, and the arrangement of the following things, not only as a religious significance, but also has a special social significance. At the same time, after the death of a special funeral system, the dead will be able to enter another world. The world constituted by society, life experience, and religion.

A2972 Women History of Western World (2/2): Since the industrialization and globalization, the role of women in the family, society and the state has been greatly improved, and has become a notable academic research issue. The content of the course is based on the introduction of modern women in the West, supplemented by discussions on modern women's issues.

A2504 Taiwan Image Digital Website and Historical Information System (0/2): Leading student to know what is Taiwan Image. Leading student to know what is Historical Information System.

A2744 Summary and Practice of Digitization of History Data (2/0): To enable students to experience the work of history data digitalization, and to understand the role of cultural and creative industries.

A3053 Identification and Collection of Ancient Chinese Jades (2/0): Using some archaeological materials and historical documents to research the characteristics of different dynasty jades, like crafts, shapes, patterns, and specific colors of times. To understand how to collect ancient jade step-by-step, the research combined with relevant contemporary science and technology known to counterfeit ancient jades.

Historiography

A0117 Chinese Historiography (2/2): Students will be engaged in readings of the great historians of China from the earliest times to the beginning of the 20th century. This course also investigates how perception of the past has altered our present.

A0118 Selected Texts from Chinese History (2/2): This course focuses on topics and texts in Chinese history with various approaches adopted by distinguished historians.

F0277 History of Japan (2/2): The past and present history of Japan, from the 7th to the 21st century, will be discussed in this course.

A2195 Overseas Chinese History in Southeast Asia (2/0): The course analyzes and compares the politics, societies, economics, and culture construction of different regions in Southeast Asia. Students learn how to figure out the history of Southeast Asia and make comments with confidence about what kind of contribution and influence was, made by the overseas Chinese who were under multiple complex historic factors and environments of regions in Southeast Asia.

A0321 Western Historiography (2/2): Students will be engaged in readings of the great historians of the Western world, from the earliest time to the beginning of the 20th century. This course also investigates how perception of the past has altered our present times.

A0322 Selected Texts from Western History (2/2): This course focuses on writings and texts of Western history with various approaches adopted by different historians.

A0398 History of Southeastern Asia (2/2): This course focuses on the following topics: blending and modification of cultures, religions and people of island-and-mainland Southeast Asia, cultural contact and the growth of states and peoples.

A0425 History of France (2/2): This course focuses on the major forces and trends in the history of France from Western Roman Empire to the 5th Republic.

A0466 History of Russia (2/2): This course discusses origins and evolution of Russian people and the state, and foreign relations as they affect domestic policy from 862 to 1964.

A0478 American History (2/2): This course focuses on the major forces and trends in the history of the U.S. from the earliest times to the present.

A0518 History of England (2/2): This course focuses on the major forces and trends in the history of England from the early medieval time to the present.

A0830 The Philosophy of History (2/2): This course serves as an in introduction to some of the main issues and problems in Western philosophy of history (including analytical approaches and speculative approaches).

A1432 Selected Texts on Japanese History (2/2): Students will be introduced to writings and texts on Japanese history, with various approaches adopted by distinguished historians.

A2857 The History of Central European Countries (2/2): This course is to offer students with essential understanding of Polish & Hungarian history in English. In the 1st semester, it begins with the ancient settlement of Poland and Hungary to the current independent from communist regime.

Master's Program

A2833 Historical Research and Discussion Topics (2/2): Based on the theory of history, students will, through interdisciplinary studying, develop the capacity of independent research.

A2834 Study on Chinese Historical Materials (2/0): This course focuses on the history of China and interpretation of historical data used to study the origins, values, collection, identification and utilization

of Chinese history historical methods, to facilitate those who want to delve further the study of Chinese history.

A2835 Study of Taiwan Modern History (2/0): This course discusses the study of modern Taiwan history. The course also analyses the historical materials about the area study of modern Taiwan history, the basic structure of Taiwan's economy, culture, thoughts, literature, arts, and social transition to explain how different cultures in Taiwan were formed.

A2836 Historical Study of European Culture and Society (2/0): In this course, we focus on the socio-cultural and economy in nineteenth and twentieth century Europe. Topics include the industrial revolution, important political, economic and social issues. The English journal articles and classic books are course materials; students are the main leader in the class to share what they learn and their comments.

A2837 International Realizations of Taiwan History (2/0): This course focuses on the relations between Formosa and abroad, through reading historical materials to get the concept of the international environment which Formosa faced during the 17th to 20th century.

A2838 Study of Early Modern Chinese History (2/0): The course introduces the developments of early modern Chinese society and culture. For example, mobility of social class, status of officials, maintenance of family, marriage and woman status, religion and folk belief, city structure and culture, medical and social welfare, lawsuits, etc., will all be touched upon. It's an advanced course for more understanding and discussion.

A2875 Decipherment of Formosan Historical Materials (2/0): This course helps students effectively grasp and understand Formosan historical archives.

A2877 A Study of Chinese Jade Culture (2/0): This course looks at examples of jade and the history surrounding these Chinese artefacts. Through studying the culture associated with Chinese historical jade artefacts, students learn to think of and appreciate the history surrounding such precious objects.

A2878 Studies of Chinese Ancient History (2/0): This course introduces the research findings and achievements of the Pre-Qin, and discusses relevant academic topics.

A2880 Studies in Regional History of Taiwan (2/0): This course introduces the Regional History of Taiwan looking at past, present, and possible future. Contents include the Netherlands, Zheng Dynasty, Qing Dynasty, Japan, and the Republic of China.

A2881 Study of Taiwanese Social and Cultural History (0/2): This course discusses the study of Taiwan Social and Cultural history. The course also analyses the historical materials about the area study of Taiwan social and cultural history, the basic structure of Taiwan's economy, culture, thoughts, literature, arts, and social transition to explain how different cultural practices in Taiwan were formed.

A2882 The Study of Chinese Social and Cultural History (0/2): The course introduces the developments of Chinese society and culture, including such things as the mobility of social classes, status of officials, maintenance of family, marriage and woman status, religion and folk belief, city structure, health and social welfare, laws, etc.

A2883 A Comparative Study of Culture (0/2): This course emphasizes the use of empirical research to help students using theoretical frameworks to compare and contrast cultures, effectively grasping the similarities and differences among cultures.

A2884 The Study of American Social and Cultural History (0/2): This class provides a highly condensed and simplified survey of major historical interactions between legal, economic, and political affairs and social phenomena. The view expressed is that culture is highly dependent on the religion, laws, technology, and economic prosperity that enable and constrain the formation of culture. As these changes, so too does American culture change.

DEPARTMENT OF INFORMATION AND LIBRARY SCIENCE

Degrees Offered: B.A., M.A.

Chairman: Wen-Yau Cathy Lin (林雯瑤)

The Department

The Department of Information and Library Science offers an undergraduate and a graduate program. The programs prepare students for careers in government, business, schools, libraries, information centers, and research institutions through training in the techniques and applications of library and information science as well as multimedia technology. Tamkang University Library, with its extensive collections in many subject areas, offers support to the teaching and research projects in library and information science. In addition, the programs in communications and media technology actively provide students with the capability to deal with multimedia related to digital libraries. The areas of specialization are library automation, library collections, information organization, bibliographic references, management of information systems, information retrieval, automated reference services, information systems resource management, bibliometrics, digital image processing, multimedia production, electronic publishing and the book trade. Several assistantships are available for part-time employment in the library, the department, and other units on campus.

Faculty

Professor Emeritus
Hong-Chu Huang (黃鴻珠) ; Shih-Hsion Huang (黃世雄)

Professors
Sinn-Cheng Lin (林信成) ; Wen-Yau Cathy Lin (林雯瑤)

Associate Professors
Sheue-Fang Song (宋雪芳) **;** Ling-Ling Lai (賴玲玲) ; Hsuan-Pu Chang (張玄菩)

Assistant Professors
Chia-Ling Chang (張嘉玲) ; Tsung-Ming Hsiao (蕭宗銘)； Hong-Shiu Liang (梁鴻栩)；
Hsuan-I Liu (劉瑄儀)

Course Descriptions

Undergraduate Courses

A0055 College and University Libraries (0/2): Investigating the operation and management of college and research libraries, including the laws, principles, user needs, library building, innovation, evaluation, and the trends of development.

A0561 Indexing and Abstracting (2/0): This course aims at helping students acquire knowledge and skills critical to the construction, maintenance, and evaluation of indexes and abstracts. High-quality indexes and abstracts help information users access to the information they desire effectively. This course will cover the conceptual principles underlying knowledge representation for information storage and access, the intellectual process of indexing and abstracting, issues involved in indexing different types of formats and genres, and how to evaluate indexes and abstracts.

A0718 Information Storage and Retrieval (0/2): The class aims to provide students with knowledge and techniques in information seeking. From the background understanding of database and how it relates to information storage and retrieval to the actual use of various databases, students will be able to get real-world experiences of performing searches and reference interview by successfully completing a group project. Students will be exposed to both theories and practices in the field of information storage and retrieval.

A0742 Library Management (2/2): This course provides an introduction to the processes, principles, practices and problems in the library and information center management. Through lectures, reading and discussions, and case study, students will become familiar with the issues of basic management theories, planning, organization, human resources, leading, and coordinating.

A1179 Literature of Humanities and Social Sciences (2/2): This course aims at developing students' understanding of disciplines in the humanities and social sciences and the reference literature used in these disciplines. Students will discuss how technologies have changed the ways humanities and social science researchers conduct research, the data and literature they need, and their needs for well-trained, dedicated, and skilled librarians. The topics include games and gaming in libraries, scholarly communication and digital humanities. The disciplines will include anthropology, archaeology, history, linguistics and languages, law, politics, etc.

A1180 Literature of Sciences and Technologies (0/2): This course focuses on resources for the science and technology. With the understanding of various types of literature (such as technical reports, patents, conference proceedings, dissertations, etc.) in science and technology from the previous semester, we will now focus on selected subjects in science and technology and their reference tools in this semester.

A1216 Periodical Management (0/2): This course aims to present the overview, current issues, and practice of serial management in libraries. It also cultivates students' abilities of managing serials and providing services, including selecting, acquiring, receiving, and maintaining both print and electronic serials in libraries.

A1722 Multi-Media Technology and Application (0/3): The purpose of this class is guiding students to (1) learning multimedia software about producing eBooks in PDF format and EPUB format. (2) Learning how to use Adobe InDesign to produce PFD eBooks. (3) Learning how to use Sigil to produce EPUB eBooks (4) Learning other online multimedia software such as Google documents, online drawings applications (5) Providing students the environment for learning by doing such as Google online applications, Adobe InDesign and EPUB eBooks etc.

A2964 Internship in Information Library Services (1/1): Arrangements for student’s internship program in the different types of libraries and related organizations. The primary emphasis of this program for students will be on the practical works of the library operation.

A1729 Library Automation (2/2): This course focuses on the theory and practice of library automation operation and the integrated online library systems. The other automatic processing that affects services provided to users will be discussed in some detail. This class stresses the thinking and planning process, rather than programming and development of library systems.

A1816 Children’s Library (0/2): Develop a basic concept of librarian working with children. Examine the range of possible library services for children users. Develop programs that relate to the library and its services to its children users.

A1868 Publishing and Communication in the Book Trade (0/2): A study related to publishing industry, understanding the composition and basic knowledge of books, extending to the interrelationship of authors, editors, and readers, as well as understanding the publishing editing, printing, distribution and other business processes, and the development and management.

A2012 Research Methods & Writing (2/0): This course aims to increase students' ability to read and write academic papers correctly. In this course, students will learn how a research project goes and what should be reported in an academic paper. In addition, this course will explain several writing styles, especially the APA style. After finishing this course, students are capable of understanding the structure of an academic paper and writing a research paper under the APA style.

A2190 Government Information and Publishing (2/0): The government will produce a colossal amount of data, which are closely related to everyone and influence their daily living. Traditionally, libraries help people access government information by collecting, organizing, and preserving government publications. Now, the government open data, a step
further in releasing government information, provides more possibilities for people to access and manage government information. This course will introduce the essential concepts of government information,

government publications, and government open data.

A2308 Statistics for Library Science (0/2): This course teaches basic library statistics, including narrative statistics, probability, estimation, hypothesis testing, chi-square testing, variance analysis and regression analysis

A2329 Statistics Analysis and Decision Making (2/0): This course allows students to use several approaches to forecasting time series data.

A2359 Information Literacy (0/2): This course is designed to develop information competencies in student in relation to access, evaluation and ethical use. This course equips and empowers the students with the information, research and literacy skills needed to become effective researchers in a digital age. The student will be able to use the library and its resources effectively to complete assignments for their college courses. Content will be disseminated through presentations, class discussion, lecture and interactive activities.

A2432 Information Organization (I) (2/2): This one-year course aims to (1) provide students with the knowledge of the theories, principles, standards, and tools behind the organization of information, (2) make them aware of the functions of catalogs, cataloging formats, authority control, etc., and (3) make them able to apply content and structure standards to organizing information materials in Chinese. The scope encompasses cataloguing rules, CMARC, subject analysis, classification systems, metadata and the development trends of information organization.

A2433 Information Organization (II) (3/3): Through this course, I hope to help learners to understand: 1. The meaning and function of the Description Cataloging and MARC. 2. How to apply the Cataloging Rule and MARC to describe various types of resources. 3. How to select and establish Access Points for Bibliographic Records and Authority Records. 4. The process and method of western Description Cataloging practice.

A2480 Project Management of Library (0/2): Provides an awareness of current theories and foundation of project management (KM). Discusses project assets and their value to organizations in terms of products, processes, market and services.

A2515 Medical Information Service (2/0): This course explores the related topics of medical library information services from theory and practice. Through classroom lectures, practical operations, literature reading, and interactive sharing, we will learn about the characteristics of medical libraries, collections, reader services, and curriculum design.

A2595 Introduction to Innovative Publishing Industry (2/0): Publishing industry is one of the mainstreams of the cultural and recreation industry. The study of publishing and the book trade can be of great help to librarianship and content/database providers. It makes librarians, publishers, and editors have a good understanding about their surroundings and acquisitions market. Nevertheless, the book publishing industry has been greatly influenced by IT industry.

A2596 Introduction to Information Architecture (2/0): This class introduces the student to key concepts and practices of information architecture (IA), including understanding IA within the broader context of librarianship, architecture and user experience, organization structures, labeling and taxonomies, interaction and interface design. Issues on planning, designing, developing, managing, and evaluating web resources are discussed. Practical skill of evaluating the content and technical aspects of existing informational, instructional, and promotional websites designed for libraries, schools, museums, and other organizations are explored.

A2597 Digital Records Management (3/0): This course describes general principles of digital records management. There are several topics will be discussed which include records lifecycle, file plan, appraisal, preservation…etc. The course focuses very much on the practicality and practice.

A2604 Library Collection Development (2/2): This course will cover the core principles and the practices of library collection development and management; including material type, methods of acquisition and order, criteria and tools of selection, user's requirements and analysis, collection development policy, evaluation, weeding (or deselection), collaborative collection development and

library consortia, and the impact of information technology on library collection.

A2644 Media Resources Management (2/0): The objective of this course is to explore the resources of popular media and their features, categories, and use in the library and information science. First, students will learn media resources, definitions, features, categories of popular media and their relationship with technologies. Second, students will learn the procedures of how popular media are managed and filed in the library or relevant institutions. Furthermore, the teacher will put theories into practice to demonstrate how popular media can be combined with technologies.

A2691 Digital Storytelling in Libraries (0/2): The simplest definition of "Digital Storytelling in Libraries" for this class is through making and arranging photos or videos, telling a touching story about libraries or bookstores. Through theme-based lectures and practices, students will understand the concepts and skills of digital storytelling, and be able to develop production skills through assignments of photo essays and a 3 to 5 minute-short film team work.

A2692 Picture Book and Young Adult Literature (2/0): Through theme-based lectures, field trips, storytelling practice and reading various forms of children and young adult literature, including picture books, YA novels, and comic books, etc., students will get a basic understanding of the concepts in this field, such as history and development, styles of significant authors and illustrators, awards and prizes, and production process of children and young adult books. Students are also expected to be able to do narrative and visual analysis of books when they finish this course.

A2693 Reading and Bibliotherapy (0/2): The goals of this course are to introduce theories and practices applied in developmental bibliotherapy.

A2738 Reference Resources & Services (3/3): To introduce the concepts and application of reference services and resources to improve students' ability of reference services.

A2782 Introduction of Service Marketing (2/0): The goal of this course is to explore and discuss the basic concept of service products, consumers and markets, and applying the 4Ps to build services managing the customer interface, and finally implementing profitable service strategies.

A2783 Mobile Device Programming (2/0): This course has three main parts to introduce. First, the comprehensive guide of app making process. Second, the concept of user interface designing with powerful prototyping tools. Third, basic apps implementation. This course is suited for

- Students who are interested in mobile apps and websites UI and UX design
- Students who are interested in hands-on learning and writing their own solutions.
- Students who are interested in the latest developments in HTML, CSS, and JavaScript.

A2954 Introduction and Application to Big Data Analysis (2/0): The purpose of this course is to guide students to construct big data thinking brains and interpret big data through the introduction and application of big data, and teach practical big data analysis, so that students can understand data through data analysis.

A2965 Library Professional Competence Service (1/1): This internship typically takes place in variety libraries around communities. The focus of the internship is on collaboration with teachers and working with students to integrate information skills and technology skills into a standards-based curriculum and promote library literacy through School Library Programming. / The purpose of this class is to guild students applying multimedia materials to facilitate library user education and make digital publications.

A3129 Data Curation (0/2): Data curation is an expanded collection of institutional collections, which further covers research materials from research results. This course will explore the new tasks and roles of materials used in universities and academic libraries from the origin, development, and status of institutional collections.

B3122 Humanities Literature (2/0): This course aims at developing students' understanding of disciplines in the humanities and the reference literature used in these disciplines. This course will introduce students to explore the way humanities researchers conduct their research, the research materials and references they need, and the needs of professional librarians. Students will learn about document management tools, information behaviors, and then learn about various

subjects of the humanities.

A3130 Artificial Intelligence and Digital Humanities (0/2): This lesson combines the concepts of artificial intelligence and digital humanities. In addition to cultivating students' understanding of the theory and application of artificial intelligence, the technical part also teaches students to use artificial intelligence technology to process text data, visual data, and audiovisual data. The course focuses on the literacy and ethics of artificial intelligence. Students will acquire artificial intelligence knowledge, and how to learn how to live with AI. In the future, we hope students can create value beyond artificial intelligence.

A3131 Information Visualization (0/2): This course cultivates talents who use visualization tools to present and analyze data. The course ranges from an introduction to image communication to basic concepts of visualization, various data characteristics, and corresponding visualization analysis methods, to statistical methods used in data visualization. This class focuses on graphic narration and teaches students to quickly interpret and discover key issues from data. This course mainly uses Excel, Tableau, word cloud, and other visualization tools.

A3178 Infographics and Applications (2/0):
This course centers around infographics, with the primary application field being libraries. It introduces the concepts and types of infographics, the relationship between infographics and communication, the fundamentals of information visualization, and the reference resources for infographics. Towards the end of the course, students will collaborate in groups to complete a final infographics presentation, using text, illustrations, and graphics to tell captivating stories.

A3395 Introduction to Library Networks and Information Communication (0/2): This course introduces the issues of information communication, for example information society, digital divide, information literacy, and digital publishing and marketing issues.

A3397 Introduction to Archival Studies (0/2): This course is the introduction about archives and records management. The related topics will cover the definition of archives, the theories and principles of archives management. Through the course, students will be better understanding the principles and context of archives management, and have basis intelligence and skills of the archive’s management.

A3399 Seminar on Digital Library (0/2): This course provides an overview of the development and future prospects of digital libraries. Students will learn the current applications of emerging technologies in libraries, including mobile and cloud technology, social media, big data, augmented reality AR, and virtual reality. The course requires students to implement AR/VR software to show in the Final Project.

A3400 Information Systems Project (2/0): Use python program to implement Linebot. Let students understand the concept of the overall process of making Linebot, and let students actually implement it in the form of a project.

A3406 Introduction to Librarianship and Information Science (2/0): To understand the functions and purpose of library in changing social and academic environment; including the mission of libraries, the ethical aspects and principles between information providers and clients. The various types of libraries, their internal functions, and the major organizational issues, the information infrastructure, the development of information science, the growth of information technologies, information policy in libraries, the intellectual organization of libraries, and the trend development.

E0650 Data Structures (0/2): The main objective of this course is teaching students how to write well-structured, efficient and organized programs with the necessary information and knowledge of data structures. By learning various data structures, knowledge and observation method of the related cases to enhance the programming and problem-solving skills.

E0594 Program Design (2/2): The current course introduces the programming language, such that the students can understand the logical concept and the syntax of computer language. Consequently, they have the ability of applying the programming language to develop information systems.

E0941 Introduction to Data Base (3/0): The current course introduces the basic concept of database management system, such that the students can understand the principle of DBMS. Consequently, they

have the ability to develop an information system.

E1039 Introduction to Computer Network (0/2): The main purpose of this course is to learn how to design an innovative HTML5 web pages with appropriate software. Meanwhile, the basic knowledge of designing web page is also introduced.

M0400 Management Information System (0/2): This course introduces the fundamentals and applications of information management for undergraduate students. The purpose of this course is to provide students with management skills for information management. The major topics discussed include: 1. Introduce information technology and application 2. Management information systems 3. Strategic information systems development 4. Security management of information systems and electronic commerce

M1103 Knowledge Management (2/0): Provides an awareness of current theories and foundation of knowledge management (KM) with an emphasis on profit and not for profit organizations. Discusses knowledge assets and their value to organizations in terms of products, processes, market and services. Examines analytical tools and techniques for knowledge acquisition, assessment, evaluation, management, organization, and dissemination. Provides an analysis of commercially available documents, databases, and application packages, reviews best practices and experiences, and addresses the design and execution of KM projects.

Master's Program

A2291 Reader Services (3/0): An in-depth look at the management of user service in libraries. Include topics such as users identify; Patron behavior in Libraries; what are the issues and how to deal with normal users and special users, Library service philosophy, and quality service management, electronic reference resources and services.

A2354 Statistics for Information & Library Science (0/2): This course applies statistics to describe, analyze and process the application in the Information & Library Science.

A2490 Seminar on Digital Information Preservation (3/0): Digital preservation is a complex issue. This course investigates several technical methods for preservation. There are many cases will be discussed.

A2515 Health Information Service (2/0): This course explores the related topics of medical library information services from theory and practice. Through classroom lectures, practical operations, literature reading, and interactive sharing, we will learn about the characteristics of medical libraries, collections, reader services, and Information retrieval.

A2576 eBook Production and Applications (3/0): The course leads students to understand the relative issues about eBooks. These issues include eBook specifications, eBook production, eBook tools and current significant research over the world.

A2577 Human Computer Interaction (0/3): This course is intended to achieve the following course objectives: (1) understand basic HCI concepts and definitions (2) understand users and methods of collecting appropriate data (3) study User-Centered Design, task analysis, and other key HCI methods (4) develop an understanding of needs analysis of user interactions (5) perform prototyping and evaluation 6. perform usability testing (7) understand design evolution.

A2584 Introduction to Library and Information Science (2/0): This course introduces basic issues in library and information science, including the nature of information, information services, information professions, and the complex relationships between information technologies and society.

A2627 Research on Digital Archives (0/3): This course guides students in learning about the theory and practice of Digital Archiving.

A3401 Studies on Reading (3/0): This class introduces various perspectives on reading. The primary focuse is to explore its history, meaning and function aspects, as well as the issues of reading behavior in the different life stages and scenarios.

A3422 Informetrics (0/3): This class introduces various perspectives on informetrics. The primary focus is to explore its theoretical aspects, as well as the applications of scholarly communication, patent analysis, Web usage, and library management.

A3560 Seminar in Children's Library Services: By the end of the course, students will: 1. Develop an awareness of the responsibilities of librarian working with children. 2. Examine the range of possible library services for children users. 3. Develop programs that relate to the library and its services to its children users.

T0081 Research Methodology (0/2): In this course, students are introduced to the basic concepts and techniques that are used in librarianship and information science. The course is divided into three sections, which cover social scientific inquiry and research design, quantitative data gathering and analysis, and qualitative data gathering and analysis.

DEPARTMENT OF MASS COMMUNICATION

Degrees Offered: B.A., M.A.

Chair: Yang, Ming-Yu (楊明昱)

The Department

Undergraduate Program

Established in 1983, the Department of Mass Communication embraces the most fundamental aspects of human interaction, from traditional mass communication to cutting edge communication technologies and information studies. Rooted in the College of Liberal Arts, the department is founded on a broad liberal arts education as the first professional requirement for future communicators. Students approach mass communication as science, art, and service while relating it to many facets of society.

Students majoring in mass communication must fulfill requirements for a Bachelor of Arts degree in the College of Liberal Arts. The curriculum focuses on content production, marketing communication, as well as the humanities and social science. A selection of courses in the sequences— TV, Radio, Films, Advertising, Public Relations, and Information Technologies—provide the technical training and knowledge required to carry out professional work in the field of mass communication.

Graduate Program

The department's master's program was launched in 1995. The establishment of this graduate program was a response to the strong demands of highly qualified communication professionals and in accordance with the University's long-term strategic plan. The graduate program focuses on providing advanced education in the fields of Information Studies and Marketing Communication.

Over the years, our alumni have thrived in the areas of advertising, journalism, marketing, television, and information services. With a solid foundation in mass communication, the graduates are also well prepared for the pursuit of advanced academic study in either domestic or international graduate programs.

Faculty

Professor
Huei-Chun Chi (紀慧君)

Associate Professors
Yang, Ming-Yu (楊明昱) ; Da-Lun Tang (唐大崙) ; Chuan-Yang Hsu (許傳陽);
Hui-Yun Chen(陳慧勻)

Assistant Professors
Yu-Pei Ma (馬雨沛) ; Yi-Fan Liu(劉倚帆) ; Tzu-Hsien Wu(吳姿嫻); Ming-Yi Tsai(蔡銘益); Lee, Chang-Chieh(李長潔)

Degree Requirements

1. Requirements for a B.A. degree of in Mass Communication:
   Completion of 128 credits of courses, including 65 credits of required courses and 63 credits of elective courses.

2. Requirements for a Master's degree in Mass Communication:
   Completion of 30 credits of courses, including 9 credits of required courses and 21 credits of elective courses. Students are also required to submit a written master's thesis completed under the supervision of a faculty member, and pass an oral examination.

Course Descriptions

Undergraduate Courses

A0301 Multi-Media Communication (2/2): This course introduces application of multiple media content in a single work. In most cases, students suffer from the "language-image" conversion, understanding the use of images is vital in digital multimedia environment. Hence, the process of conveying a concept into images is the main theme of the course. This course will also assist students in enhancing their skills in moving images.

A0557 Feature Writing (0/2): This course is an advanced course in writing feature articles for newspapers and magazines. It covers basic components of feature writing principles, style, and structure, emphasizing different style writing purposes, connotation and techniques.

A0597 Advanced Professional Photography (0/2): This course provides operational training of the 4x5 Professional View Camera, manual lighting, various functional techniques of studies operation to coordinate the photographic knowledge and techniques with the requirements of advertising agencies printing media making techniques.

A0660 Newspaper Practicum (3/3): This course is designed for students to practice news writing and news editing through participation in the operation and production of community weekly newspapers.

A0667 Visual Communication (2/0): This course is designed to teach students how to analyze images and how to use images to communicate their ideas.

A0692 Journalism (2/0): This course provides a survey of current theories and development of journalism. In this course, news is an interactive process, not only produced, but also transmitted and received.

A0764 Advertising (2/0): This course introduces the advertising theories and the process of advertisement production. This course tries to let the students learn related knowledge about advertising and to inspire the students to pursue an advertising related career.

A0844 Introduction to Drama (2/0): This course explores the fundamentals of drama and provides practical experience with stage performances in the Experimental Theater. It enhances students' advertising literacy and enables them to apply what they learn in the real world.

A0868 Introduction to Art (0/2): This course introduces students to the masterpieces of painting, sculpture, architecture, dancing, opera, and drama around the world, from the dawn of civilization to contemporary art.

A1082 Production of Broadcasting Programs (2/2): This class provides students with hands-on experiences of radio program production and helps them understand the concepts and issues of the field.

A1084 Introduction to Sociology (2/2): This course is an introduction to the basic concepts of sociology. This course will inspire students with wider imagination, useful for understanding social phenomena and practice in the mass communication.

A1087 Colloquium for Communication (2/0): This course is a pro-seminar type of course, providing a common open discussion ground on the current communication issues and problems by inviting scholars and specialists from various areas of communication.

A1103 Media Critique (0/2): This course offers an application of theories of media to analyze the media culture in Taiwan. This course is designed for those interested in critical theory and training in critical thinking.

A1209 Communication Theories (2/2): This course familiarizes students with how communications work; system and functions of mass communications; communicators, messages, channels, audience, process, and effects.

A1264 Media Management (0/2): This course offers an introduction to the various schools of management theories, case studies of media, and application of theories.

A1418 Broadcasting Practicum (I) (1/1): This course immerses students in a practical setting to foster their competency in media management and program production in the field of radio broadcasting.

A1419 Broadcasting Practicum (II) (2/2): This course is a continuation of Broadcasting Practicum I.

A1568 Basic Photography (0/2): This course explores the theories of photograph materials and processes, and photographic techniques and equipment.

A1745 Script Writing for Movie and TV (0/2): This course emphasizes both writing theory and practical experience with scriptwriting (movies, TV shows, plays), with special attention to the arrangements of characters and scenes.

A1780 Off-campus Practicum in Media (2/0): This course provides an opportunity for students who wish to practice in various areas of mass communication.

A1963 Broadcasting Practicum (III) (1/1): This course is a continuation of Broadcasting Practicum II.

A2209 Communication Psychology (2/0): The Psychology of Mass Communication maintains a multidisciplinary appeal and draws from developmental psychology, sensory and cognitive psychology, systems theory, and positive psychology. Psychology is a crucial factor that enables a message to trigger effects in others. For a better understanding of psychological effects in the field of communications, this course introduces the relationship of the human mind and behavior; and how they affect individuals and society.

A2280 Advertising Creativity (2/0): Advertisement aims to communicate a message persuasively. The objective of this course is to instruct students how to link the characteristics of a product with the needs of the consumers. This link will lead the way to make an effective advertising motif, and the motif could be further developed into a set of persuasive advertising messages. Consequently, advertisers can successfully sell their products or services.

A2281 Popular Culture (0/2): This course introduces popular cultural phenomena and the meanings and ideologies behind them. Cultural phenomena such as American's Woodstock Rock Music Festival to Jay Chow's popularity in Taiwan in the field of popular music; icons from Marilyn Monroe in the U.S. (and to the world) to Lin Chi-ling in Taiwan, comedy cultures from Charlie Chaplin to Stephen Chow, etc. will be introduced as texts for analyses. Furthermore, this course introduces important theorists of contemporary visual culture studies, such as Jean Baudrillard, Louis Althusser, Antonio Gramsci, Walter Benjamin, Roland Barthes, and Judith Butler. This course employs a cross-cultural and interdisciplinary approach to familiarize students with the complex ideologies behind popular cultures.

A2342 Public Communication (0/2): The goals of this course are to help students: (1) to develop confidence when expressing themselves before a group; (2) to reason logically; (3) to orally present their information, ideas, and opinions in a coherent, organized fashion; (4) to learn the basics of outlining and organizing a speech; (5) to learn the basics of informative and persuasive speaking listen critically and objectively.

A2383 Introduction to Digital Content (2/0): This course introduces digital applications of diffusion of innovations and changing attitude. Every unit in the course introduces operating methods of knowledge, persuasion, decision, implementation, and confirmation by using digital media; and discusses theory and practice process. This course provides a cross-media and cross-domain view of digital communication for students.

A2459 Introduction to Communication Profession (2/0): This course is designed for the freshmen of Mass Communication Department, helping new university students to bridge the gap between high school and college and acquire abilities for their learning life and competence in the long run. The course content includes: communication introduction, course structure of the Mass Communication Department, educational goals of the Mass Communication Department, course selection decision making, learning attitude, information literacy, thinking and reasoning, EQ management, and expression ability.

A2460 Graduate Project: Independent Study and Exhibition (3/3): This course covers three subjects: film production, multimedia production, marketing communication campaign design. Students need to complete a finished work either on paper or visual presentation for their special study.

A2520 Cross Media Marketing Planning (2/0): This course provides a basic introduction to cross media marketing and related applications. Students will be trained for their planning ability to conduct a cross media marketing campaign.

A2523 Pro-seminar for Marketing Communication (0/2): This course covers multiple subjects about marketing communication. Students need to conduct teamwork for their selected case study related to marketing communication.

A2524 Storyboarding and Editing of Audio-Visual Programing (2/0): The aim of this course is to analyze the basic visual and dramatic components of a shot and the editing principle of a narrative.

A2525 Social Marketing and Practice (2/0): This course is designed to realize the theory and practice of non-profit organizations and the third sector how to promote and communicate their ideas to public by marketing theory.

A2526 Communication English (2/2): This course introduces students to some major English newspapers, news agencies, and English newspapers' headlines and leads. Students will be trained in their English news reading, translating, listening, speaking, and writing skills.

A2527 Reporting on International Affairs (0/2): This course introduces the reporting of international news on political affairs and business. During the course, print media, electronic media, and digital media will be reviewed.

A2529 Readings in Communication (2/0): As an introduction to the fundamental contemporary and classical works in communication arts; this course is designed to make a connection across texts, authors, producers, institutions, society and history.

A2531 Television Practicum (I) (2/2): The course is intended to offer students the opportunity to produce creative TV news and programs. Students are taught to be responsible media professionals and are prepared to adjust to the changing electronic media environment.

A2532 Television Practicum (II) (2/2): The course is intended to offer students the opportunity to produce creative TV news and program. Students are taught to be responsible media professionals and are prepared to adjust to the changing electronic media environment.

A2534 Law and Ethics in Communications (2/0): This course aims to introduce the major concepts in the regulation of media industry. Issues discussed in this class include the freedom of speech, the access of media and the protection of privacy rights. The goal of this course is to prepare students with a basic understanding of legal issues in the field of media professionals.

A2544 Introduction to Human Communication (2/0): This broad-based communication course includes the theory of communication, interpersonal communication, small group communication, and public speaking. Students are invited to investigate life and career planning from their communication perspective.

A2545 Documentary Photography (2/0): This course is designed for students to understand the principle of documentary photography. Students will learn the knowledge and technique and build the creative ability of a series of images in this field.

A2553 Visual Art (0/2): This is an advanced class studying the ways in which visual media create meanings. Emphasis will be placed on filmic and tele-visual texts.

A2554 Introduction to Marketing Communication (0/2): The main purpose of this class is to enlighten the students on marketing communications and promote their knowledge about the marketing

communications. Hence this class is arranged to introduce the basic concepts, methods and instruments of the marketing communications with real examples. The students also have lots of chances to practice the marketing communications by the required assignments during the term.

A2593 Introduction to Film and TV Entertainment Industry (2/0): This course introduces to students the basic structure of the film and TV industry. It explores three aspects of entertainment industry: TV and related industries. Professionals in the related fields will be invited to the class to discuss face-to-face with the students.

A2853 Pre-production of Audio-Visual Projects (2/2): This course is designed to provide students with the planning methods of various types of audio-visual projects, and a complete how-to workshop on the pre-production field in a project.

A2854 Production of Audio-Visual Project (2/2): This course teaches students characteristics of audio-visual projects, procedures, models, pre-production planning and strategy, camera shooting, live-coverage, post-production, editing, wound-effect, special effects, sound recording and viewers.

A2885 New Media and Citizen Praxis (0/2): The course focuses on new media's activities, energy and mobilization in civil society. Students will study to explore the theory of civil society, then analyze, observe and learn to manage issues and diffuse ideas.

A2967 Exhibition of Cross-Media Project (0/2): This project focuses on strategic storytelling, particularly in the field of communicating in the light of digital, network-based, and mobile media and the increasing use of web 2.0 and social media-services. From a cross-media perspective, we will focus on the opportunities and challenges which these new media technologies, platforms and services. With our circulation of media content, we also focus on cross different media systems, competing media benefit depend on consumer's active participation before the exhibition.

A3010 Storytelling and Creativity (2/0): FB (Facebook) is a modern social network platform that is used every day. The number of users in the world exceeds 1.1 billion, especially in Taiwan. Facebook is not as simple as it is supposed to be. If you use the usual way to send a message, people will not be interested. Therefore, by following the course, you can learn if your Facebook will attract people to praise it, and learn how to write a good post on Facebook.

A3011 Basic Audio-Video Production (0/3): This course provides students with lectures and hands-on experience regarding contemporary audio-visual technology and its applications in media.

A3018 Message Design Fundamentals for New Media (0/2): In this course, there are various examples showing how to design layouts by using 3 styles and 5 elements. The content is divided into learning, analysis and practice. The basic concepts include three different styles: practical style, relaxed style and emotional style. Five elements: layout style, intelligence, motion, graphics rate and hop rate. By finding a suitable method through matrix analysis, every student may adjust the designs to the right information layout of any new media.

A3186 SOCIOLOGY ＆ COMMUNICATION (0/2): This course aims to introduce the fundamental theories and concepts of sociology and communication studies, exploring their interconnections and influences. Students will gain insights into how sociology analyzes communication phenomena and how communication reflects and shapes social structures and cultures. The course covers topics such as media, technology, ideology, identity, public discourse, and more, guiding students to engage in empirical research and critical thinking.

A3204 POSTER AND LOGO DESIGN (0/2): This course trains students to use Illustrator poster production and LOGO design, use of Illustrator tools, poster and LOGO design, printing settings and output.

A3243 DIGITAL IMAGE PROCESSING AND SYNTHESIS (0/2): This course trains students to use Photoshop image processing and synthesis techniques, photo retouching, image synthesis, and color processing.

A3409 Current Issues in Communication (3/3): This course examines existing issues in

communication education, media literacy, broadcasting, press, communications policy, etc., with a focus on current debates. The goal is to develop a practical approach to current debates while at the same time encourage students to develop a critical thinking and understanding of certain controversial communication issues. Discussions will be focused on a particular issue of the week, and the assigned reading will contain articles relevant to that issue. All students are expected to read the articles before the class and assigned groups are required to prepare for seminar presentations.

A3414 Digital Communication (2/0): This course introduces design and process of the still image for digital environment presentation. To achieve the learning objective, Adobe Photoshop and Adobe InDesign are used as the tool to understand the characteristics of static digital media. Because this course is designed for communication majors to better handle digital media, the process of conveying concept is the main theme of the course. This course provides a cross-media and cross-domains view of digital communication for the students.

A3529 Film Aesthetics (2/0): This course will examine various theories of film and cultural studies. Different aspects of films, such as social, aesthetic, cultural, and political, will be explored.

A3012 Information Analyzing and Case Design (2/2): The course provides foundational skills focused on various forms of reporting and editing that uses writing, photography, audio reporting and graphic design to present truthful messages to a wide range of media outlet.

A3013 Practice of creative thinking (0/2): Thinking is conditioned by habit. The objective of this course is to transform the habitual way of logical/vertical thinking into sensitive/horizontal thinking. Students will be able to discover their potential in creative thinking. Moreover, by way of multisided thinking, students will make their life and learning more stimulating, challenging and interesting.

A3014 Data Analysis and Story Telling (2/0): This course will offer an introduction to the statistical principles and their applications on storytelling. Students will be trained for the statistical skill to conduct data analysis through several packages, such as Excel、SPSS、WEKA, especially focus on the ability to take data-to be able to understand it, to process it, to extract value from it, to visualize it, and to communicate it.

A3095 Cultural Creativity and the Media Industries (2/0): The course is an introductory course on the ecological aspects of the creative media, display art, new media and visual culture. The course aims to enhance students' creative, aesthetic as well as intellectual ability of evaluating different media production and consumption. The course covers art theory, theories on creativity and technical aspects of various forms of production and visual culture.

A3096 Social media practice (2/0): Instagram (IG), a social platform with over 700 million users and more than 70 million photos uploaded daily, is one of the important channels for interaction between domestic and foreign brands and fans. However, how to stand out from so many users requires a little effort. How to use the basic light / dark / composition, scenery configuration, and dressing will greatly affect whether a post will receive attention. Therefore, this course leads students to build communities on Instagram through practical operations and data evaluation. Enter the unique IG aesthetic world and use IG's true method of sharing stories.

A3097 Multicultural and Communication (0/2): This course introduces the basic concepts and related theories of multi-culture and communication. Students will be trained the ability to analyze and evaluate communication works. Students will try to implement a more appropriate multicultural communication narrative.

A3189 PR STRATEGY AND PLANNING (2/0): This course employs systematic instruction and hands-on exercises to progressively foster an understanding of the public relations industry, media ecosystem, corporate social responsibility, crisis management, issue strategy, and the utilization of digital marketing technology. We look forward to students ultimately acquiring skills in PR strategy presentation techniques and proposal communication through this course.

A3139 Fundraising and Integrated Marketing (2/0): This course teaches you from the creative ideation of a product to the execution phase, all the way through advertising strategies during the fundraising period. It guides you in hands-on practices for managing fundraising campaigns.

A3237 AI AND IMAGE DESIGN (2/0): This course is designed to provide an in-depth exploration of AI image generation theory and practice. Over a span of 17 weeks, students will engage in a comprehensive curriculum, progressing from foundational theory to technical applications and creative practice. Participants will learn to utilize advanced AI tools such as stable diffusio、bings for image creation and discuss the profound impacts of these technologies on art, media, and society.

A3238 SOCIAL INNOVATION AND SUSTAINABLE DESIGN (2/0): This course will engagingly explore the theories and practices of organizational communication, social innovation, and sustainable design. We will delve into the world of contemporary diverse organizations and societies through thinking, speaking, writing, and action. We will examine social innovation and practice it within sustainable design scenarios, using organizational actions to solve problems and explore ways to change society.

A3239 DOCUMENTARY INDEPENDENT PRODUCTION (2/0): This course teaches students characteristics of TV program, TV production, procedures, models, pre-production planning and strategy, videotaping, live-coverage, post-production, editing, wound-effect, special effects, TV program and viewers.

Master's Program

A1209 Communication Theories (3/0): This course is designed to help students understand the nature of theory, how to develop a theory, and how to use it. It is also designed to sensitize students to the role and types of inquiry. Specific theories are used as background information and as examples.

A1462 Discourse Analysis (0/3): This course introduces students to several major branches in the analysis of discourse. We will cover discourse analysis from an interdisciplinary perspective and will apply different approaches, ranging from sociolinguistics and narrative analysis to conversation analysis and critical discourse analysis.

A2488 Special Issues in Film and Culture (3/0): This course explores the interrelationship between film and culture. Various schools of theories, critical methods and approaches will be reviewed. Different issues on film and culture are emphasized in each semester.

A2489 Media and Cultural Consumption (3/0): This course provides students with some analytical and methodological tools and encourages them to have critical reflections upon their everyday life. It emphasizes the dynamic connections between research problem, method, theoretical approach, analytical concept and subject matter. Multiple, intersecting structures of power, meaning, and culture will also be examined.

A2768 Visual Analysis in Media Psychology (3/0): The aim of the course is to provide students with a general understanding of human visual information processing. This will be done with an emphasis on the method of cognitive psychology and eye-tracking tools for current message design.

A2771 Seminar on Cultural and Creative Industries (0/3): Through literature review and case study, this course is geared toward a comprehensive understanding of (1) the nature of cultural industries; (2) Cultural products and spin-off development; (3) Cultural industries: task analysis and production line; (4) Conceptualization Value chain and value-added activities that help a cultural product thrive.

T8000 Thesis (0/0)

A2968 Curations and Communication Studies (0/3): The framework for this course is composed of the participatory culture of the cultural heritage institutions, audience analysis, and communication through a variety of media. The structure of class is based on case studies of creativity and museums using the symbols for curating, outreach, and communication. The vision of the cultural heritage institutions as part of a participatory culture is introduced. The purpose of class concerns the relation between cultural heritage institutions and users, and the fact that it is not even. Nevertheless, the media offers room for audience involvement, despite the institution deciding the arena in most cases.

A2969 Social Marketing Project (3/0): This course focuses on the concept, construct and theoretical

perspective of social marketing, to improve the quality of life.

A2970 Creative New Media Project (3/0): The project modules emphasize interdisciplinary and collaborative work. Students in this project can choose to focus their studies on visualization research, social media, interaction design, interactive and generative storytelling. Sharing knowledge and working in collaborative groups within experimental production, and research processes is a basic premise of our work by designing the new media application project.

A3067 Quantitative Method on Communication Research (3/0): The goal of this course is to help students understand the relevant topics about quantitative methods and methodology on communication research. It will especially focus on EXCEL, SPSS, WEKA, and some text mining tools.

A3068 Critical Approaches to Qualitative Research (0/3): This course explores issues in communication and cultural studies, using critical and qualitative research methods.

A3069 Independent study in Digital Content and Narratives (0/3): This course explores the themes of emerging digital media platforms, the essence of transformation processes, and the reconstruction of offline events into the structure and patterns of digital storytelling. It even delves into the significance of different temporal and spatial dimensions in story encoding, sharing, and appreciation. The course will use digital content examples and observations of work challenges to develop an understanding of the challenges related to narrative analysis theories and methods.

A2769 Cultural Brand Management and Marketing (0/3): This course provides the basic introduction to the brand related theory and the branding process. The students will be trained for the cultural brand management and marketing ability.

DEPARTMENT OF INFORMATION AND COMMUNICATION

Degree Offered: B.A.

Chairman: Hui-Ju Lai (賴惠如)

The Department

The Department of Information and Communication, established in 1998, offers an in-depth study into various aspects of an increasingly growing technology-mediated-communication world. Its mission is to achieve academic excellence and gain national as well as international recognition in education, research and service. As the boundaries among communication media become blurred, scholars and professionals are presented unprecedented opportunities and challenges to participate in the shaping of the digital future. The curriculum aims to address the broad range of changes that have occurred in the information and communication industry in recent years. Students may customize their studies based on two options: (1) interactive new media design and production, and (2) information and communication management and marketing. Although students are encouraged to focus their studies on one of the two tracks upon their admission to the program, students may move freely between the tracks to gain necessary expertise needed in today's workplace. Overall the program will enhance students' understanding of information and communication technologies and their impact on the social, cultural and commercial domains; prepare students to excel in diverse new communication environments; promote artistic creativity, strategic planning and scholarly research in all areas of digital media; and prepare students for careers in new media as well as the traditional media industries transformed into new information and communication technologies.

Faculty

Associate Professors
Mei-Ling Jow (卓美玲); Chien-Chou Shih (施建州); Chien-Yu Sun (孫蒨鈺); Hui-Ju Lai (賴惠如); Jiun-Shian Lin (林俊賢)

Assistant Professors
Jyh-Ming Yang (楊智明); Shih-Wei Tien (田詩薇); Hui-lan Chang (張惠嵐); Chen-Pang Tsan (詹鎮邦)

Degree Requirements

Requirements for a B.A. degree of Information and Communication:
Completion of 128 credits of courses, including 58 credits of required courses and 70 credits of elective courses.

Facilities

The Department has its own New Media Center (NMC)

Course Descriptions

Undergraduate Courses

A1084 Introduction to Sociology (0/2): This course provides a broad overview of sociology and how it applies to everyday life and issues pertaining to our society. Major theoretical perspectives and concepts are presented, including culture, deviance, gender, inequality, social change, and social structure. Special attention will be placed on the influence media and communications.

A1718 Message Design (0/3~~2~~): This course intends to equip students with the basic concept of information architect and information design through the engineering of instructions, information graphics and the creative game design in treasure-hiding and treasure-hunting.

A1930 Introduction to Human Communication (3/0): This course provides an overview of concepts and principles in human communication studies.

A1931 Information, Communication and Society (0/2): This course leads students to a better understanding of the interactions among information, communication and society and thinking how to apply social psychological and communicational observations on the creativity work or marketing activities in the information and communication industries.

A2008 Digital Sound Effect Production (2/0): Design of this curriculum is to learn the basics of sound effects and music, the correct operation of sound editing software, and the application of sound production. Through discussing examples of various animations, theater, and films; sound effect assignments and projects, students are expected to have an in-depth understanding of sound (both sound effect and music) production and further to learn about the image with sound aesthetic ideas.

A2163 Topical Seminar in Information Networks (0/3): This course explores current trends and issues concerning information and communication networks and industries.

A2209 Psychology of Communication (2/0): This course leads students to a better understanding of the related psychological theories by communication examples, and learning how to apply psychological theories to communication practices.

A2258 Introduction to Sketch (3/0): This course introduces elements of sketch to develop students' competence in visual thinking through hands-on practice.

A2259 Practicum of Creative Digital Media (I) (3/0): This course provides opportunities for students to develop team projects on topics relevant to creative multimedia.

A2260 Practicum of Creative Digital Media (II) (0/3): This course provides opportunities for students to develop team projects on topics relevant to creative multimedia.

A2365 New Media Theories (2/0): This course focuses on the major concepts, constructs and theoretical perspectives concerning information and communication or new media.

A2404 Introduction to the Digital Content Industry (0/2): This course offers an introduction to the development, practices, strategies and challenges of the digital content industry in Taiwan.

A2405 Integrated Project in Digital Content (I) (3/0): This course introduces production techniques and provides hands-on experiences in developing digital content projects.

A2406 Web-Based Interactive Programming Design (3/0): This course introduces the development of the Unity3D interactive program project.

A2411 Integrated Project in Digital Content (II) (0/3): This course introduces advanced production techniques and provides hands-on experiences in developing digital content projects.

A2509 Digital Marketing (3/0): This course explores creative strategies and applications of marketing in the digital environment.

A2513 Digital Video Production (0/3): This course is emphasized to introduce the process, effect, and editing of digital film production by studying the software Adobe Premiere and After Effects. Students will practice their technical skills and creativity through creating film projects.

A2514 Creative Strategies and Proposal Writing for Marketing (0/3): The course introduces students a complete understanding of the creative strategy development process and an appreciation for the critical role creative strategy plays in marketing campaigns. This course is a required course for follow-up portfolio building courses.

A2599 Storytelling and Storyboarding (3/0): This course explores the techniques and applications of storytelling, and storyboarding across various media.

A2600 Interactive Marketing (0/3): The teaching goal of this course aims at introducing the core concepts of experimental marketing and realizing the fundamental elements of interactive design. Besides, some cases will be provided as examples, including interactive music museums, galleries, interactive films and interactive installation.

A2675 Graduation Project (I) (3/0): This course provides opportunities for students to conduct projects in their areas of specialization within the realm of new media.

A2676 Graduation Project (II) (0/3): This course provides opportunities for students to conduct projects in their areas of specialization within the realm of new media.

A2679 Practicum of Creative Digital Media (III) (2/0): This course provides opportunities for students to develop team projects on topics relevant to creative new media.

A3420 Aesthetic Strategies and Design (3/0): This course introduces the concept and design principles of esthetic strategy and experiential marketing.

A3443 3D Animation (0/3): This course introduces the general principles, specific techniques and provides hands-on practice of 3D computer animation design and production.

A3447 Creative Design of Digital Content (0/3): This course intends to inspire students to create their own imagination in creative culture business through the study and creation of eye-catching character-playing and heart-touching story-telling.

A3483 Selected English Readings in Information and Communication (II) (0/1): This course introduces reports and papers on the current issues of information and communication written in English and published in trade journals or on the Internet.

B0061 Introduction to Marketing (0/2): This course discusses the basic principles of marketing strategies and planning.

E0594 Programming Design (0/3): This course introduces the basic syntax of programming language and its application in interactive web design.

E0718 Computer Graphics (0/2): Through studying the software Adobe Illustrator, students create story books and commercial design to understand the principle of computer graphics, the concept of layout design, objects of esthetic sense, and the process of a printing and output system.

A2774 Introduction to Technology Arts (0/2): Through readings, case studies and practice, students learn to understand the creation concept of technology art.

A2788 2D Animation (3/0): This course focuses on 2D animation production including script writing, design theory, production processes, aesthetics, and technology.

A2850 Creative-oriented Business Plan (0/3): The teaching goal of this course aims at leading students to learn entrepreneurial knowledge and skills. Students can develop a creative proposal from beginning of new ventures.

A2852 Social Media Marketing (3/0): Social Media Marketing is an integral part of most companies or organizations marketing communication channels; the course covers the concepts and applications of social media marketing. Students learn how to construct strategy, planning, and the actual implementation of an effective social media marketing.

A3403 Seminar in Information and Communication (0/2): This course invites distinguished CEOs and managers of IC industries to share their industrial experiences and insights with students.

A2890 Introduction to New Media Technologies (2/0): This course will examine key moments and historical stages in computing and media developments to gain a perspective on the nature of technological innovation and change.

A3446 Selected English Readings in Information and Communication (I) (1/0): This course familiarizes students with terms and concepts of information and communication in English through reading selected contemporary articles.

A1780 Off-Campus Practicum in Media (2/0): This course provides opportunities for students who wish to gain professional work experiences in various areas of the information and communication industry before graduation.

A2891 Media Theory (0/2): This course explores issues about the uses, meanings, causes, and effects of rapid or dramatic shifts in techno-infrastructure, information transformation, and forms of mediated expression

A2892 Color Application (0/3): This course focuses on the basic concepts and practice in the color theory and visual design to apply both theories in the information and communication or new media.

A1932 Introduction to Visual Communication (2/0): This course introduces basic elements of visual images and explores techniques of reading and analyzing visual images.

A0679 Communication Research Methods (2/0): This course introduces the basic concepts, procedure and designs of research methodology, how to choose the best methods to solve problems according to different occasions, and practice the operation of methodology.

A2412 Digital Intellectual Property and Policy (2/0): The innovation of modern digital technologies influences the police maker to inspect the justification of policies, regulations and rules, all of which interact with information society. Thus, an appropriated analysis for the integration and comparison would drive a framework to understand the related policies and rules of Taiwan.

A2787 Seminar in Cultural and Creative Design (0/2): This course intends to inspire students to create their own creative culture design and establish their own creative cultural brand.

A2933 Creation in Visual Narratives (3/0): This course aims to teach students to use the way of mixed media in visual creation and pictorial story-telling.

A2934 Introduction to Semiotics and Communication (0/3): This course explores meanings of symbols and their applications in social practices.

A2937 Web Service Design and Practices (0/3): Planning and designing an UX project.

A2961 Interactive Installation Design (0/3): This course focuses on teaching the development of various kinds of interactive installation with Arduino and different sensors. It aims to develop students' ability of learning actively and inspire their interests of making.

A2962 Digital Editing and Publishing (3/0): Integration of the use of graphic, audio, and video capabilities, through the form of interactive e-books, for the subject of content editing and digital media applications.

A2963 Interactive Interface Design (3/0): This course applies App Inventor 2 released by MIT to develop students' basic coding skills. It also leads students to develop creative AR and VR applications.

A3055 Analyzing User Data (0/3): Internet big data provides the necessity for modern students to understand the technique of data analysis and statistical examination. The course begins from the preparation of data, importing data from GA, cleaning data to how to analyze and explain data.

A3061 Digital Photography and Technology (2/0): To understand the principle of digital photography and up-to-date image technology by practicing

A3063 Material Cultural Analysis (3/0): Acquisition of skills to describe and analyze objects of multiple types, scales and media that constitute the material world across time and space. The course uses object-driven approach which helps students to analyze cultural patterns and consumer behaviors.

M0980 Current Issues in Information and Communication (3/0): This course examines current issues resulting from the emergence of advanced information and communication technologies.

A2936 3D Animation (3/0): This course is designed to provide a basic training of Autodesk 3ds Max as an entrance 3D computer graphics software and focuses on developing animation capability of students on 3D modeling and key frame animation.

A3062 Seminar in Creative Future Design (0/2): This course intends to inspire students to imagine the creative future design on the future lifestyle science fictionally based on their own creative vision of the future information society.

A3154 Motion Graphics (0/3): The main content of this course is image and visual elements, rhythm and sounds, space and moving lines, and dynamic and special effects to form design of creativity, visual imagination and information communication.

COLLEGE OF SCIENCE

COLLEGE OF SCIENCE

Dean: Tzenge-Lien Shih (施增廉)

A Brief History

The College of Science was founded in 1966 and comprises of three departments, one bachelor's program and four research centers at present. There are Department of Mathematics (1958), Department of Physics (1963), Department of Chemistry (1958), and The Bachelor's Program in Advanced Material Sciences (2015). The four research centers are the Life Science Development Center (2015), the Center for Science Education (2016), the Research Center for X-ray Science (2016), and Biomathematics Research Center (2021). The College of Science is one of the oldest colleges in Tamkang University and was one of the first-established colleges among private universities in Taiwan. The College of Science holds a tradition of active teaching and research, which has prompted a steady growth in the number of its students and staff over the years. Until 2022, the College of Science has 58 full-time faculty members, including 30 professors, 15 associate professors, and 14 assistant professors. All faculty members hold a Ph.D. degree obtained from Taiwan or abroad.

Motto and Goals

1. To have faculties to teach and to learn in a fun and enjoyable way and to self-achievement.
2. To encourage students to pursue the value of knowledge and to cultivate personal virtue.

Future Development

1. To facilitate communication among faculties from different departments.
2. To help young faculty with teaching and research.
3. To invite outstanding faculties to join.
4. To enhance collaboration with other universities.
5. To strengthen academic cooperation with local high senior schools.
6. To bring TKU and its alumni together.

Course Descriptions

Undergraduate Courses

A0452 Introduction to Japanese: This course begins with instruction in the Japanese alphabet and basic vocabulary. This course is to help students to apply Japanese on their everyday lives. Interactive activities are also designed to motivate beginners.

F0568 Advanced English Reading and Writing: The purpose of this course is to help students' improvement in reading and vocabulary, thereby to help them in reading textbooks in an easy manner. The main goal of this course is to help students to perform well on the iBT, TOEFL and IELTS tests.

F0591 Japanese Reading and Composition: This course covers the beginning and the intermediate Japanese reading and writing. Throughout this course, students can build an ample of vocabulary and increase proficiency in grammar. Moreover, by compiling short essays, students are encouraged to practice grammatical structures correctly in class.

Ph.D. Program

Doctoral Program in Applied Sciences

S0982 X-Ray Spectroscopy and Applications (3/0): Synchrotron facility provides the world`s brightest x-rays. Synchrotron x-ray spectroscopies are advanced approaches which encompass various disciplines for frontier scientific research and cutting-edge technology. Students are able to pursue their studies not only in college of science but also in college of engineering. This course focuses on-several core x-ray spectroscopic techniques and their applications on materials research.

S1004 Research Methods and Academic Ethics (2/0): This course introduces some basic concepts on scientific ethics and research methods.

S1022 Special Topics in Condensed Matter Physics (0/3): Based on the fundamental course of condensed matter physics at undergraduate level, this lecture covers some advanced topics in condensed matter systems: many-body formulation, the mean-field theory, collective electronic excitations, Feynman diagrams, linear response theory, topological band theory, quantum Hall effect, electron-phonon interactions, etc.

S1023 Molecular Structure (3/0): The aims of this course are to introduce students to the conformation of many different molecules and mainly focuses on the transition-metal complexes. The core structures of natural alkaloids, as well as the bio-functional molecules would be also mentioned. The structural units in organic compounds and the ligands in the metal complexes will be emphasized.

S1029 Advanced Biotechnology (3/0): This course covers the topics to learn about recent technologies of biotechnology, the methods of collecting, analyzing and organizing data, how to prepare slides and give an oral presentation and paper writing.

V0077 Scientific Computing (0/3): This course covers the topics of learning the R programming language for scientific computation, and the application of statistical data analysis.

T0095 Seminar (I) (2/2): This course aims to provide a broad range of topics related to academic and industry. We will invite speakers who are expertise in their professions. This course will provide a chance for graduate students to be familiar with the progress of science and technology in Taiwan and in the world.

T0096 Seminar (II) (2/2): This course aims to provide a broad range of topics related to academic and industry. We will invite speakers who are expertise in their professions. This course will provide a chance for graduate students to be familiar with the progress of science and technology in Taiwan and in the world.

DEPARTMENT OF APPLIED MATHEMATICS AND DATA SCIENCE

Degrees Offered: B.S., M.S.

Chairman: Chih-Chun Tsai (蔡志群)

The Department

This department was founded in 1958 and since 1966 has consisted of the Mathematics and the Statistics sections. The master's program was established in 1969 and the Ph.D. program in 1990.

The primary goal of the department is to provide students with the opportunity to understand the basic concepts of mathematics, to explore various related domains, and to broaden their views in mathematics and statistics. The department offers scholarships.

The department has its own computer laboratory with 55 personal computers and internet access. Mathematics/statistics software packages such as SAS, MATHEMATICA, MATLAB and MAPLE are available for teaching and research. The *Tamkang Journal of Mathematics*, an internationally known quarterly, was first published by the department in 1970.

Faculty

Chair Professor: Jong-Shenq Guo（郭忠勝）

Professors
Yue-Cune Chang (張玉坤); Chien-Tai Lin (林千代) ; Chung-Tsun Shieh (謝忠村) ;
Chi-Chung Wen (温啟仲) ; Ting-Hui Yang (楊定揮) ; Yih-Huei Huang (黃逸輝) ;
Chih-Chun Tsai (蔡志群) ; Pak-Tung Ho (何柏通)

Associate Professors
Jyh-Shyang Wu (伍志祥) ; Meng-Nien Wu (吳孟年) ; Cherng-Yih Yu (余成義) ; Zhi-Shi Pan (潘志實);
Hsiao-Fan Liu (劉筱凡)

Assistant Professors
Chian-Jen Wang (王千真) ; Hsiang-Chun Hsu (徐祥峻) ; Yao Cheng (鄭堯)；
Meng-Ying Chou(周孟穎)；Chieh Chiang (姜杰)

Degree Requirements

The Department of Mathematics offers two programs for both graduate and undergraduate levels, namely the Mathematics Program and the Data Science Program.

1. Requirements for a degree of B.Sc. in any section of Mathematics:
   Students must complete 128 credits of courses, including 77 credits of required courses (program dependent) and 30 credits of elective mathematics or data science courses.
2. Requirements for a master's degree in mathematics and data science:
   Students must complete 24 credits of required courses. Students are also required to submit a written master's thesis under the supervision of a faculty member and pass an oral examination.
3. Requirements for a Ph.D. degree in science:
   Students must complete 30 course credits. Students are required to pass one qualified examination within the first five semesters and the second qualified examination within seven semesters. The candidates require to publish at least one research paper in any journal listed in the Science Citation Index or Engineering Index. To submit a written doctoral dissertation under the supervision of a faculty member and pass an oral examination before obtaining a doctoral degree.

Course Descriptions

Undergraduate Courses

E0767 Numerical Analysis (3/3): This course covers the topics in interpolating polynomials, Newton's method, fixed point iteration, numerical differentiation and integration, Euler's method, the Runge-Kutta method, Gaussian elimination with pivoting, the power method, Householder transformation, QR algorithm, least square approximation, orthogonal functions.

E0595 Computer Programming (2/2): This course covers the topics in learning C/C++, as a prerequisite for data structures.

E0650 Data Structures (3/3): This course covers the topics in basic data structures: array, linked list, tree, hash, graph, etc.

E1967 Cryptology (0/3): In this course, we will see how important Mathematics is in the design of cryptography. To understand Symmetric-key Encipherment and Asymmetric-key Encipherment, and how they can be applied.

E3670 Deep Learning (3/3): Students will learn how to build up deep learning mechanisms from scratch, and then use contemporary deep learning structures.

M0517 Statistics (0/3): This course covers the topics in fundamental concepts of statistics, including estimation, testing of hypotheses and applications.

S0024 Analysis I (3/3): This course covers the topics in real analysis, including measure, measurable functions, integral functions, the Lebasque spaces, modes of convergence, decomposition of measures, and generation of measures.

S0051 Algebra (3/3): This course covers the topics in basic algebra structures, including groups, rings, and algebraic field extensions.

S0090 Vector Analysis (0/3): This course covers the topics in tangent, normal and binomial vector, curvature, orthogonal curvilinear coordinates, Laplacian, line integral, conservative fields, potential function, oriented surface, Green's theorem, divergence theorem, Stoke's theorem.

S0957 Topology (0/3): This course covers the topics in essentials in point set topology, including the concept of topological spaces, connectedness, compactness, countability axioms, separation axioms.

S0155 Modern Algebra (3/3): Further studies in the structures of groups, rings, fields and Galois Theory.

S0210 Advanced Calculus (4/4): This course covers the topics in number systems, topological structures of R^n, continuous functions, differentiable functions of one variable, Riemann-Stieltjes integrals, sequences and series of functions, differentiation on R^n, inverse and implicit function theorems, and integration on R^n.

S0252 Fundamentals of Mathematics (2/2): This course covers the topics in introduction of the basic notion of set theory: topics include axioms of set, relations, partially ordered sets, natural numbers, finite and infinite sets and logic.

S0277 Combinatorics (3/3): This course covers the topics in enumeration, generating functions, recurrence relations, graph theory and networks.

S0284 Geometry (2/2): This course covers the topics in study of curves and surfaces, including first and second fundamental forms, Gaussian map, Gauss-Bonnet theorem, and geodesics.

S0317 Differential Equations (3/3): This course covers the topics in ordinary differential equations, first order differential equations, higher order linear differential equations, system of linear differential equations, Laplace transforms, series method.

S0325 Calculus (4/4): This course covers the topics in limits, differentiation and integration of functions of one variable, infinite series, functions of several variables, partial derivatives, and multiple integrals.

S0336 Computer Applications in Mathematics (2/2): This course covers the topics of the use of computer and software packages to solve problems in mathematics.

S0384 Applied Linear Algebra (3/3): This course covers the topics in the application of linear algebra is wide. It includes constrained optimization, dynamical system, statistics, etc.

S0427 Number Theory (3/3): This course covers the topics in number theory studies properties of integers and their generalizations. Topics include prime numbers, divisibility, congruencies, arithmetic functions, quadratic reciprocity, Diophantine equations, continued fractions, etc.

S0439 Linear Algebra (3/3): This course covers the topics in vector spaces, linear transformations, matrices, eigenvalues and eigenvectors, Jordan and rational canonical forms, and inner product spaces.

S0450 Probability Theory (3/0): This course covers the topics in basic concepts in probability, discrete and continuous random variables, expectation, bivariate probability distributions and functions of random variables, and sampling distributions.

S0524 Applied Mathematics (3/3): This course is to apply mathematics to solve some practical problems. In particular, we focus on the solution of elementary inverse problems.

S0579 Complex Analysis (0/3): This course covers the topics in analytic functions, complex integration, Cauchy's theorem, sequence and series of analytic functions, conformal mappings, and analytic continuation.

S0737 Mathematics in Life (2/0): Alumni are invited to speak to students and share with them the experience and challenges of pursuing careers in different areas.

S0765 Introduction to Coding Theory (2/0): This course is to introduce basic coding theory, including what are error-detecting codes and what are error-correct codes. In addition, we will introduce some codes which are being used currently.

S0872 Community Service-Basic Mathematics (0/2): This course is community service for the Mathematics-major students. Students are asked to serve outside the school for about 18 hours.

B0106 Casualty Property Actuarial Analysis (2/2): This course assists students in understanding actuarial work in insurance companies, as well as introducing actuarial theory. The course is to motivate and guide students in their preparation for actuarial exams.

B1602 Practice in Insurance and Finance (0/2): This course involves cooperation between the Mathematics Department and finance/insurance businesses. Most teaching and practices are held off-campus.

M0115 Multivariate Analysis (3/3): This course covers the topics in multivariate normal distribution, Hotelling’s test, MANOVA, and factor analysis.

M0153 Operation Research (3/3): This course covers the topics in linear programming, the simplex algorithm, sensitivity analysis, transportation, assignment, transshipment problems, network models, integer programming, game theory, queuing theory, and inventory models.

M0202 Quality Control (3/0): This course covers the topics in importance of quality control, early history, Deming's philosophy, process thinking, improving a process, the seven basic tools, control charts for means, ranges, individuals, proportions and counts.

M0264 Time Series (0/3): This course covers the topics in single variable time series models, estimation, ARIMA models, model building and forecasting, and seasonal models.

M0947 Data Mining (0/3): This course is to introduce the basic concept and the theory of data Mining. The topics cover data preparation, model building, model evaluation, and model selection. Software R is used throughout this course to illustrate the introduced data mining methods. This course covers the

algorithm and application of data mining. The topics cover linear model selection and regularization, moving beyond linearity, tree-based methods, support vector machines, and clustering methods.

M1043 Survival Analysis (3/3): This course covers the topics in special features of survival data, survival function, KM estimate, Cox's PH model and its assumption, general stratified Cox procedure, and extension of Cox's PH model.

S0061 Reliability Analysis (0/3): This course covers the topics in reliability concepts, statistical analysis of censored data, degradation data and accelerated life tests.

S0133 Sampling Theory (3/3): The course covers basic and standard sampling design and estimation methods and gives special attention to methods for populations that are inherently difficult to sample, elusive, rare, clustered, or hard to detect.

S0191 Regression Analysis (3/3): This is a general statistical method course designed for undergraduate students. In this course students will learn several analysis methods to analyze regression models. This course will use SAS to analyze data. We will also introduce other useful statistical methods, such as multivariate analysis and time series analysis.

S0210 Advanced Calculus (4/4): This course covers the topics in the number systems, topological structures of R^n, continuous functions, differentiable functions of one variable, Riemann-Stieltjes integrals, sequences and series of functions, differentiation on R^n, inverse and implicit function theorems, and integration on R^n.

S0250 Applied Statistical Software (2/0): This course covers the topics in introduction of data input, output, and programming using SAS and S-plus.

S0250 Introduction to Statistics (3/0): This course covers the basic concepts of statistics and its uses in daily life.

S0266 Introduction of Statistics (3/0): This course introduces what is data and what is its type based on real examples from many regions, including humanities, law, social science, biology, medicine, public health and government. Then, how to deal data and how to represent data effectively will be introduced initially so that students can select the advanced courses in future

S0295 Nonparametric Statistics (3/3): This course introduces nonparametric methods and related theories.

S0325 Calculus (4/4): This course covers the topics in limits, differentiation and integration of functions of one variable, infinite series, functions of several variables, partial derivatives, and multiple integrals.

S0364 Computer Applications in Statistics (3/3): This course covers the topics in advanced programming of SAS, including SAS/connect, SAS/graph, SAS/AF, and SAS/insight.

S0408 Experimental Design (3/3): This course covers the topics in one-way and two-way classification, Latin squares, factorial designs.

S0439 Linear Algebra (3/3): This course covers the topics in vector spaces, linear transformations, matrices, eigenvalues and eigenvectors, Jordan and rational canonical forms, and inner product spaces.

S0458 Stochastic Process (3/0): This course covers the topics in the passion process, Markov chains, and applications.

S0487 Discrete Mathematics (3/3): This course covers the topics in counting, logic, mathematical induction, relations, finite state machines, generating functions, and recurrence relations and graph theory.

S0519 Introduction of Biostatistics (3/3): In this course, we will introduce the most commonly used bio-statistical methods in the medical science and/or public health areas. We will focus on the introduction of how to use the most commonly used bio-statistical methods correctly (include the statistical packages) and interpret the analytic results appropriately. Students with these analytic skills will significantly

increase the chance of getting a research assistance position in the medical science and/or public health related areas

S0582 Mathematical Statistics (3/3): This course covers the topics in probability concepts, random variables and their distribution, moments of random variables, characteristic function, and moment generating functions. Stochastic independence, limit theorem, transformations of random variables and random vectors, order statistics, point estimation, testing hypothesis, confidence intervals, and Quadratic forms.

S0600 Time Series (0/3): This course covers the topics in introduction of time series, analysis and applications of time series models.

S0722 Clinical Trials (3/3): This course covers the topics in planning and design, basic design consideration, randomization and blinding, sample size determination, efficacy and safety evaluations.

S0733 Queuing Theory (3/3): This course covers the topics in birth-death models, M/M/1 system, M/M/2 systems, M/G/1 system, G/M/1 system, networks of queues, and transient solutions.

S0828 Statistical Programming (0/3): This course will teach students how to use SAS Base Language, SAS Graph Language and SAS EG.

S0828 Statistical Computing (0/3): This course introduces (1) random numbers and then details how these numbers can be used to generate random variates from discrete and continuous probability distributions; (2) various algorithms for generating such variates, including the Inverse Transformation Method, the Acceptance-Rejection Method and methods for generating normal random variates; (3) discusses problem solving using a simulation approach; (4) the analysis of simulated data; (5) variance reduction techniques; and (6) Markov Chain Monte Carlo methods.

S0872 Community Service-Basic Mathematics (0/2): This course is about community service for the Mathematics-major students. Students are asked to serve outside the school for about 18 hours.

S0951 Introduction to Statistical Learning (3/0): Based on big data, we introduce the methods of modeling and predictions and related applications. This involves the linear regression, classifications, resampling methods, decision trees, support vector machines, etc.

S0958 Exploratory Data Analysis and Data Visualization (3/0): The course introduces techniques of exploratory data analysis and data visualization. Topics include (1) R basics and R graphics, (2) quickly exploring data, (3) getting your data into shape, and (4) dimension reduction for data visualization, etc.

S0959 Algorithms in Data Science (0/3): This course looks at the top 10 algorithms of data mining, identified at the 2006 IEEE International Conference on Data Mining (ICDM 2006) in Hong Kong. The top 10 data mining algorithms are C4.5, k-Means, SVM, Apriori, EM, PageRank, AdaBoost, kNN, Na¨ıve Bayes, and CART.

S0998 Statistical Simulation (3/0): We will first show how to use statistical software SAS to simulate studies, including the techniques of using MACRO Language to batch-run the simulation and to generate the whole results in tables and figures automatically. After the mid-term exam, we will introduce the techniques of generating some tables and figures for data analyses by SAS.

S0187 Matrix Theory (3/0): This course discusses techniques and applications in matrix theory, built on first year linear algebra courses. Topics to be covered include Markov chains, PageRank algorithm, spectral decomposition, singular value decomposition, applications of matrices in coding theory and graph theory, etc.

S1036 Applications and Implementations of Artificial Intelligence (0/2): By implementation of practical examples, students can understand the basic structure, principles and applications of artificial intelligence.

S1037 Enterprise Internship: Applications and Implementations of Artificial (2/0): By implementation of practical examples, students can understand the basic structure, principles and

applications of artificial intelligence

S1074 Preliminary Seminar I/II (1/0): This course provides an introduction to research. Following the steps: 1. Setting the problem and implementation 2. Collecting data and setting up tools 3. Plan execution 4. Writing and discussing results, we will explain and practice in class.

Master Program

A0503 Advanced Writing Workshop (3/0): The course is to teach students how to write the master thesis.

M0798 Statistical Consulting (3/0): In this course, we expect the student will be capable to do statistical consultant through the practice of real examples repeatedly, Introduce the usage of three most commonly used statistical packages, named SPSS, STATA, and R and the interpretation of the results, To do that, the entire course is divided into two phases: in the semester, we will focus on the introducing all the traditional (that is, exclude the huge dada problem) statistical methods. In the second semester, we will focus on the cultivation of the capacity of handing the real statistical consultant cases.

M0883 Statistical Computing (3/0): This course covers (1) random number and then details how these numbers can be used to generate random variates from discrete and continuous probability distributions; (2) Various algorithms for generating such variates, including the Inverse Transformation METHOD, THE Acceptance-Rejection Method and methods for generating normal random variates; (3) discusses problem solving by using a simulation approach; (4) the analysis of simulated data; (5) variance reduction techniques; and (6) Markov Chain Mote Carlo methods.

M1043 Survival Analysis (3/0): The course covers both traditional statistical inference methods and modern statistical learning methods in survival analysis. In the first semester, we focus on the traditional methods, including the estimation of a survival function, regression models, and model selection.

S0024 Analysis (3/3): This course covers the topics in measure, Lebesgue measure, Lebesgue integral, L^p-spaces, integration on product spaces, and complex measure.

S0046 Algebraic Topology (3/3): This course covers the topics in singular homology theory, chorology ring and duality in manifolds.

S0051 Algebra (3/3): This course covers the topics in Groups and rings; free, projective and injective modules; Hom and tensor product, field extensions and Galois Theory.

S0079 Abelian Groups (3/3): This course covers the topics in Ulm's Theorem and various structure theorems, homological methods, and recent results.

S0187 Matrix Theory (3/3): This course covers the topics in similarity, diagonalization, unitary equivalence, normal matrices, Jordan canonical forms, variation characterizations of eigenvalues of Hermitian matrices, matrix norms, location of eigenvalues, non-negative matrices.

S0321 Advanced Math. Statistics (3/0): The course include probability theory, distributions, convergence, and data reduction.

S0238 Partial Differential Equations (3/3): This course covers the topics in first-order equations, principles for higher-order equations, Fourier methods, and the differential equations of physics and engineering.

S0277 Combinatorial Mathematics (3/3): This course covers the topics in introduction of enumerative combinatorics, graph theory, and combinatorial designs.

S0320 Differential Geometry (3/3): This course covers the topics in euclidean geometry, geometry of surfaces in Euclidean space, Riemannian geometry.

S0441 Linear Statistical Models (0/3): This course covers the topics in introduce of the generalized linear regression related theory and the technique of solving the practical problem, Introduce the usage

of two most commonly used statistical packages, named, SPSS and STATA, and the interpretation of the results.

S0458 Numerical Analysis (3/0): This course will introduce different numerical methods and analyze the difference between different methods.

S0507 Graph Theory (0/3): This course considers topics such as planar graphs, graphs coloring domination, independence, chromatic numbers, and networks.

S0566 Ordinary Differential Equation (3/3): This course covers the topics in existence and uniqueness, continuation, autonomous and nonautonomous systems, Poincaré-Bendixson theorem, linear and linearization, Poincaré map, stability near equilibria and periodic orbit, bifurcation diagrams, conjugacy, and structural stability.

S0598 Combinatorial Design (3/3): This course covers the topics in orthogonal latten squares, symmetric designs, seiner systems, and tournament designs.

S0912 Introduction to Biological Mathematics (3/3): This is a cross discipline between mathematics and biology. In the course we try to answer certain biological issues by using some essential mathematical results and methods.

S1017 Introduction to Biological Analysis (0/3): This course introduces both traditional statistical inference methods and modern statistical learning methods for survival analysis. In the first semester, we focus on the traditional methods, including the estimation of a survival function; the comparison of two survival curves; the Cox regression, and model selection. In the second semester, we focus on statistical learning methods, including the regularization, survival tree, random survival forest, support vector machine, and boosting learning approaches. The implementations of the analysis methods by using R software are also included.

T0102 Seminar (1/1): This course enhances students' abilities of searching, reading, and understanding the literature of mathematics. Also, students will understand the ideas of their research. Furthermore, the students will learn skills through their poster presentation and their oral presentation

M0115 Multivariate Analysis (3/3): This course covers the topics in multivariate normal distribution, inferences about multivariate means and linear models, principal components, factor analysis, discrimination and classification, and clustering.

M0202 Quality Control (3/3): This course covers the topics in importance of quality control, early history, Deming's philosophy, process thinking, improving a process, the seven basic tools, control charts for means, ranges, individuals, proportions and counts, design of experiments, factorial, fictional factorial and screening designs.

S0061 Reliability Analysis (3/3): This course covers the topics in censoring and statistical methods, life table and graphs, inference procedures for distributions of exponential, Weibull, extreme-value and other models, parametric regression models, proportional hazards and related regression models, nonparametric methods, and goodness-of-fit tests.

S0075 Statistical Application in Biology (3/3): This course covers the topics in generalized linear models, categorical data analysis, survival analysis, nonparametric methods, with applications in various areas of biostatistics.

S0231 Advanced Mathematical Statistics (3/3): This course covers the topics in probability theory, transformations and expectations, common families of distributions, multiple random variables, properties of a random samples, principles of data reduction, point estimation, hypothesis testing, interval estimation, and decision theory.

S0233 Advanced Probability (3/3): This course covers the topics in random walks, probability theory, random variables independence, expectation, convergence, limit theorems, conditional expectation, and Martingales.

S0264 Time Series (3/3): This course covers the topics in autocorrelation function, stationary models, nonstationary models, seasonal models, transfer function models, and intervention models.

S0269 Statistical Methods (3/3): This course covers the topics in regression analysis, analysis of frequency variables, introduction of time series data, CR and RCB designs, nest design, and factorial experiment.

S0295 Nonparametric Statistics (3/3): This course covers the important theoretical foundations of nonparametric statistics, both classical and current.

S0408 Experimental Designs (3/3): This course covers the topics in factorial treatment designs, random and mixed models, complete block designs, incomplete block designs, fractional factorial designs, split-plot designs, repeated measure designs, and cross-over designs.

S0441 Linear Statistical Models (3/3): This course covers the general linear model, generalized linear model, with basic concepts, theorems, and applications.

S1062 Geometric Analysis (2/2): Understanding the concepts in Geometric Analysis. I plan to talk about the concepts of differentiable manifolds, differentiable maps, tangent spaces, Riemannian metrics, connections, etc.

S1051 SAS Data Analysis and Application (0/3): This course covers the topics in the introduction of SAS statistical software. Explain epidemiological concepts and study design ◦

E3888 Data Science (3/0): This course covers the topics in the perspective of Statistics and Mathematics to introduce the theory of Machine learning. Practice by using the example in scikit-Learn of Python.

T0102 Seminar (1/1): This course is designed to enhance the students' abilities of searching, reading, and understanding the literature of mathematics. Also, students will get the ideas of their research. Furthermore, students learn useful skills related to their mathematical presentations.

S0951 An Introduction to Statistical Learning (3/3): This course introduces the basic concept and theory of statistical learning. The topics include prediction accuracy and model interpret ability, supervised and unsupervised learning, regression and classification, and cross-validation and resampling. These concepts are the foundation for building, evaluating, and developing models in data science. The implementations of the methods by using R software are also included.

S1075 Topics in Mathmathematical Biology (3/3): Mathematical biology is a branch of biology that uses mathematical models, analyses, and representations of living organisms to examine the systems that govern the structure, development, and behavior of and within biological systems. In this course, we will introduce the tools needed to the mathematical biology.

S1076 Causal Inference (3/0): This course will introduce the fundamentals of Causal Inference and cover several methods of confounding adjustment in terms of potential outcomes and graphical models, including back-door, front-door, G-estimation, propensity score, and instrumental variable methods. It also covers effect-measure modification, precision variables, and mediation analyses. Some real data applications using R motivate the methods throughout.

DEPARTMENT OF PHYSICS

Degrees Offered: B.Sc., M.S.

Chairman: Cheng-Hao Chuang (莊程豪)

The Department

The Department of Physics was established in 1963 and offers comprehensive programs for those who wish to pursue careers as scientists or engineers. We offer the Bachelor of Science program in Physics and a research-intensive program leading to the Master of Science degree. Doctoral degrees in the fields of Physics can be pursued under the Doctoral Program in Applied Sciences which is administrated by College of Science. To prepare students for a successful career in a highly competitive and high-tech world, we offer a curriculum that emphasizes the application of basic theories and extensive training in information technology and foreign languages.

The faculty members of the Department of Physics conduct research on a vast variety of topics. Our highly ranked research activities and groups include synchrotron radiation-related research, computational material science, astrophysics and cosmology, theoretical physics, nanoscience, material synthesis and characterizations, and optoelectronics.

Faculty

Professors
Chun-Nan Chen (陳俊男) ; Hing-Tong Cho (曹慶堂) ; Chao-Hung Du (杜昭宏) ;
Choon-Lin Ho (何俊麟); Hung-Chung Hsueh (薛宏中) ; Dah-Chin Ling (林大欽) ;
Guo-Chin Liu (劉國欽) ; Way-Faung Pong (彭維鋒) ; Wen-Jer Tseng (曾文哲) ;
Shang-Yung Wang (王尚勇) ; Ping-Hung Yeh (葉炳宏) ; Zi-Cong Zhou (周子聰) ;
Cheng-Hao Chuang (莊程豪) ; Chung-Li Dong (董崇禮) ; Ming-Hsien Lee (李明憲)

Associate Professors
Chien-Hsu Chen (陳樫旭); Shu-Chun Yang (楊淑君) ; Jhen-Youg Hong (洪振湧) ;
Chi-Cheng Lee (李啟正)

Assistant Professors
Yi-Nan Chin (秦一男); Jun-Yi Wu (吳俊毅) ; Hsi-An Pan (潘璽安)

Degree Requirements

The Department of Physics offers two programs at the undergraduate level: The Electro-Optical Physics Program and the Applied Physics Program.

1. Requirements for B.Sc. in Electro-Optical Physics:
   Students must complete 128 credits of courses, including 88 credits of required courses and 24 credits of elective physics courses.
2. Requirements for B.Sc. in Applied Physics:
   Students must complete 128 credits of courses, including 88 credits of required courses and 24 credits of elective physics courses.
3. Requirements for a master’s degree in science:
   Students must complete 26 course credits, including 7 credits of required courses. Students are also required to submit a written master's thesis completed under the supervision of a faculty member and pass an oral examination.

Course Descriptions

Undergraduate Courses

E0689 Electronics (II) (0/3): This course covers the topics in operational amplifiers, differential and multistage amplifiers, frequency response, feedback, and integrated circuits.

E0768 Numerical Method (2/2): This course covers the topics in various numerical methods, standard algorithms, and applications of library routines**.**

E0722 Electric Circuits (3/0) (0/3): This course covers the topics in introduction of network laws and components, introduction to circuit analysis, network node voltages and mesh currents, network properties, Thevenin's and Norton's equivalent sources, operational amplifiers, equivalent circuits for three-terminal networks and two-port network.

E0961 Electronics (3/0): This course covers the topics in introduction of semiconductor, diodes, bipolar junction transistors, field-effect transistors, transistor amplifier circuits

E0868 Applied Mechanics (II) (0/3): This course covers the topics in central-force motion, dynamics of a system of particles, dynamics of a rigid body, coupled oscillations, nonlinear oscillations (optional), motion in a non-inertial reference frame (optional), and continuous systems (optional).

E0969 Applied Mechanics (3/0): This course covers the topics in Newton’s laws, conservation laws, oscillations, methods in the calculus of variations, and Lagrangian and Hamilitonian dynamics.

E1173 Introduction to Computers (0/3): Fortran is one of the oldest programming languages. It is often referred to as a scientific language and widely used in many fields of physics. We will learn the basics of programming with Fortran. And finally, we will use it to solve physics problems.

S0003 Mechanics (3/0): This course covers the topics in Newton’s laws, conservation laws, oscillations, methods in the calculus of variations, Lagrangian and Hamilitonian dynamics.

S0041 Astronomy (0/3): This course covers the topics in overview of the universe, solar system, inter-stellar distance, properties of stars, classification and evolution, star nebulae, star cluster, structure and classification of galaxies, cosmology, observatories and telescopes.

S0043 Fundamental Mathematical Physics (0/2): This course covers the topics in vector algebra, Matrices (not including tensor), orthogonal curvilinear coordinates (cylindrical coordinates, spherical coordinates), Kronecker δ-function and Levi-Civita symbol.

S0058 Semiconductor Physics (0/3): This course covers the topics in energy bands and carrier concentration, carrier transport phenomena, and P-N junction.

S0082 Optical Electronics (0/3): This course covers the topics in semiconductor laser, the light emit diode, detector and optical fibers.

S0084 Optics (3/0) (0/3): This course covers the topics in nature of light, geometrical optics, wave optics, interference, coherence, polarization, diffraction, and grating mechanism.

S0125 Solid State Physics (3/0): This course covers the topics in crystal structure, reciprocal lattice, crystal binding, phonon, free electron fermi gas, energy bands, semiconductor crystals, superconductivity, dielectrics and ferroelectrics, diamagnetism and paramagnetism, ferromagnetism and antiferromagnetism, and magnetic resonance.

S0127 Solid State Physics (II) (0/3): This course covers the topics in crystal structure, reciprocal lattice, crystal binding, phonon, free electron fermi gas, energy bands, semiconductor crystals, superconductivity, dielectrics and ferroelectrics, diamagnetism and paramagnetism, ferromagnetism and antiferromagnetism, and magnetic resonance.

S0152 Mathematical Physics (3/3): This course covers the topics in ordinary differential equation with boundary value problems, Eigen-value problems, Fourier analysis, Laplace transform, partial differential equation with boundary point problems, and Sturm-Liouville theory-orthogonal functions (special functions as examples).

S0164 Modern Physics Laboratory (1/1): This course covers the topics in Franck-Hertz experiment, Stefan-Boltzman radiation law, photoelectric effect, emission line spectra for hydrogen atom, fine structure, crystallization processes, energy gap measurements of a semiconductor, Zeemen effect, electronic spin resonance, magnetic susceptibility measurements of magnetic materials, thermal analysis-determination of phase diagram for Pb-Sn alloy, Brownian motion and Boltzmann distribution, and coherence of light.

S0290 General Physics (4/4): This course covers the topics in general introduction (including dimension analysis, significant figures of measurement, etc.), fundamental mathematical tools (vector inner product and cross, derivative), force and motion, Newton's Laws, work and energy, conservation of the mechanical energy and linear momentum, moment of inertia, rotation of a rigid body about a fixed axis, pure rotation, angular momentum, static equilibrium, temperature the zeroth law of thermodynamics, first and second law of thermodynamics, oscillation and waves, static electric field (Coulomb's law and Gauss's law), electric potential, capacitance, dielectrics, Biot-Savart law and Ampere's law, Faraday's law, inductance, Maxwell's equations, and introduction of modern physics (Planck's hypothesis, matter waves, wave-particle dDuality)

S0291 General Physics Laboratory (1/1): This course covers the topics in basic measurement, force & equilibrium, one dimensional collision, pendulum, simple harmonic motion, mechanical resonance, moment of inertia, equivalence of heat and work, thermoelectric conversion, refractive index of glass prism, laws of imaging, optical diffraction, basic electrostatics, field lines & equipotential lines, resistance & resistivity, temperature-dependency of resistors, characteristics of diodes and transistors, plate capacitor, current balance, magnetic fields of current-carrying coils, self-inductance of a long solenoid, transformer, *e/m* ratio of electron, and photoelectric effect.

S0310 Quantum Mechanics (I) (3/0): This course covers the topics in introduction of probability, Schrodinger equation, the uncertainty principle, one dimensional quantum systems, linear space and matrices, diagonalization of matrices, eigenvalues and eigenvectors, similarity transformation, central field systems, helium atoms, and angular momentum.

S0312 Quantum Physics (3/3): This course covers the topics in Planck's theory of blackbody radiation, the photoelectric effect, the Compton effect, matter waves, different models of atom, Schrodinger's theory of quantum mechanics, time independent Schrodinger equations for simple examples, time independent Schrodinger equations for hydrogen atom, and introduction of spin (including the Stern-Gerlach experiment, etc.).

S0338 Electromagnetism (3/3): This course covers the topics in vector analysis (vector field, gradient, divergence and divergence theorem, Curl and Stokes' theorem), electrostatics, special techniques for calculating potentials, electrostatic fields in matter, magnetostatics, magnetostatics field in matter, Maxwell's equations, and electromagnetic waves (waveguide).

S0339 Electromagnetism Laboratory (1/1): This course covers the topics in multi-meter operations and basic DC circuits, oscilloscope operation, function, generator operations, RC circuits, RL circuits, rectifier circuits, rectifier circuits and voltage doublers, Ohm's law, RC、RL circuit, RLC circuit, diode lab-Part 1, diode lab-Part 2, measurement of force effects in the electric field, basic current balance, force effect of currents, measurement of magnetic field of single coils, magnetic fields of paired coils in Helmholtz arrangement, hall effect in p-Ge/n-Ge, Faraday law, transformers, microwave I, and microwave II.

S0373 Digital Electronics (3/0): This course covers the topics in digital design binary system, Boolean algebra, logic gates, simplification of Boolean functions, combinational logic, analog design amplifiers, frequency response, feedback, and operational amplifier.

S0398 Applied Electromagnetism (3/3): This course covers the topics in vector analysis (vector field, gradient, divergence and divergence theorem, curl and Stokes' theorem), electrostatics, special techniques for calculating potentials, electrostatic fields in matter, magnetostatics, magnetostatics field in matter, Maxwell's equations, and electromagnetic waves (waveguide).

S0399 Computational Materials Physics (3/0): This course covers the topics in 3D GUI and materials studio introduction, more 3D functions and model building, crystal structures, ICSD and CSD, density

functional theory, methodology and application, atomic orbits and chemical bonds, bond length, vibration frequency, lattice parameter and bulk modulus, band structure theory, semiconductor, insulator and metal, magnetic properties of materials (VCA), phonon spectra, specific heat calculation and phase transition temperature, electronic spectra, refractivity and dielectric function, IR absorption and static dielectric function, NMR and atomic structure, surface reconstruction, work-function and STM image, chemical reaction, activation barrier and free energy (molecular dynamics).

S0437 Thermal Physics (3/0) / S0434 Thermodynamics (3/0): This course covers the topics in temperature and the Zeroth law of thermodynamics, discrete and continuous distributions, temperature and the Boltzmann distribution, gas speed (Maxwell-Boltzmann distribution), ideal gas equation and applications (molecular effusion, the mean free path and collisions, transport properties in gases), heat and first law of thermodynamics, isothermal and adiabatic processes, the second law of thermodynamics and the Carnot cycle, entropy, thermodynamic potentials (internal energy, enthalpy, Helmholtz, Gibbs), the third law of thermodynamics, and thermal properties of solids.

S0471 Applied Electronics (3/0): This course covers the topics in introduction of semiconductor, diodes, bipolar junction transistors, field-effect transistors, and transistor amplifier circuits

S0472 Applied Electronics Laboratory (1/1): This course covers the topics in voltage source and current source, Thevenin theory, trouble shooting, characteristic curve of diode, diode models, rectifier circuits, input filtering capacitor, voltage multiplier circuits, limiter and clipper circuits, DC clampers and peak-to-peak detectors, Zener diode, Zener diode rectifier, photoelectric devices, collector-emitter junction, transistor characteristics of common-emitter, base bias, LED driver, establishing a stable Q-point, PNP transistor biasing, transistor biasing, coupling and by-pass capacitors, AC emitter resistance, common-emitter amplifier, common-emitter amplifiers, cascaded common-emitter amplifiers, AC load line, emitter follower, class B push-pull amplifiers, JFET characteristic curve, JFET biasing, JFET amplifier, VMOS circuit, differential amplifier, operational amplifier, non-inverting feedback, and negative feedback.

S0524 Applied Mathematics (3/3): This course covers the topics in ordinary differential equation with boundary value problems, eigen-value problems, Fourier analysis, Laplace transform, partial differential equation with boundary point problems, and Sturm-Liouville theory-orthogonal functions (special functions as examples).

S0547 Review of Frontier Physics (3/0): This course covers the topics in physics and philosophy, experimental physics and astronomy, theoretical physics and thermodynamics, relativity and gravity, Gondens-matter physics, and high-energy physics.

S0553 Optics Laboratory (1/0) (0/1): This course covers the topics in polarization, self-imaging, Fresnel diffraction, Fraunhofer diffraction, optical design, holography, fiber optics, Faraday effect, and acousto-optic modulation.

S0583 Quantum Mechanics (II) (0/3): This course covers the topics in angular momentum algebra, addition of angular momenta, identical particle effect, one dimensional periodic quantum systems, introduction to quantum statistical mechanics, time-independent perturbation theory, fine structure, WKB approximation, variational principle, Aharonov-Bohm effect, and quantum transition.

S0684 Applied Optics (0/3): This course covers the topics in Fourier optics, nonlinear optics, laser optics, fiber optics, polarization, theory of multilayer films, and optical properties of materials.

S0703 Computational Physics (0/3): This course covers the topics in simple to complex-order differential equations, partial differential equations and boundary value problems, wave phenomena and fast Fourier transform, matrix calculations and eigenvalue problems, numerical integration, the Monte Carlo method, and molecular dynamics simulation.

S0704 Electronics Laboratory (1/1): This course covers the topics in voltage source and current source, thevenin theory, trouble shooting, characteristic curve of diode, diode models, rectifier circuits, input filtering capacitor, voltage multiplier circuits, limiter and clipper circuits, DC clampers and peak-to-peak detectors, Zener diode, Zener diode rectifier, photoelectric devices, collector-emitter junction, transistor characteristics of common-emitter, base bias, LED driver, establishing a stable Q-point, PNP transistor

biasing, transistor biasing, coupling and by-pass capacitors, AC emitter resistance, common-emitter amplifier, common-emitter amplifiers, cascaded common-emitter amplifiers, AC load line, emitter follower, class B push-pull amplifiers, JFET characteristic curve, JFET biasing, JFET amplifier, VMOS circuit, differential amplifier, operational amplifier, non-inverting feedback, and negative feedback.

S0734 Optical Processes in Semiconductor (3/0): This course covers the topics in theory of semiconductors, absorption, direct transition, indirect transition, emission, radiation recombination, irradiation recombination, donor, acceptor, exciton, phonon, photon, and polarities.

S0744 The Special and General Theory of Relativity (3/0): This course covers the topics in principle of relativity, 4-vector and tensor; Chritoffel symbol, geodesic, Ricci tensor, Einstein equations, Newtonian approximation, Schwarzschild solution, gravitational red shift, deflection of light by the sun, precession of perihelia, gravitational lensing, black hole, gravitational wave, and cosmology.

S0770 Introduction of Opto-Electric System (0/3): This course covers the topics in semiconductors and their optical properties, light emitted diode (LED), solar cells, lasers, optical fiber, liquid crystal display (LCD), plasma display panels (PDP), holography, and DVDs and DVD players.

S0819 Introduction of Statistical Mechanics (0/3): This course covers the topics in Boltzmann statistics, Fermi-Dirac and Bose-Einstein distribution statistical method for ideal gas, heat capacity of solids, thermodynamics of magnetism, Bose-Einstein gases, Bose-Einstein condensation, Fermi-Dirac gases, free electrons in metal, and information theory.

S0829 Introduction of Quantum Information and Quantum Computation (0/3): This course covers the topics in principles of quantum mechanics, quantum correlation, quantum cryptography, quantum teleportation, quantum computation, quantum information theory, and experimental findings.

S0835 Mathematical Methods for Physics (I) (3/0): This course covers the topics in probability, more on special functions, and linear algebra (linear operators and Hilbert space).

S0836 Mechanics (II) (0/3): This course covers the topics in central-force motion, dynamics of a system of particles, dynamics of rigid body, coupled oscillations, nonlinear oscillations (optional), motion in a non-inertial reference frame (optional), and continuous systems (optional).

S0837 Mathematical Methods for Physics (II) (0/3): This course covers the topics in tensor analysis and differential geometry, group theory, Green's functions, and variation.

S0838 Principle of Fiber Optics (3/0): This course covers the topics in (1) Principle of optical-fiber optics: Snell's law, total internal reflection, graded index rod lens, fiber optics, numerical aperture, line-width and band-width, material dispersion, wave-guide dispersion, modal distortion, maximum allowable modulation frequency, and integrated optics. (2) Principle of optical-fiber systems: optical-fiber networks, LAN networks, FDDI networks, CATV networks, and optical-fiber analog and digital networks.

S0868 Science Education Service (0/1): The student in this course will measure the air quality in the community around the campus and analyze the data.

S0869 Introduction to Condensed Matter Physics (0/3): This course covers the topics in atomic structures and bindings in solids, defects and diffusion in a crystal, metals and semiconductors, mechanical and thermal properties of materials, optical properties of materials, electric and magnetic properties of materials, and introductions and applications of various materials.

S0870 Introduction of Biophysics (3/0): This course covers the topics in introduction of important biomolecules, applications of physical concepts, such as energy, force, entropy, temperature and free energy, biology. Diffusion and dissipation in biomaterials, and conformation and mechanical property of biopolymers.

S0885 Introduction of Nanotechnology (3/0): Nanotechnology is a recently developed, inter-discipline technology. It mainly explored the new physics and chemistry of the materials, which are nano-sized, and the potential of future application.

S0893 Introduction of Optics (0/3): The lecture will discuss the history of optical principles. Then particle and wave theory as well as examples will briefly be introduced.

S0914 HI-TECH Industry in Taiwan (2/0): This course will invite experts from industry to give lectures on IC industry, LCD industry, testing and certification service, bio-medicine industry, Innovation industry, AI applications, Optoelectronics industry, etc.

S0961 Research Project for Applied Physics (1/0): This course covers the topics in research for advanced energy materials and interface electrochemical activity.

S0962 Research Project for Optoelectronics (0/1): Each student in the course should participate in a laboratory to study the theory or experiment method about some topic of optoelectronics.

S0972 Introduction of Synchrotron Radiation: Techniques and Applications (3/0): This course covers the topics in introduction of synchrotron facility, overview of synchrotron x-ray techniques, X-ray absorption spectroscopy, application of X-ray absorption spectroscopy, X-ray magnetic circular dichroism spectroscopy, application of X-ray magnetic circular dichroism spectroscopy, X-ray photoemission spectroscopy, application of X-ray photoemission spectroscopy, X-ray emission spectroscopy, application of X-ray emission spectroscopy, X-ray scattering spectroscopy, application of X-ray scattering spectroscopy, X-ray spectromicroscopy, application of X-ray spectromicroscopy, In situ x-ray spectroscopy, and application of in situ x-ray spectroscopy.

S0150 Special Topics in Physics (1/1): In this course, we give students the opportunity to conduct research on a variety of practical subject areas. Students will gain the ability to analyze and solve real-life problems, which will help them become all-rounded physicists. Furthermore, advances and discoveries in different fields of physics will also be highlighted in this course.

T0136 Special Topic Research (1/1): Through the course the students may participate in various research activities in our department, gain practical hands-on experience to do research, and extend their basic knowledge in physics to realistic applications.

S1012 Fabrication of Semiconductor Devices (I) (0/5): Students must complete the internship at a selected semiconductor manufacturing company. This course is designed to provide students with the opportunity to learn the practical experience of semiconductor device fabrication through the internship.

S1013 Fabrication of Semiconductor Devices (II) (0/4): Students must complete the internship at a selected semiconductor manufacturing company. This course is designed to provide students with the opportunity to learn the practical experience of semiconductor device fabrication through the internship.

S0640 Review on Photonics (0/3): This course covers the topics in fundamentals of optical and semiconductors, including photoelectronic semiconductors, display devices, fibre optics and its components, integrated optics, optoelectronic integrated circuits, optical storage devices, charge coupled devices and their application, photonic crystal, micro-optical devices, near field optics, nonlinear optics, and electro-optics in medicine.

S1030 Introduction of Quantum Optics (3/0): This course introduces the basic theory and applications of quantum optics, with emphasis on the quantum properties of photons, and the interaction between photons and atoms. Topics included are brief reviews of classical optics and quantum mechanics, radiative transitions in atoms, photon statistics, photon antibunching, coherent states, squeezed states, photon number states, resonant light-atom interactions, and atoms in cavities.

S1045 Introduction of Particle Physics and Cosmology (0/3): This course is intended to introduce the fundamental interactions and elementary particles in nature. The mathematical tools describing scatterings, productions and decays of particles is the so-called quantum field theory. The student is supposed to know special relativity, electromagnetism and quantum mechanics. The main goal aim to study the electroweak unification theory with Higgs mechanism, namely gauge principle plus chiral symmetry fields are our subjects. We also survey the basic knowledge of quark and strong interactions. Then massive neutrino indicates the necessary extension of standard model will briefly be mentioned. Finally, the early universe is an excellent framework for high energy physics. We provide an introduction

of determining the primordial abundance of the lightest nuclei and cosmic microwave background.

S1056 General Physics Booster Course (2/0): This course covers the topics in (1) Dimensionality analysis and order-of-magnitude estimation. (2) Modern physics: matter waves, particle-wave duality, the uncertainty principle and its significant consequences, Schrödinger equation, superposition and entanglement, the Bohr model of hydrogen, and the Stern-Gerlach experiment. (3) Hagen Poiseuille equation and its applications in daily life. (4) Wave motion: wave equation and what's imbedded in it, dispersion relation, phase and group velocities, energy transfer rate by a sinusoidal wave, resonance, reflection and transmission of waves from Boundaries. (5) Revisit Coulomb's law and Biot-Savart law. (6) Maxwell's equation and EM waves.

Master Program

S0064 Classical Mechanics (3/0): This course covers the topics in survey of the elementary principles, variation principles and Lagrange's equations, the central force problem, the rigid body motion, small oscillations, special relativity in classical mechanics, the Hamilton equations of motion, canonical transformations, Hamilton-Jacobi theory, canonical perturbation theory, and introduction of the Lagrangian and Hamiltonian formulations for continuous systems and fields.

S0517 Statistical Mechanics (0/3): This course covers the topics in classical statistical mechanics, micro-canonical ensembles, canonical and grand canonical ensembles, quantum statistical mechanics, Fermi systems, and Bose systems.

S0310 Quantum Mechanics (I) (3/0) / S0583 Quantum Mechanics (II) (0/3): This course covers the topics in Schrodinger equation, bound states, hydrogen atoms, wave packets and uncertainty relations, WKB approximation, principle of quantum mechanics, perturbation theory, variation method, and spin and angular momentum.

S0549 Magnetic Physics (3/0): This course covers the topics in **(**1) magnetic moment of an atom, magnetic moment associated with orbital/angular momentum of an electron, spin-orbital coupling, crystal-field splitting, LS and HS states, J-T effect. (2) magnetism of matter: diamagnetism, paramagnetism, ferromagnetism, antiferromagnetism, ferimagnetism, spin glass, super-paramagnetism, and frustrated magnetism. (3) magnetic interaction: dipole interaction, exchange interaction, super exchange interaction, RKKY interaction, double exchange interaction, and coulomb interaction. (4) magneto-crystalline anisotropy and magneo-striction. (5) domain magnetism. (6) techniques of magnetic measurements. (7) Neutron scattering. (8) magnetic multilayers and nanostructured magnetic materials. (9) applications of magnetism and related topics.

S0569 Electrodynamics (II) (0/3): This course covers the topics in wave guides and resonant cavities; simple radiation system; scattering and diffraction; magnetohydrodynamics and plasma physics; special theory of relativity; dynamics of relativistic particles and electrodynamic fields; radiation of moving charges; multipole fields.

S0630 Introduction of Synchrotron Radiation (0/3): This lecture gives a description of the x-rays produced by a synchrotron radiation source and its applications in modern material research.

S0666 Electrodynamics (I) (3/0): This course covers the topics in introduction of electrostatics; boundary-value problems in electrostatics: I; boundary-value problems in electrostatics: II, multipoles, electrostatics of macroscopic media, dielectrics magnetostatics; time-varying fields, Maxwell equations, conservation laws; plane electromagnetic waves and wave propagation.

S0771 Atomistic Simulation of Optoelectronic Materials (3/0): This course covers the topics in Computational material science, theory of solid-state physics, density functional theory, pseudopotential, band theory, dielectric function and optical properties calculation, phonon calculation, and many-body perturbation theory.

S0795 Physics of Nano-materials and Their Application (0/3): This course introduces nanotechnology and its potential application; we start with the general characteristics of nano-materials and their application, followed by description of the structure of nanomaterials; characterization technology for nano-materials, including scanning tunneling microscopy and transmission electron microscopy; and

fabrication & properties of the nano-materials, that include (a) zero dimension materials and applications, such as quantum dot semiconductors, single electron transistor; (b) one dimension nano-materials, such as carbon nanotubes, ZnO-nanowires; and (c) two one dimension nano-materials, such as quantum well semiconductor and graphene.

S0855 Selected Topics in Physical Mathematics (3/0): This course introduces some of the advanced mathematical methods that are frequently used in the analysis of physical problems and experimental data. Topics include complex analysis, probability, and statistics.

S0856 Condensed Matter Physics (0/3): This course is designed to cover the foundations of atomic structure, electronic structure, transport/optical/thermal properties of solids and magnetism at the graduate level, basic knowledge of quantum and statistical mechanics is required.

T0095 Seminar (I) (2/2): Students learn what people are doing in physics through the talks given by experts working in different fields of physics.

T8000 MS Thesis (0)

DEPARTMENT OF CHEMISTRY

Degrees Offered: B.S., M.S.

Chairman: Chen, Chih-Hsin (陳志欣)

The Department

The Department of Chemistry was founded in 1958 and offered degrees in pure chemistry and applied chemistry in 1974. In 2003, the chemistry department officially offered degrees in two divisions: chemistry and biochemistry division as well as material chemistry division. The department is located and the sole occupant of the Chung-Ling Chemistry Hall, which was built in 1999. In this state-of-the-art building, we have a library, laboratories, teaching classrooms, and a precision instrument center. With these facilities, students have a great opportunity to gain hands-on experience using modern equipment. Moreover, the low student to faculty ratio allows for closer student-teacher interaction, better student guidance, and more research opportunities.

The MS and Ph.D. programs in chemistry were established in 1971 and 1975, respectively. The main goal of both programs is to provide each graduate with the intellectual background, laboratory skills, and research experience necessary to ensure success in his or her future scientific endeavors. Hence, our faculty endeavors to research projects that encompass all the major disciplines of chemistry, with special emphasis on material chemistry and biochemistry. Meanwhile, students are encouraged to participate in the department's numerous research programs. Due to their extensive interdisciplinary training, TKU science graduates hold competitive positions in both local and overseas universities, as well as in industry and government laboratories across the nation and worldwide.

Faculty

Professor Emeritus
Yun-Shan Lin (林雲山) ; Ho-Hsiang Wei (魏和祥)

Professors
Shih-Yuan Lee (李世元) ; Bo-Cheng Wang (王伯昌) ; Hsiu-Fu Hsu (徐秀福) ;
San-Lang Wang (王三郎) ; Yau-Hung Chen (陳曜鴻) ; Tzenge-Lien Shih (施增廉) ;
Jen-Chieh Hsieh (謝仁傑) ; Chih-Hsin Chen (陳志欣)

Associate Professors
Tzu-Chao Chuang (莊子超) ; Ming-Kai Chern (陳銘凱) ; Chang-Shin Lee (李長欣) ;
Chun-Hung Wu (吳俊弘) ; Jin-Pei Deng (鄧金培) ; Po-Shen Pan (潘伯申)
Chung-Hung Hsieh (謝忠宏); Chia-Chi Huang (黃家琪)

Degree Requirements

The Department of Chemistry offers two divisions at the undergraduate level: Biochemistry division and Material Chemistry division.

1. Requirements for a degree of B.Sc. in Biochemistry:
   Students must complete 128 credits of courses, including 86 credits of required courses and 20 credits of elective chemistry courses, and 22 credits of other elective courses.
2. Requirements for a degree of B.Sc. in Material Chemistry:
   Students must complete 128 credits of courses, including 86 credits of required courses and 20 credits of elective chemistry courses, and 22 credits of other elective courses.
3. Requirements for a master's degree in science:
   Students must complete 28 credits of courses, including 16 credits of required courses and 8 credits of elective chemistry courses, and 4 credits of seminar courses. Students are also required to submit a written master's thesis completed under the supervision of a faculty member and pass an oral examination.

Course Descriptions

Undergraduate Courses

E0182 Material Science (0/3): This course covers the topics in introduction of basic concepts of the fabrication and structure-property relationship of materials, including ceramics, polymers, porous materials, electrical and magnetic materials, supramolecular and nano materials, etc.

E2452 Introduction of Biochemistry (3/0): This course covers the topics in introduction of the basic chemical structures, functions and metabolism of biomolecules (e.g., proteins, enzymes, carbohydrates, lipids, and nucleic acids), and the principles of methods applied in biochemical sciences.

S0014 Analytical Chemistry (0/3): This course covers the topics in introduction of the principles and applications of the conventional quantitative analysis, including errors and data treatments, gravimetric methods, effect of electrolytes on chemical equilibriums, and various titrimetric methods.

S0018 Special Topics in Analytical Chemistry (3/0): This course covers the fundamentals of electrochemical methods and modern applications.

S0068 Biochemistry (3/3): This course covers the topics in molecular design of life, protein conformation, dynamics and function, metabolic energy, biosynthesis of macromolecules, gene replication and expression.

S0071 Biochemistry Laboratory (0/1): This course covers the topics in SDS polyacrylamine gel electrophoresis, protein determination, determination for enzyme activity, HPLC for sugar analysis, TLC for brain glycosphingolipids, hemagglutination, enzymatic conversion for "B" RBC into "O" RBC polymerization chain reaction experiment.

S0076 Biology (3/3): This course covers the topics in molecular biology of genes, gene regulation, DNA technology, blood, the immune system, hormones, and the nervous system.

S0108 Organic Chemistry (4/4): This course covers the topics in structure and bindings, spectroscopy, alkanes, alkynes, alcohols.

S0111 Organic Chemistry Laboratory (1/1): This course covers the topics in separation and purification of organic compounds, reaction of alcohols, preparation of cyclohexanol, and nitration of aniline: using a protecting group.

S0113 Organic Reaction Mechanism (3/0): This course covers the topics in principles of stereochemistry, conformational, steric, and stereoelectronic effect, S_N1, S_N2, polar and elimination reaction of carbonyl compounds, aromaticity, aromatic substitution, controlled pericyclic reaction.

S0115 Organic Spectroscopy (3/0): This course covers the topics in identification of organic compounds by spectral analysis, including proton and C-13 NMR, mass spectra, UV spectra, and IR spectra.

S0116 Organic Synthesis (3/0): This course covers the topics in functional group transformation, carbon-carbon formation, oxidation, reduction, organometallic reagents and application, pericyclic reaction.

S0143 Physical Chemistry (4/4): This course covers the topics in quantum chemistry, thermodynamics, and kinetics.

S0147 Special Topics in Physical Chemistry (3/0): This course covers the topics in laws of thermodynamics, Joule expt., Joule-Thomson expt., entropy, heat capacity, free energy A and G, temperature era, statistical thermodynamics, partition function, equipartition theory, the Einstein solid and the Debye solid.

S0148 Physical Chemistry Laboratory (1/1): This course covers the topics in intrinsic viscosity, transference number, cryoscopic determination of molecular weight, chemical equilibrium, heat of combustion, binary liquid-vapor phase diagram, and ionic strength effect.

S0178 Food Chemistry (3/0): This course covers the topics in protein chemistry, carbohydrate chemistry, lipid chemistry, vitamin and cofactors, milk products, browning reaction, food microbiology.

S0195 Polymer Chemistry (3/0): This course covers the topics in mechanisms of polymerization, synthesis of polymers, characterization of polymers, physical and chemical properties of polymers, and commercial polymers.

S0288 General Chemistry (3/3): This course covers the topics in atomic structure, chemical bonding, molecular structure, chemical kinetics, chemical thermodynamics.

S0289 General Chemistry Laboratory (1/1): The following experiments have been designed to train students in related experimental techniques: preparation of soaps, synthesis of aspirin, ion analysis, the study of chemical equilibrium, DNA agarose gel electrophoresis, preparation of high-Tc superconductors, electrogravimetric analysis, chemical cells, preparation of buffer solutions, ion exchange chromatography, COD, DO, Karl Fischer analysis, volumetric titrations including acid-base titration, precipitation titration, complex formation titration, and oxidation/reduction titration.

S0297 Inorganic Chemistry (3/3): This course covers the topics in atomic structure, solid-state chemistry, chemical bonding, coordination chemistry, organometallic chemistry, acid-base and solution chemistry, group theory.

S0299 Special Topics in Inorganic Chemistry (3/0): This course covers the topics in conformation and stereochemistry, nucleophilic substitution and electrophilic substitution, cycloaddition and rearrangement, organometallic reactions, reactions of carbonyl compounds, peptide synthesis, and radical reactions.

S0299 Special Topics in Physical Chemistry (0/3): This course covers the topics in quantization and Schrödinger equation, one particle in a box and its applications, Hückel theory and its applications, extended Hückel theory and its applications, and Ab initio computational methods.

S0311 Quantum Chemistry (3/0): This course covers the topics in Schrödinger equation, quantum mechanics, particle in a box, symmetry, and molecular orbitals.

S0324 Microbiology (0/3): This course covers the topics in bacteria, fungus and diseases, viruses and cancers, immunity, bacterial growth and control, and industrial microbiology.

S0416 Instrumental Analysis Laboratory (1/1): This course covers the topics in applications of AA, IR, GC, UV-VIS, HPLC, NMR, and MS.

S0415 Instrumental Analysis (3/3): This course covers the topics in conductometric analysis, potentiometric methods, voltammetry, GC, HPLC, spectrofluorometer, mass spectrometry, nuclear magnetic resonance spectroscopy, and capillary electrophoresis.

S0453 Structural Chemistry (3/0): Structural chemistry is a course to study the properties of materials at the atomic and molecular levels, especially in the solid state.

S0454 Biosensors (0/3): This course focuses on biosensors, a specially designed measurement tool with an inherited specificity from bio-components suitable for the measurement of a specific target from a complex sample such as blood or environmental samples.

S0455 Special Topics in Organic Chemistry (0/3): This course mainly introduces basic chemical concepts and their application reaction forms extended to industry. The basic chemistry concept focuses on the basic organic chemistry and the organic chemistry concept of the preliminary research institute.

S0456 Special Topics in Biochemistry (3/0): This course covers the topics in selected topics in cells, enzyme, proteins, lipids, carbohydrate chemistry, biological membrane, glycoconjugates and their functions.

S0491 Pharmacy Chemistry (0/3): This course will include four sections: (a) pharmacodynamics and

pharmacokinetics; (b) General principles and strategies involved in discovering and designing new drugs; (c) Introduce major data analyzing methods in drug development processes; (d) introduction of drugs that treat different diseases.

S0573 Special Topics in Analytical Chemistry (3/0): This course covers the topics in introduction to chromatographic separations: band broadening and column efficiency, the Van Deemter equation, gas chromatography, high performance liquid chromatography and supercritical fluid chromatography (SFC).

S0585 Special Topics in Polymer Chemistry (3/0): This course covers the topics in selected topics in manufacturing, properties and applications of natural and synthetic rubbers, processing techniques of rubbers, testing of uncured and cured rubbers, and compound ingredients of rubber compounds.

S0650 Special Topics in Organic Chemistry (3/0): This course covers the topics in conformation and stereochemistry, nucleophilic substitution and electrophilic substitution, cycloaddition and rearrangement, organometallic reaction, reactions of carbonyl compounds, peptide synthesis, and radical reactions.

S0708 Chemical Applications in Group Theory (3/0): This course covers the topics in molecular symmetry, symmetry group, representations of groups, group theory & quantum mechanics, symmetry-adapted linear combinations, ligand field theory, molecular vibrations, molecular electronic structure, and molecular orbital theory.

S0709 Genetic Engineering (0/3): The basic principles of gene cloning and DNA analysis: restriction enzymes, recombinant vector transformation, screening, polymerization chain reaction, gene sequencing, DNA purification and gene expression.

S0729 Applications of Chemistry (2/0): This course covers the topics in hydrogen bonding, roles of carbon, roles of silicon, life science, electronics, optoelectronics, and material science.

S0736 Spectroscopy of Molecules (0/3): This course covers the topics in review of quantum mechanics (particle in a box, rigid rotor and harmonic oscillator), transition probability, UV-vis-IR, vibronic, Franck-Condon principle, rotation-vibration, PQR branches, symmetry and spectroscopy.

S0777 Molecular Biology (0/3): This course covers the topics in central dogma: replication, transcription and translation, DNA structure and stability, the dynamic genome, recombinant DNA and nucleic acid technology, bacteriophage, plasmid and transposable elements, protein engineering, human genetics, program cell death, oncogenes & tumor suppressor genes.

S0781 Introduction of Biology (0/3): This course covers the topics in cell life, cellular reproduction and genetics, concepts of animal structure and function, and concepts of plant structure and function.

S0792 Material Chemistry (3/3): This course covers the topics in polymerics, electronics, magnetics, nano and bio-molecular mechanics, nonlinear optics, porosity, superconducting materials.

S0793 Material Chemistry Laboratory (1/0): This course covers the topics in preparation and characterization of organic light-emitting, liquid crystalline, polymeric, porous, nano-, magnetic-, and supra-molecular materials.

S0804 Nanomaterials and Applications (3/0): This course covers the topics in fundamental chemistry concepts, nano-materials chemistry is to be rationalized. The design, working mechanism, and applications of nanomaterials are to be correlated.

S0805 Microbiology (3/0): This course covers the topics in the world of microorganisms, the inner world of microorganisms: physiological processes, the interactions of microorganisms and the world around them, microbial taxonomy, and applications of microorganisms

S0806 Special Topics in Material Chemistry (0/3): The course introduces the preparation and application of biomaterials and carbon-materials.

S0859 Computer Applications in Chemistry (3/0): In this course, we will introduce a variety of

professional chemistry software including online tools. Specifically, the contents include molecular modeling, visualization, electronic structure, molecular dynamics simulation, structure prediction, and AI applications. Students will be learning to use molecular browsers, simple scripting languages (ex. python), chem and bioinformatics, and cloud computing resources. Students will be able to understand how to use computers and online tools to construct a virtual platform to solve chemical questions of interest.

S0936 Cheminformatics and Cloud (3/0): First of all, the present condition of computer and network is introduced. Then the Web design and accompanied graphics are applied into the chem-informatics. Finally, 3D printing, smart-phone app and wi-fi cloud are combined to present integrated chemical information.

S0976 Advanced Biology (3/0): This course covers the topics in human anatomy, physiology, tissue and organ, endocrine system, cardiovascular system, reproductive system, and aging.

T0102 Seminar in Chemistry (1/0): Selected topics for undergraduate students.

T0136 Undergraduate Chemistry Research (1/1): Selected research topics for undergraduates.

Master Program

S0072 Biotechnology (3/0): This course covers the topics in agricultural biotechnology, food biotechnology, pharmaceutical biotechnology, and environmental biotechnology.

S0202 Advanced Analytical Chemistry (3/0): This course covers the topics in advanced treatises on theory and applications of UV, IR, Raman, NMR, ESR, Mossbauer, and ESCA GC/MS.

S0207 Advanced Biochemistry (0/3): This course covers the topics in introduction of the concepts of chemical properties and structure-function relationships of biomolecules such as proteins, enzymes, carbohydrates, and lipids and nucleic acids in biological systems.

S0209 Advanced Organic Analytical Chemistry (3/0): This course covers the topics in elucidation of chemical structures by physical and chemical methods.

S0211 Advanced Organic Chemistry I (3/0): This course covers the topics in chemical bonding, molecular structure and orbitals, stereo chemistry and conformation analysis, linear free energy relationship, and kinetic isotope effects.

S0212 Advanced Organic Chemistry II (0/3): This course covers the topics in photochemistry, free radical reaction, carbanions, carbonium and reaction mechanisms.

S0223 Advanced Physical Chemistry I (3/0): This course covers the topics in quantum chemistry, applying group theory, introduction to spectroscopy.

S0224 Advanced Physical Chemistry II (0/3): This course covers the topics in chemical kinetics and thermal statistics.

S0226/S0227 Advanced Inorganic Chemistry I/II (3/3): Symmetry groups are of great importance to chemical applications. This course will include the essential mathematics of group theory; the applications of group theory to chemical bonding, stereochemistry, spectroscopy, and symmetry-controlled chemical reactions will be covered.

S0506/S0724 Advanced Biochemistry I/II (3/3): This course covers the topics in latest developments in biochemistry and their applications.

S0674/S0696 Advanced Analytical Chemistry I/II (3/3): This course covers the topics in introduction of chromatographic separations, gas chromatography, high-performance liquid chromatography, supercritical fluid chromatography and extraction, capillary electrophoresis and capillary electrochromatography.

S0814 X-ray Crystallography (0/2): The aim of this class is to provide highlights of recent research,

with emphasis on fundamental crystallography and its applications. This course also provides the operational process of X-ray diffractometer.

S0851/S0852/S0853 Advanced Life Science I/II/III (3/3): This course introduces the basic concepts of cell-cell interaction, early development, late development, and organogenesis. This course will help graduate students understand the mystery of life.

S0895 Advanced Spectroscopy in Chemistry (0/2): This course provides advanced knowledge in analytical spectroscopy. The students will receive an introduction to spectroscopy and instrumentation based on necessary theories of optics. It then focuses on the specifics of UV-Vis, fluorescence, infrared, Raman, and SERS spectroscopies. The second part of the course involves the know-how of chemical analyses. It addresses sample collection and preparation, measurement techniques, and the R&D and applications of each technology. The course will conclude with oral presentations of relevant information by the students.

T0095/T0096 Seminar in Chemistry (2/2): Selected topics for graduate students.

T1002/T1003 Seminar in Chemistry (2/2): Discussion of current topics in all fields of chemistry.

T8000 MS Thesis (0/4)

BACHELOR'S PROGRAM IN ADVANCED MATERIALS SCIENCE

Degrees Offered: B.S.

Chairman: Cheng-Hao Chuang (莊程豪)

The Program

The Bachelor's Program in Advanced Materials Science was established in 2015. The main goal of this program is to provide students with opportunities to understand basic concepts of advanced materials science, including optoelectronic material, nanomaterial, biomedical material, and macromaterial. The faculty members of the bachelor's program in advanced materials science conduct research on a vast variety of topics, including theoretical and computational physics/chemistry/biology, optoelectronics, material synthesis, organic and analytical chemistry, biotechnology, cell biology and nanoscience. Our objective is to foster in students cross-field and multidisciplinary abilities in their material sciences expertise. Graduates of this program will be well qualified for master programs in physics, chemistry, and materials science.

Faculty

Assistant Professor
Hsiao-Tsu Wang(王孝祖)

And all the faculty members in College of Science are considered as faculty of bachelor's program in advanced materials science.

Degree Requirements

Students must complete 128 credits of courses, including 87 credits of required courses and 21 credits of elective courses.

Course Descriptions

Undergraduate Courses

E2342 Introduction of Polymeric Materials (3/0): This course covers the topics in Introduction of polymer science, polymer synthesis, confirmation, solutions, and molecular weight, solid-state properties, viscoelasticity and rubber elasticity, polymer degradation and the environment, additives, blends, and composites, thermoplastics, elastomers, and thermosets, polymers for Advanced Technologies.

S0108 Organic Chemistry (3/0): This course will be focusing on stereochemistry, chemical reactivity and reaction mechanisms. In addition, alkene related reactions, alkyne related reactions, and radical related reactions, will also be included.

S1054 General Materials Chemistry (3/3): This course covers the topics in atomic structure and periodicity, atoms to molecules, chemical bonding, molecular structure and orbitals, chemical energy, gases, liquids and solids, chemical kinetics, acids and bases, electrochemistry.

S0289 General Chemistry Laboratory (1/1): The following experiments have been designed to train students in related experimental techniques: preparation of soaps, synthesis of aspirin, ion analysis, the study of chemical equilibrium, DNA agarose gel electrophoresis, preparation of high-Tc superconductors, electrogravimetric analysis, chemical cells, preparation of buffer solutions, ion exchange chromatography, COD, DO, Karl Fischer analysis, volumetric titrations including acid-base titration, precipitation titration, complex formation titration, and oxidation/reduction titration.

S1053 General Materials Physics (3/3): This course covers the topics in Introduction of force and

motion, work and energy, conservation laws, rotation, waves, thermodynamics, kinetic theory, electricity, magnetism, Maxwell's eEquations, and modern physics.

S0291 General Physics Laboratory (1/1): This course covers the topics in basic measure, force, simple pendulum, simple harmonic motion, laws of collision, coefficient of linear expansion, mechanical equivalent, thermal-electron electromotive force, consonance, electric line of force, resistance law, oscilloscope, and reflection.

S0325 Calculus (3/3): This course covers the topics in limits, continuity, differentiation of functions of one variable, mean value theorem, applications of differentiation, integration of functions of one variable, fundamental theorem of calculus, applications of integration, infinite series, functions of several variables, limits and continuity, partial derivatives, applications of maximum and minimum, multiple integrals, Fubini's theorem.

S0398 Applied Electromagnetism (3/0): This course considers topics such as vector analysis, electrostatics, energy and potential, electrostatic fields in matter (conductor and dielectrics), capacitance, and magnetostatics.

S0551 Introduction to Modern Physics (0/3): This course discusses some of the failures of classical physics, the development and concept of quantum mechanics, wave-particle dual property, special relativity, quantum statistics, crystal structure, electron in metals, band theory of solids, semiconductor devices, and magnetic materials.

S0791 Optoelectronic materials (0/3): This course covers the topics in electromagnetic wave property, concept of quantum chemistry, quantization of molecular energy, intermolecular force and polarization, fluorescence and phosphorescence, laser, light emitting diode (LED), solar cells (SC), dye-sensitized solar cells (DSSC).

S0931 Introduction of Materials Science (2/0): This course covers the topics in atomic bonding, solid state structure, mechanical property, electrical property, magnetic property, optical property, applications of materials.

S0932 Fundamental Biology (0/3): This course covers the topics in molecules of life, cell and cellular organelle, cell and energy, gene and inheritance, and introduction of biotechnology.

S0938 Biomedical Material (0/3): This course covers the topics in types of biomedical materials, natural biomacromolecules, protein structure and function, modification of glycoprotein, induction and purification of protein, biocompatibility of materials, toxicity tests of materials, and application of biomedical materials.

S0939 Nanoscience (3/0): This course will introduce how nanoscience has developed, been applied and analyzed. Why do human beings need nanoscience or nanomaterials? How do scientists find nanostructures and how do they investigate to control nanoscience?

S0941 Material Science Experiment (I) (0/1): The students study the preparation of buffer systems including osmosis and dialysis; protein chemistry including electrophoresis, quantitative determination of protein, determination of enzyme activity; isolation of plasmid DNA, and chemistry of cell membranes; collagen extraction and molecular weight determination; sterilization and microbial colony analysis.

S0943 Material Science Experiment (II) (1/0): This course will introduce how the materials have been measured and analyzed. There are several designed experiments for students learning. Students need to design one experiment for final exam.

S0964 Organic Materials (0/3): Students will be introduced of the working principles for organic optoelectronic devices, which includes OLED, OPV and DSSC. The design principles and synthetic strategy for organic materials used in OLED, OPV and DSSC.

S0966 Electronic Circuits (I) (3/0): This course is concerned with direct and alternating currents, passive components, digital and analog mechanisms, semiconductors, diodes, power suppliers, junction

transistors, small-signal amplifiers, field-effect transistors, operational amplifiers, feedback circuits, and frequency responses.

S0967 Research on Advanced Materials (I) (1/0): This course considers topics are the experiments in studying material sciences, including nano, biomedical, macromolecular and optoelectronic materials. Students can enter the material-related laboratories to do some specific topics under the instruction by the principal investigator.

S0968 Structure and Measurement of Material (I) (2/0): We study optical microscopy (absorption, transmission, reflection, and application), Raman microscopy (Raman scattering and application), electron microscopy (electron-matter interaction and application), synchrotron-related technology, x-ray microscopy (x-ray focusing principle and application), x-ray powder diffraction (Bragg diffraction and application), atomic force microscopy (Van der Waal's force and application), scanning transmission microscopy (quantum transportation and application), electrochemical microscopy (redox current transport and application).

S0969 Structure and Measurement of Material (II) (0/2): We consider molecular spectrometry (molecular absorption spectrometry, molecular luminescence spectrometry), nuclear magnetic resonance spectroscopy, molecular mass spectrometry, separation methods (gas chromatography, liquid chromatography).

LIFE SCIENCE DEVELOPMENT CENTER

Director: San-Lang Wang（王三郎）

The Life Science Development Center, established in August 2002, is a research and development body affiliated with the TKU Office of Research and Development. Its research straddles several professional domains, including biotechnology, applied microbiology, molecular biology, and neuroscience. Its functions are similar to that of nanotechnology research center: it trains scientists and engineers in a range of disciplines, integrates research-related resources, coordinates research teams both on and off campus, and hosts regular seminars and forums to promote multidisciplinary and collaborative research projects. The center's long-term objective is to nurture and train interdisciplinary research scientists and engineers to meet future demand.

SCIENCE EDUCATION CENTER

Director: Bo-Cheng Wang（王伯昌）

The United Nations General Assembly, with the backing from UNESCO, named 2011 the "International Year of Chemistry" (IYC2011). Under the unifying theme "Chemistry - our lives, our future" groups from various countries were brought together in celebration of the International Year of Chemistry.

Chemistry on the Go took the idea of continuing the work of making chemistry available to as many students as possible, especially in underprivileged areas around Taiwan. The project converted two 3.5-ton box trucks into a mobile lab and an analysis lab going to junior and senior high schools in every county and city in Taiwan to introduce chemistry to the students through magic shows, commentaries, mini-lectures, demonstrations, and hands-on experiments.

There are almost 4000 high schools in Taiwan, an island of 36913 km^2. Any corner of the island can be reached within one day. Forty percent of schools were identified by the Ministry of Education as lacking resources for education, most of those are in the underprivileged areas. Students in those schools are unable to have a chance to run experiments. They do not have enough information to attend science activities and are prone to losing interest in learning science.

TAMKANG CENTER FOR MATHEMATICAL BIOLOGY

Director: Jong-Shenq Guo (郭忠勝)

TCMB, Tamkang center for mathematical biology, is established on November 26, 2021. The main purpose of TCMB is to integrate the faculty of the department of mathematics, college of science, Tamkang university to promote research on mathematical biology. One of the missions of TCMB is to be a platform for domestic and international academic exchanges and cooperation in mathematical biology.

COLLEGE OF ENGINEERING

COLLEGE OF ENGINEERING

Dean: Tzung-Hang Lee (李宗翰)

Brief History

Since its establishment in 1966, the College of Engineering has undertaken the mission of training talented engineers. It became a fully-developed college in 1980. The period between 1980 and 1996 was the booming stage of development for the College of Engineering, during which its steady growth was made possible by the support of the university. This stage witnessed an increase in the number of department faculty, the completion of the Engineering Building, the renewal and enhancement of facilities and equipment, and the development of modern computer networks. In recent years, the College has admitted and educated more and more international students and developed several dual-degree programs with renowned universities in other countries like Japan, Australia, USA, India and Malaysia. Today, the college continues to conduct curriculum reform, promote academic research cooperation and exchange, and above all, serve as the cradle of elite engineers nationwide.

There are eight departments in the College of Engineering: Architecture, Civil Engineering, Water Resources and Environmental Engineering, Mechanical and Electro-Mechanical Engineering, Chemical and Materials Engineering, Electrical and Computer Engineering, Computer Science and Information Engineering, and Aerospace Engineering. All the undergraduate and graduate programs have been accredited by the IEET (a full signatory of the Washington Accord) and that certainly will offer our graduates greater employment opportunities for their promising career. The college provides students with more than 70 modern teaching and research laboratories, including multi-media and CAE laboratories, to assist students in learning and practicing, and support the needs for education and academic research. These laboratories are well equipped and professionally maintained by specialized technical staff. Meanwhile, the College of Engineering's major task is to promote curricula taught entirely in English, to enhance academic collaboration and exchange with universities outside Taiwan, and to continuously pursue excellence in engineering education and innovative research.

Motto and Goals

Quality Teaching and Leading-edge Research.

Future Development

1. Recruit both distinguished professors and talented young scholars to take the teaching and research efforts in the College to a higher level.
2. Reform the curriculum to provide more flexibility to meet the needs of various kinds of students.
3. Encourage cooperation with industry in both cooperative projects and student training.
4. Invite eminent international scholars to offer intensive courses or cooperative research projects and encourage faculty members to visit prestigious organizations or universities in the world to facilitate bilateral cooperation.
5. Promote student exchange and dual-degree programs and admit more international students to establish an internationalized atmosphere in the College. Cross-Strait academic and technological research/exchange and scheduling faculty and students to visit well-known universities in China to realize TKU's goals of globalization and future-oriented education.

The College of Engineering will maintain its status as a leading college and work on establishing a solid foundation for future development, while constantly enhancing its standard of research and instruction. Faculty members in the College of Engineering possess extensive experience, and the College itself is equipped with cutting edge facilities to assist students achieve their ultimate learning objectives.

Course Descriptions

Undergraduate Courses

E0033 Engineering and Environment (2/0): In this course the environmental problems caused by traditional industrial system, concept of industrial ecology, environmental management system, Pseudo-natural engineering approach, green architecture, environmental impact assessment will be presented and discussed.

E3405 Energy-Efficient Lighting Technology (2/0): This course introduces the energy-efficient lighting technology. The revolution of lighting will be discussed in depth and width, also including the new technologies of energy conservation and future development, especially for LED.

E1402 Engineering Ethics (2/0): To increase interaction between engineers and related professionals in a contemporary environment, engineering ethics has become very important. This course is intended to equip engineering students with a better ability to make ethical decisions about creating and marketing new technologies in their future professional work.

E1670 Topics on Micro-Electro-Mechanical Systems (2/0): This introductory course for undergraduate students begins with Feynman's famous speech: "There's plenty of rooms at the bottom." Semiconductor processing, bulk micromachining, surface micromachining, CMOS, LIGA, polymer MEMS process are then introduced. Interesting applications of MEMS devices e.g. inkjet heads, pressure sensors, DLP, accelerometers show up the current impact of MEMS on our daily life.

E1679 Introduction of Artificial Neural Network (0/2): This course introduces the applications of neural networks. The configuration of neural networks includes single-layer neural networks, multi-layer neural networks, backpropagation neural networks, radial basis function neural networks, self-organized neural networks, fuzzy neural networks and recurrent neural networks. Various learning algorithms, such as back-propagation, 1st order gradient descent, and 2nd order gradient descent are also introduced.

E2267 Reliability and Risk Analyses (0/2): In engineering planning, design, and construction, it aims to achieve the objectives of higher quality and lower risk. This course provides a brief and basic introduction of concepts, theories, and methodologies in both reliability and risk disciplines.

E2727 Aerospace Industry in the 21st Century (2/0): This is a general introduction to the aerospace industry. Students will gain topical knowledge through classroom presentations and team work.

E3047 The Industrial Trend of Information and Communication Techno (0/2): This is a seminar course for undergraduate students related to Information technology, but not limited. The major of invited speakers are working in different information-technology industries. The objective of this seminar course is providing the preparation to starting to work after graduation and understand what are the necessary hard skills and soft skills in IT-based companies and industries.

E3700 Security of the Internet of Things (2/0): This course starts with an introduction to the concept of the Internet of Things. The course mainly introduces the security issues of the Internet of Things and allows students to understand the potential threats of the Internet of Things. It also extends to the security issues and trends of the Industrial Internet of Things. Then explain the current Internet of Things security technology, and let students understand the computer cryptography technology by which the Internet of Things security mechanism relies. Finally, we will introduce the current IoT security industry standards

E3907 Architecture Industry Trend (2/0): This course covers the development of the architecture industry in the 21st century, including architectural design and planning, building technology, sustainable architecture, environmental issues, landscape and urban design.

E3204 Industrial Trend of Me2 in the 21st Century (0/2): This class will help students develop an awareness and understanding of ten key trends in the electromechanical industry and provide insight into the product development policy of the 21st century. It offers an in-depth view of product innovation in the electromechanical industry through lectures, group discussions, and case studies.

E3124 Operation System and Technologies for Natural Hazard Mitigation (0/2): Natural hazards, like typhoons, earthquakes, floods, droughts, debris flows, and landslides often cause major disasters in Taiwan. The general public has long been concerned about these hazards. Many believe that effective countermeasures must be based on a strong technical foundation, so that damage and losses from these hazards may be mitigated. The National Science and Technology Center for Disaster Reduction (NCDR) was founded in 2003 to oversee work conducted in this area. This course introduces numerous strategies and methodologies employed by the NCDR and other related organizations. The technologies currently used and those still under development will be discussed so that students may better understand the ongoing issues.

E3232 Introduction to Green Electronics (2/0): This course covers solar power, wind power, and smart grid, while other related technologies and global market development cases are also discussed. The latest cases in the areas of new energy, communication control, automotive electronics, and batteries are also explored, enabling students to better understand issues related to green energy.

S0238 Partial Differential Equations (0/2): This course is an introduction to Partial Differential Equations, which covers various types of equations, such as parabolic, elliptic, hyperbolic, homogeneous, and non-homogeneous equations. Techniques used for solving the problem, including separation variables, Fourier as well as Laplace transforms, and Eigenfunction expansions are also covered.

M0286 Project Management (0/2): In these times of the knowledge economy, the management methods of functional organizations cannot manage the multiply-changed environments anymore. It's inevitable that enterprises will use project management to solve problems. Project management is good for students' self-management ability, can help them integrate what they have learned to solve problems, and is good for cultivating students' systems thinking. If students could learn basic project management knowledge during their study and put it into practice, it is certain that their ability will be promoted when applying for future jobs.

E2951 Software Applications for Engineering Statistics (0/2): This course is designed to train students to understand the knowledge of engineering statistics and with its applicability to engineering with statistical software.

E3203 The Development of Environmental and Water Resource Problems (2/0): The extreme weather conditions seem deteriorating both in frequency and intensity, based on the incidences and data collected in many places worldwide. This course introduces: first, evolving environmental risks in the world, including water resources, food, and ecological crises; second, Taiwan's poor geological state and unsustainable development that causes loss of life and huge financial costs annually, third, governmental initiatives, such as regulating policies and risk management strategies.

E3580 Innovation and Entrepreneurship (2/0): This course aims to educate students in understanding different types of business administration and to enhance the innovation and creativity of students' thinking ability in business marketing strategy.

E4225 The Frontier of Marine Technology (2/0): Ocean occupies major earth surface area. It contains abundant resources and is full of unknown life and phenomenon to be discovered. The objective is to introduce important issues and the state-of-the art technology about oceans, and to urge the concept of earth sustainability with the concerns of marine environment protection. The contents include the basic properties of ocean, underwater detection, marine resource and environment of Taiwan, and various marine technologies such as deep sea exploration, detection of ocean climate, acoustical oceanography, and marine energy development.

E4280 Introduction and Applications of Smart Life (3/0): This Specialization covers the development of Internet of Things (IoT) products and services—including devices for sensing, actuation, processing, and communication.

E3905 Data Analytics in Intelligent Manufacturing (0/3): Manufacturers today face a lot of challenges. Customers are demanding more and more customizations which result in having smaller production batches, frequent changes, and more waste. Supply lines are also decreasing and there is increased outsourcing. For customer satisfaction, Intelligent manufacturing is the utilization of real-time data analysis, artificial intelligence (AI), and machine learning in the manufacturing process to optimize the

productivity of their expensive equipment, reduce waste, maximize yields, and reduce cycle times.

E3910 Intelligent Manufacturing Technology (2/0): AI is changing our lives, our work, and even the way we think about it. It will bring profound changes to the education, society, economy, and politics of all human beings. Its courses begin from the first industrial revolution in the 18th century. With the progress of industry, from mechanization, electrification, computerization, and networking, this series of control courses such as: Hydraulic & Pneumatic Control, Electrical Control, and Programmable Logic Control, Computer Control, Single Chip Control, Network Control, AI control.

M2381 Practice and Application of Enterprise Artificial Intelligence (3/0): The purpose of this course is to develop students' basic knowledge of enterprise application information, further contact with industrial Internet applications and architecture design, and to understand the direction of planning and thinking of enterprise application intelligence teamwork.

E3903 Wind and Water Science (0/2): Feng-shui is a field of curiosity by the general public, this course explores the environment and the problems of wind and water in life, from a scientific point of view, how to avoid environmental hazards, and improve the status quo, and then from a philosophical point of view, adjust the mentality, purify the mind, in order to avoiding disaster and evil, and toward auspicious.

E3274 Green Chemistry (0/2): This course will introduce the concepts of green chemistry-a new approach to design chemicals and chemical transformations that are beneficial for human health, safety and environment.

E3906 Introduction to IoT and its Applications (0/2): This course aims to enhance students' comprehension of IoT and inspire them to think and care about the information society issues.

E4012 Trends in Mechatronics Industry (0/2): This course provides the integration of fundamental theory and industrial practice for intelligent manufacturing technology. Students may learn the contents of intelligent manufacturing technology as well as their applications in industry 4.0 from classroom teaching and discussions. There are several seminars provided by the invited experts and scholars from industry and university. Students may learn the close relationship between theory and practice of intelligent manufacturing technology from these seminars.

E4212 Introduction to Estimating in Building Construction (2/0): 1. Introduction 2. Estimating in building construction steps 3. Quantity calculation 4. Public Construction Cost Estimating System.

E3901 Emgineering and Quality and Life (2/0): "Are you happy? "This is the first question, and also the essential subject of this class! Do you want to have a happy life? I believe the answer is well known, of course, it is yes! But do you know how to develop a happy life? If you ask this lesson back, my answer is: I am not very sure! Haha…, yes, to put it bluntly, even I am not sure if there is any certain approach to get happiness. In this class, we want to spend some time talking about "happiness issues," which may have no exact answer. Would you like to explore together?

E2853 The Competition of Information Technologies and Industries (0/2) ： This is a seminar course for undergraduate students related to Information technology, but not limited. The major of invited speakers are working in different information-technology industries. The objective of this seminar course is providing the preparation to starting to work after graduation and understand what are the necessary hard skills and soft skills in IT-based companies and industries.

E4244 Intelligent Manufacturing System and Smart Factory (0/2): Students will gain an understanding of the concepts of "smart manufacturing systems and smart factories." This will encompass fundamental theories related to constructing models, optimizing parameters, refining processes, and scheduling within smart manufacturing factories. Additionally, we will invite industry professionals to provide students with the latest information.

E4327 CARBON PRICING: STATUS AND PRACTICE (2/0): Carbon pricing is one of the main response measures to address climate change. Through various carbon pricing methods, the costs of greenhouse gas emissions on the environment are linked to the beneficiaries of the emissions, thereby reducing emissions. From the practical applications in different countries, four common carbon pricing

methods have been summarized: Emission Trading Scheme, Carbon Tax, Carbon Crediting Mechanism, and Internal Carbon Pricing, each with distinct design features and operational implications. This course focuses on introducing the aforementioned carbon pricing tools.

E4325 Introduction To Semiconductor Techniques And Applications (2/0): This lecture is for students not in the science or engineering department. It will introduce the characteristics of semiconductors and their applications: field effect transistors, advanced technologies, and application circuits.

E4326 Practice Of Pioneering Ocean Industry (2/0): Taiwan is full of marine resources. Recently, the government has emphasized the developments of marine industry. Upon the needs of national defense, it has developed the self-construction program for naval vessels, and the off-shore wind farms for energy supply and safety, and established the Ocean Affair Council for governing infrastructure. For the marine protection, there are acts such as Marine Pollution Act, Marine preservation Act, and Underwater Cultural Heritage Preservation Act. The objective to this course is to introduce the innovated marine industries recently promoted in Taiwan.

DEPARTMENT OF ARCHITECTURE

Degrees Offered: B. Arch., M. Arch.

Chairman: Chun-Jung Ko（柯純融）

The Department

The undergraduate program was established in 1964. It offers a five-year program that aims to educate creative and socially responsible professionals who may then go on to design people-friendly environments. The graduate program, established in 1981, is a two-year program that offers three sub-programs: the design sub-program, the theory sub-program, and the technology sub-program. The design sub-program requires students to create a design model, while the other two sub-programs require a written thesis.

Faculty

Professor Emeritus
Chi-Kung Wang (王紀鯤)

Professor
Jong-Dar Yau (姚忠達) ; Jui-Mao Huang (黃瑞茂) ; Hoang-Ell Jeng (鄭晃二) ;
Tzen-Ying Ling (林珍瑩)

Associate Professors
Ih-Cheng Lai (賴怡成) ; Ying-Chang Yu (游瑛樟) ; Chun-Jung Ko (柯純融) ; Yi-Chih Huang (黃奕智)

Assistant Professors
Wen-An Wang (王文安) ; Ya-Ting Yu (游雅婷) ; Liang-Ping Yen (顏亮平) ; Chi-Fu Hsiao (蕭吉甫) ;
Pai-Ching Chu (朱百鏡) ; Mei-Huei Li (李美慧)

Degree Requirements

1. Requirements for a degree of B.S. in Architecture:
   Completion of 157 credits of courses, including 104 credits of required courses and 31 credits of elective architecture courses.

2. Requirements for a Master's degree in Architecture:
   Completion of 28 credits of courses, including 28 credits of required courses**,** and thesis.

Course Descriptions

Undergraduate Courses

E3641 History of Architecture (I) (3/0): History of Architecture is designed for a whole academic year of study. This course teaches students the developments of world architecture chronologically by concentrating on cultural influences and interactions beyond geographical and political boundaries. The whole course is divided into History of Architecture I and II. In History of Architecture I, the course concentrates on the pre-modern period of world architecture, which can be considered as traditions of architecture of different cultures. The course will introduce the technologies, architectural styles, and material developments under various cultural traditions of the world.

E3642 History of Architecture (II) (0/3): History of Architecture II emphasizes the modern development of architecture. Starting from the late nineteenth century, this course introduces the technological, theoretical and material development, and the discursive formation of modern architectural theories throughout the 20th century and early 21th century.

E3643 Engineering Mechanics of Materials (3/0): The purpose of this course is to train students of architect to learn the fundamental architectural mechanics and mechanical behaviors of material properties. The following topics are included: force and moment, resultant and resolution of planar forces, force equilibrium, rigid body diagram, supports and reactions, centroids and moment of inertia of an area, stress and strain, shear and bending, and deformations of axial bars and beams.

E3633 Case Studies in Architecture (3/0): This course is set up as a supportive program for architectural design, including two parts: lectures and a two-day field tour. The lectures cover cultural and performance facilities, office buildings, housing, school buildings, and urban design, while during the two-day tour, students have access to latest architectural designs in Taiwan.

E3632 Introduction to Architecture Humanities (0/3): This course covers a wide variety of topics, from the awareness of architecture as a profession and understanding local architecture and history as a start, to other topics such as the development of current global trends in architecture, and technology, human care, and other issues. In addition, the relationship between Modern Architecture and the aesthetics of Modern Art will be explained. Understandable language combined with a wealth of video content will be well applied. This course aims to stimulate beginning students' enthusiasm for future learning.

E3568 Computer-Aided Architectural Drafting (2/2): In this intensive course, computer graphics, parametric design, digital fabrication, and robotic fabrication will be covered. This course starts with the introduction of computer graphics, and then combine the concepts of parametric design and digital fabrication. The purpose of this course emphasizes how to fabricate virtual models in the computer to the real world. Finally, ideas about the robotic arm in architecture will be discussed.

E0277 Design Drawing (2/0): Foundation work focuses on the drawing of buildings, which forms the ability to understand and describe the drawing system and the drawing methods. On this basis, the use of illustrations will be discussed so as to help resolve problems of architectural design.

A0868 Introduction to Fine Arts (0/2): This course focuses on the history of art. From social class, gender and environmental perspectives; we then move on to explore visual languages and notions of art.

E0128 History of Taiwanese Architecture (0/2): This course involves on-site visits and independent research. In particular, it focuses on the last 100 years in the relationship between Taiwan and the world.

E0246 Physical Environments in Architecture (3/0): This course discusses architectural planning and how designers use the physical environmental to minimize the use of energy.

E0257 Architectural Programming (2/0): This course focuses on how to design an architectural program. It also discusses issues related to designing processes and planning, so as to improve students' ability in the area of building design.

E0271 Architectural Structural System (0/2): This course introduces concepts of structure, such as structural systems, principle, load, stress, and earthquakes. Concepts related to arches, cables, beams, frames, trusses, slabs, membranes, and shells are also introduced.

E0273 Architectural Structure and Form (2/0): This course explores the development of structural forms, structural actions, structural materials, construction and form, structural elements, complete structures, early forms, contemporary wide-span structures, bridges, multi-story buildings and structures, and structural understanding and design.

E3066 Introduction of Architecture and Sustainable Environment (3/0): This course provides an overview of the TKU architecture program, including both course descriptions for all studios and criteria for evaluating studio work. Architectural education serves to lay the foundation for professional development. It supports students in the aspects of how to learn, how to approach sustainable design, how to appreciate history, and how to assume the responsibilities of an architect. It introduces students to technology and structures; teaches understanding and communication, especially with engineers, technicians, and builders who work together in the building construction industry.

E0550 Study on Urban Space (0/2): This course explores and examines a variety of urban spaces,

including parks, plazas, streets, waterfronts, urban architecture, and all communal spaces. It also provides students with urban spatial design theories that have emerged over the past eighty years.

E0617 Structural Theory (2/0): This course introduces students to the basic concepts and principles of structural theory related to beams, trusses, rigid frames, and space frameworks.

E0671 Engineering Application of Computers (2/2): This course focuses on concepts and techniques involved in computer-aided architectural design. It explores the use of computers in contemporary architectural practice. Software programs include AutoCAD 2D and 3D, Photoshop, multimedia, visualization of artefacts, realistic rendering and animation. This two-credit course involves lectures and laboratory work.

E0757 Site Planning (0/3): This course consists of three sections: (1) basic knowledge of site planning and studies on different building types; (2) an outdoor survey workshop to strengthen students' site investigation skills; (3) hands-on practice in organizing a site planning project.

E0873 Construction Management (1/0): This course introduces students to topics such as CPM/PERT, the bar chart, engineering management, cost control, PCM, logistic planning, and quality control.

E0884 Environmental Control System (0/3): This course discusses issues on how designers use architecture equipment systems to control the environmental impact of building.

E1152 Architectural Design (I) (3/3): As an introduction to design, this course requires students to conduct a series of small design projects with specific objectives. It begins from abstract form making to larger projects (such as furniture design), and eventually, complex projects related to site selection. Projects not only require students to learn the basic design tools, i.e. model making and architectural drawings; they further challenge students to grasp the relationship between built and drawn representations of conceptual designs.

E1153 Architectural Design (II) (3/3): Based on the principle of "learning by practice", this course offers intensive practical training. As beginners in a specialized field, students are urged to demonstrate a keen sensitivity to professional discipline.

E1154 Architectural Design (III) (4/4): This one-year course focuses on the design of the TKU Student Communication Center, a low-rise office building that provides students with general information on housing and a range of other items.

E1155 Architectural Design (IV) (4/4): The area of architectural design is today much more specialized than in the past, and the facets it encompasses are much more diverse. We encourage our students to consider architecture from different points of view and prepare themselves to partake in extensive teamwork after they graduate. Therefore, the course not only equips students with professional skills, but also helps students accumulate experience and develop necessary skills and traits, such as creative thinking, comprehension of materials, proper control of design procedures, and how to create a design using advanced technology.

E1156 Architectural Design (V) (4/4): As the final stage of architectural design training, instruction at this level provides support for individual student research, so that students can complete a design project at the end of the academic year.

E1334 Environmental Design and Human Behavior (0/3): This course offers an introduction to human behavior functioning in the environment, focusing on different needs in different user groups and tailoring design to meet consumer needs.

E1553 Design Methodology (0/2): Through a series of lectures and exercises, students will come to understand design methods developed since the 1950's and to grasp the thought process behind such designs.

E1662 Architectural Criticism (0/2): This course explores the history of modern architectural criticism and theory from the beginning of the 20th century to the present. The topics focus on architectural style, space, form and meaning.

E1749 Architectural Representation (2/2): This course is designed to support and complement the freshman design studio. It provides students the opportunity to experiment with different methods and techniques of art and architectural representations. Woodshop, casting, collage, painting, free hand and architectural drawing are introduced in a workshop/studio setting.

E1753 Contemporary Architecture and Design (0/2): This course presents the historical and theoretical development of Western architecture from 1945 to the present. Students will read texts and present their building case studies as term papers.

E1755 Building Construction Practice (0/2): This is an elective course for seniors who will enter the field of architecture after graduating. Each week, we arrange to visit a construction site, architectural firm, interior design firm, high-rise building, prefab factory, etc., to enable students to better understand the practical nature of building and business.

E1756 Introduction of Classical Writings in Architecture (0/2): This course offers an introduction to modern architecture, post-modern architecture, deconstructivism and critical regionalism via a series of writings.

E1758 Theory of Design (0/2): This course is designed to transcend the spatial aspect of visual orientation in the process of design and teaches students how to adapt when faced with changes or new circumstances. Using the structure as a base, students experience the real environment, are challenged with a variety of interesting topics, and practice using design skills to affect the physical environment.

E1799 Introduction to Urban Planning (3/0): This course begins by introducing the history and theory of urban planning in Western countries. It then moves on to describe mechanisms and tools used in the urban planning of Taiwan.

E2054 Space and Society (0/2): This is an introductory course that addresses the issues of space and society. Some basic issues will be explored, such as: what's the relationship between space and society? Are there any forms of space that can be defined beyond the social aspect? How are social elements, such as gender, race, and class, represented through and formed by space? The course will also discuss some social and special theories to enhance theoretical thinking.

E2257 Introduction to Urban Design (2/0): This course provides an understanding of the dynamics that has created urban environment, including cultural, political, and spatial issues. It also provides the theoretical context of contemporary urban designers and planners.

E2414 Assemblage (3/0): This course is concerned with the operation of architectural knowledge and techniques of mastering material characteristics to utilize fundamental environment, design, and creative experiences to turn construction work into creative architecture.

E2528 Building Technology (I) (3/0): This course provides students with an understanding of the technical aspects of building. Masonry, reinforced concrete, wood, and steel are the four building systems. Various construction methods will be discussed in the categories of "roofs," "walls," "floors," and "foundations." Various systems of structure, building envelopes, water proofing, and energy conservation will also be examined. The focus is placed on the integration of the building elements of structure, environment, enclosure, formal expression, and spatial definition.

E2529 Building Technology (II) (0/3): This course provides students with an understanding of the technical aspects of building. Masonry, reinforced concrete, wood, and steel are the four building systems. Various construction methods will be discussed in the categories of "roofs," "walls," "floors," and "foundations." Various systems of structure, building envelopes, water proofing, and energy conservation will also be examined. The focus is placed on the integration of the building elements of structure, environment, enclosure, formal expression, and spatial definition.

E2530 Sustainable Architecture (0/2): This course offers a glimpse into utopia. It is divided into two major parts. The first explains several introductory concepts, such as planning and design, transportation, landscape and nature in the city, building design, energy and information, materials, water, and waste and resources. The second is a group of case studies, which draws on some of the best experiences from

Taiwan and all over the world. This course hopes to motivate interested students to design and develop their own utopias.

E3056 Architecture Ethics and Codes (0/2): This course not only offers a general knowledge of architectural ethics, but also provides a general view of laws related to construction. This course will use real as well as imaginary cases as topics for class discussion. The cases used in class will principally be cases decided under the Building Law. Cases decided under the Civil Code, Criminal Code and private contract law will also be used in appropriate circumstances. Supplemental lectures will also be given.

E3057 Detail Design Development and Construction Practice (3/0): This course explores means of choosing appropriate building materials and integrating these materials in proper manners in building and interior design. This course will emphasize the "appropriateness" of detailing components that are essential in the creation of spaces. The course is divided into three parts. Part one is designed to teach modern wood frame construction. Basic information about wood materials and construction methods, as well as case studies of real projects, will be provided throughout this part. Part two will study the working drawings of Toyo Ito's Taichung Opera House. This part is designed to bridge the gap between theory and practice. Part three will focus on working drawings and details design. Senior professionals from architecture firms will help students to learn about working drawings from the design concept stage through to the completion of construction.

E3058 Architecture in English I (2/0): The purpose of this course is to enhance students' English comprehension in the field of architecture. Class content includes (1) vocabulary learning and sentence application, (2) article reading and short story writing, and (3) oral presentation and discussion. All classes will be conducted in English to increase learning efficiency and language proficiency.

E3059 Architecture in English II (0/2): This course is the second part of a two-semester course designed to enhance students' English comprehension in the field of architecture. Course content focuses on strengthening communication skills used in formal oral and written presentations. All classes will be conducted in English to increase learning effectiveness and language proficiency.

E3060 Community Service and Practice (2/0): This course will provide students with a unique, experiential based learning activity. Opportunities for practical experience are provided so that students may learn and develop personally, professionally and academically.

E3086 Architecture Professional Practice (2/0): This is a professional practice course offered during the summer holidays for senior level students. The course familiarizes students with the field of architecture through practical experience in conducting design projects. Students will spend two months during summer under the supervision of the instructor and an authorized architect, who will evaluate students' completed projects.

T0978 Introduction to Landscape Architecture (2/0): This course explores the uses of materials, techniques and styles in contemporary landscape design. The study of the direct line links ecology, art, culture and philosophies as a perceptible whole.

E0282 International Island Housing Studies (2/0): This course explores how island housing cultures develop unique residential and community models shaped by regional environments, ecology, society, and economics. Each year, focusing on specific cases across Asia, it addresses global issues and proposes solutions. Through international workshops, it analyzes case studies with diverse expertise, involving students in research and exchanging architectural knowledge and techniques. It demonstrates how cultural perspectives from different regions respond to housing changes, influencing public policy, social justice, and urban development.

Master's Program

E3841 Advanced Architecture Design I (4/0): This studio course involves collaborative work on problems that are large in scope but require attention to spatial organization. Complex community design problems will be explored.

E3842 Advanced Architecture Design II (0/4): This studio is a project-based course that will involve learning about techniques of modern digital design in architecture. Students of this studio integrate CAD/CAM techniques,

scripts, and digital tectonics into their design processes.

E3793 Sustainable Architectural Design Theory (2/0): The purpose of this course is to teach architecture students to respect nature, to learn about urban climate theory and energy conservation in a sustainable environment and smart green architecture. Professors of ecology, energy conservation, waste reduction, health, wisdom, and recycling units will introduce to students the strong relationship between basic building physics and sustainable green environment space, and inform them of the strategies that can be applied in the space design process.

E3795 Sustainable Urban Design Theory (0/2): This course deals with the dynamics that have shaped the urban environment, including cultural, political and spatial issues. It also explores new urban design issues with respect to innovative technologies, such as artificial intelligence. By complementing the 'Urban Design Studio' module, this course aims to help students gain a theoretical context and develop implementation strategies for the urban environment.

E0266 Theories of Architecture (2/0): This course aims to discuss architectural theories from the classical to the modern times. By discussing, comparing and analyzing different perspectives on varies issues of different theories, and by illustrating with physical design projects, this course provides students with comprehensive and deeper understanding on architectural theories and develops students the ability to analyze architecture critically.

E3620 Operative Theory (0/2): This seminar is a design-based theory class. It introduces students to the concept of "Operative Theory" and asks how it can be utilized in the design process. This class, coalescing architectural design, theory, and history, is an integrated laboratory for students to initiate new design thinking rather than to apply existing theories to design. It aims to construct a perspective of theory in order to create new designs.

E3621 Multi-Agent Systems for Spatial and Urban Planning (2/0): This course is an introduction to system study, complexity science, and the theory of computation that generate the concept of historical significance in the development of the research and application of Multi-agent systems. MAS models, providing good simulation tools of spatial transformation and urban regeneration, will also be introduced. The course is divided into three parts; a review of theories, the building of multi-agent systems, and case studies.

E1946 Computer Applications in Architecture (2/0): This course emphasizes the use of the computer in architectural design and visualization. Topics include: 3D modeling, geometric transformation, NURBS, and parametric modeling.

E2440 The Practice and Strategy of Urban Design (0/2): Urban design relates to the production of urban form, which is based on the interaction between the real world and the design mechanism. This course is divided into two parts: case studies of urban design process and discussions about urban design and planning concepts, which are derived from various visions of what urban transformation should evolve into and how design intervention can improve environmental quality. Issues about ecology, communication, participation, management, and conservation of urban texture will be emphasized. Overall, the main objective of the course is to help students develop the skill of planning with new concepts from design practice.

E2448 Information Culture & Architecture (0/2): This course introduces recent IT developments in architecture. Topics include: CAD/CAM, AI in design, hyper-body, hyper-surface, information-landscape, digital tectonics, cyberspace, and contemporary architecture theory.

E2614 Cultural Studies and Landscape Theories (0/2): This course provides a basic understanding of new developments in cultural studies and landscape theories related to the field of architecture and helps students understand the various meanings of the generic term 'cultural landscape'.

E2786 Lecture Series on Architecture and Urban Environment Professionalism (0/2): This lecture series is intended to provide graduate students with a wide range of perspectives in professional practices related to architecture and urban design fields. Prominent and accomplished professional practitioners with specialty in various areas will be invited to share insights with students each week. Contact with a broad spectrum of accomplished professionals will provide students with inspiration for their future careers.

T0081 Research Methodology (0/2): This course trains students in pre-dissertation and pre-thesis

research strategies by exposing them to a variety of methods of inquiry, including the nature of research, critical reading, and analysis.

T8000 Thesis (0): Post-graduate students are required to complete a thesis as part of the fulfilment of the master's degree. Theses compiled for the Theory and Technique Group are research-oriented, while those written for the Design Group are design-oriented.

E4097 The Application of Interactive Program and Algorithm in Architecture (2/0): This course will help students build dynamic parametric models by teaching interactive programming methods, simulating factors such as design conditions, goals, and activity processes that need to be solved in the building environment. So as to efficiently visualize environment with various information technology, and evaluate the dynamic environmental status under design conditions.

E4096 BIM-Based Framework for Construction (0/2): Building Information Modeling (BIM) is a kind of multimedia approach for information technology in contemporary construction industry. This course will introduce from the perspective of interactive workflow, and help students to understand the practical concepts of information approaches in architecture. The content of this course is divided into two parts: (1) BIM concept and method, and (2) XR environment practice. The students who take the course will have BIM knowledge and XR practical operation ability.

E4254 Information Culture and Architectural Multi-agent System (2/0): This course is an introduction to the system study, complexity science and the theory of computation that generate the concept of historical significance in the development of the research and application of Multi-agent systems. MAS models provide a good simulation tool of spatial transformation and urban regeneration will also be introduced. The course is divided into four parts; building simple models, the theories review, multi-agent systems and case studies.

DEPARTMENT OF CIVIL ENGINEERING

Degrees offered: B.S., M.S., Ph.D.

Chairman: Yung-Shan Hong (洪勇善)

The Department

The Department has an enrollment of about 500 students. It offers courses for undergraduate students and a graduate program for advanced study. In addition to providing the necessary background in the field of civil engineering, the department emphasizes on specialized areas for both undergraduate and graduate students. These include: geotechnical engineering, structural engineering, transportation engineering, and construction management. The department offers BS, MS, and Ph.D. degrees in the field of Civil Engineering. For BS, MS, and Ph.D. degrees require a minimum of 128, 24, and 18 credit hours, respectively; a thesis is required for the MS and Ph.D. degrees.

Faculty

Professors
Zon-Yee Yang (楊長義) ; Der-Wen Chang (張德文) ; Yung-Shan Hong (洪勇善) ;
Ying-Haur Lee (李英豪) ; Cheng-Hsin Chang (張正興) ; I-Cheng Yeh (葉怡成) ; Su-Ling Fan (范素玲)

Associate Professors
Jen-Mu Wang (王人牧) ; Jia-Wei Lee (李家瑋)

Assistant Professors
Ming-Hsiu Tsai (蔡明修) ; Chieh-Hsun Wu (吳杰勳); Ming-Hui Huang(黃明慧)

Degree Requirements

1. Requirements for a Bachelor's Degree in Civil Engineering:
   Completion of 128 credits of courses, including 91 credits of required courses and 21 credits of elective civil engineering courses.
2. Requirements for a Master’s Degree in Civil Engineering:
   Completion of 24 credits of courses. Students are also required to submit a written master’s thesis completed under the supervision of a faculty member and pass an oral examination.
3. Requirements for a Ph.D. in Civil Engineering:
   Completion of 18 credits of courses.

   Students are required to pass a qualifying examination in their first two years and publish at least one research paper in any journal listed in the Civil/Architecture Engineering Index. Students are also required to submit a written doctoral dissertation completed under the supervision of a faculty member and pass an oral examination.

Course Descriptions

Undergraduate Courses

E0006 Introduction to Civil Engineering (1/0): This course introduces concepts of marketing as well as career prospects related to the field of Civil Engineering. Students will gain information about the TKU Department of Civil Engineering, including data from courses designed for students of both divisions. This course is a one-credit compulsory requirement for CE undergraduates. Students are expected to acquire a basic understanding of the profession through this course. Lectures and multi-media teaching accessories are provided for effective learning.

E0011 Soil Mechanics (II) (3/0): This course offers an insight into the mechanical behavior of engineering soils when they are sheared or compressed or when water flows through them. It covers important aspects of geotechnical engineering such as soil shear strength, slope stability and slope

treatment/reinforcement.

E0023 Engineering Geology (0/3): Topics in this course include the interrelationship between engineers and nature, the change of geological and regional structure at construction sites, classifications and features of rocks and their characteristics in mechanics and various existing activities of earth crust related to engineering design.

E0024 Engineering Materials (2/0): This course offers an introduction to the basic structure, physical properties, mix design, testing and mechanical behavior of civil engineering materials.

E0026 Engineering Materials Laboratory (1/0): Laboratory sessions provide hands-on experience in performing standard testing procedures used for material specifications and construction quality control.

E0035-6 Engineering Mathematics (I) (II) (3/3): This course introduces students of engineering and physics to the areas of mathematics that, from a modern point of view, seem to be the most important in connection with practical problems.

E0180 Mechanics of Materials (3-4/0): The first part of this class covers the analysis and design of structure members subject to tension, compression, torsion, and bending. Topics of the second part are the transformations of stress and strain, combined loadings and deflections of beams.

E0300 Fluid Mechanics (0/3): Through this course, students will gain a feel for flow patterns, pressure variation and shear stress in fluid flow, which will give them a solid basis in fluid mechanics. Topics include flow patterns, velocity, acceleration, kinematics, and pressure variation in a flowing.

E0466 Dynamics (2/0): This course covers the theory and principles of dynamics in introductory mechanics. Subjects include kinematics and kinetics of particles and rigid bodies.

E0588-9 Surveying (I)/(II) (2/2): Explain the basic concept of surveys and its computation in civil engineering. The different methods of field surveying will be introduced. Topographical surveying methods are also explained in brief.

E0255, E1325 Surveying Lab. (I)/(II) (1/1): This course achieves the following three goals: (1) hardware training on instrument operation and instrument maintenance; (2) skill training on the entire graphing process; and (3) generating teamwork and coordination.

E0607 Structural Matrix Analysis (0/3): The displacement method of structural analysis is formulated through the principle of virtual work. Both manual calculation and application of the computer are introduced for the analysis of truss and frame structures.

E0618 Structural Theory (II) (3/0): This course introduces Slope deflection method, Moment distribution method and the applications of energy methods in structural analysis. Let students to learn the entire scope of fundamental structural analysis.

E0665 Transportation Engineering (3/0): This course focuses on transportation planning and transportation modeling; development and evaluation of transportation planning options; transportation system management; design of roadways, railways and air transportation facilities.

E0730 Pre-Stressed Concrete Design (3/0): This course introduces students to the fundamental principles of pre-stressed concrete behavior and design, so that they can act effectively to optimize existing forms of construction and apply fundamental concepts with confidence in unusual and challenging situations.

E0851 Reinforced Concrete (3/0): This course provides instruction in general concepts related to the design of concrete structures, emphasizing the USD method. It serves as a kind of bridging course that closes the gap between structural analysis and structural design.

E0873 Construction Management (0/3): Major topics in this course include contracts, construction planning, progress schedule control, financial planning and cost control, material management, labor and equipment management, quality control, safety and sanitation management.

E0968 Steel Structure Design (0/3): Introduction to steel structures, tensioned members, compressed members, beams, design of beams and columns, bolt jointing, welding, jointing and other joint design.

E0969 Engineering Mechanics (0/3): This course centers on basic principles of solid mechanics, statistics of rigid bodies, equilibrium problems, and analysis of structures, forces in beams, friction, and moments of inertia.

E1124 Soil Improvement (0/3): This course teaches practical methods of soil improvement in an easy to understand way. The classes will cover soil improvement methods and principles, application conditions, design and calculation procedures, construction elements and inspection methods. Through the course, students develop knowledge on a variety of soil improvement methods, and gain the ability to select the appropriate method and create an effective design.

E1678 Introduction to Structural Dynamics (0/3): Preliminary concepts of structural vibration are provided. First section: mathematical tools for vibration problems. Second section: The Virtual Work Method. Third section: response solutions of free vibration and forced vibration.

E0036 Engineering Mathematics (3/0): This course intends to introduce the mathematical principles and practices that today's engineers need to know. The course contents are: 1. Eigenvalve problems and Diagonalization. 2. Vector calculus. 3. Fourier Series. 4. Fourier Integral and Transforms.

E0010 Soil Mechanics (0/3): This course is an essential to Geotechnical Engineering. It induces the soil physical properties and the laboratory tests, the soil classification methods, the calculations for overburden earth pressures and stress increments, the settlements and time of consolidation, the soil strength parameters and the shear tests. The knowledge is expected to apply to other advanced courses.

E2525 Strength of Materials (II) (3/0): This is the second ‘Strength of Materials’ course. It is designed for students with a basic understanding in the area who want to pursue more advanced knowledge on the subject. The content in this course includes using discontinuity functions to calculate beam deflection, beams on elastic foundations, bending beams with non-symmetric cross-sections, shear center of thin-wall member, column-buckling problems and the energy principle.

E2767 Ecological Engineering Methods (0/3): This course covers a variety of ecological engineering methods and their applications for various engineering problems. Emphasis is placed on slope renovation, retaining engineering, bank revetment, groundsill works and ecosystem in a river as well as ecological corridor.

E2955 Track Work Engineering (0/3): Topics covered include the history of railroad, train control systems, advances in track engineering, domestic construction experience of high-speed passenger rail, and other topics of interest.

S0251 Foundation Engineering (0/3): This course introduces the principles of foundation engineering and their applications for various engineering problems. Emphasis is placed on the design and analysis of subsoil exploration, shallow foundations, deep foundations, retaining structure, braced cuts.

E2997 Project Planning and Control (2/0): An introduction to the knowledge body consists of the basic concept of scheduling models, Bar-charts, CPM and PERT, Work Breakdown Structure, RBS (Resource Breakdown Structure), CBS (Cost Breakdown Structure), Calendars and Resource Calendar, Resource leveling and allocation, Earn Value Management, Format settings, reports and schedule updating.

D0331 Practicum in Educational Technology (3/0): This is the course for summer internship.

E3941 Software Application in Engineering Compute (3/0): This course is aimed at introducing the concept of the database management system (DBMS) to students, and developing the skills that students can design, manipulate, and create a database program with their own. The relational database, E-R model, concept of database normalization and SQL will be learned in this course. Finally, students need to implement a small but basic engineering database with Microsoft Access to show the skills learned in this course.

M0022 Engineering Economics (2/0): Engineering economics is a subset of economics concerned with the application of economic principles in the analysis of engineering decisions. As a discipline, it is focused on the branch of economics known as microeconomics in that it studies the behavior of individuals and firms in making decisions regarding the allocation of limited resources. Thus, it focuses on the decision-making process, its context and environment.

E0013 Laboratory Tests of Soil Mechanics (0/1): This course introduces soil tests on physical properties, classification, permeability, compaction, consolidation and shear strength. The tests are conducted in groups to help the understanding of experimental procedures and steps.

E0595 Computer Programming (2/0): This course introduces the programming language - Fortran. The objective is to be familiar with computing environments and further learn how to write programs to do advanced engineering analyses and scientific computations.

E0615 Structural Laboratory (0/2): The purpose of this course is to introduce basic measurements of structural responses in a laboratory. The measurements will be compared with the results of the structural analysis to find the difference between the previous methods. In the first half-semester, we discuss the operation principles of the Wheatstone bridge and the strain gage. In the second half-semester we shall measure the structural responses of different structure types, including the cantilever beam, the simply supported beam, the 2-D truss, and the rigid frame

E0617 Structural Theory (0/3): This course will firstly to review and study the applications of principals of equilibrium of forces and conformations of displacement and the basics of energy method on the analysis of determinate structures. Then study the conventional force method for the analysis of indeterminate structures. The last part of the course will introduce the displacement method.

E0768 Numerical Method (2/0): This course introduces the fundamental numerical methods, which includes solutions to nonlinear equation(s), matrix analysis, interpolation function, regression analysis, numerical integration and differentiation...etc. Students can learn how to apply these methods to related problems, via the implementation of programming languages and the use of computers.

E0852 Reinforced Concrete (II) (0/3): This course is an essential to structural design. It is the second part of the course of reinforced concrete design. It is continued to introduce the analysis and the design of columns, the design of slabs, the design of beams subjected to twisting moment, the seismic resistance design of members, the design of footing and the design of retaining walls, etc. The knowledge is expected to continue to educate the students to know the basic concept of design and to obtain the ability of reinforced concrete structural design and the specialty in structural analysis and design.

E3348 Computer-Aided Engineering Technology and Exercise (0/3): This course is lab exercise and programming oriented. The objective is to cover a wide range of CAE topics (e.g., database system, computer graphics, analysis and design, etc.) to produce engineers with knowledgeable CAE techniques.

E0813 Bridge Design (0/3): This course allows students to realize the basic concept of bridge structural design; use the theory and the practice of the design of various bridge structures; understand the basic working attitude of bridge structure engineer; comprehend how to use existing programs.

T0140 Seminar (2/0): This course invites various field specialists to introduce civil engineering problems and ways of dealing with situations.

E2961 Construction Law and Contract (0/2): This course introduces the important basic concepts about Civil Code, contract law, construction contract, the Government Procurement Act, dispute resolution, etc., and further discusses the commonest and most important legal issues in the present practice of construction industry through case studies.

E3407 3D Modeling and Computer Aided Design (0/3): This course introduces the concept of BIM (Building Information Modeling) and 3D design with the software Tekla Structures. Combined with the knowledge of structural design and construction management, collaborative works and information exchanges can be accomplished though out the life cycle of the whole engineering project.

E3408 Construction Methods (0/3): The contents of this subject include the basic knowledge of construction methods, construction sequences and machineries of civil engineering project. Students will be able to understand the working condition in the site.

E2833 Introduction to Geographic Information Systems (0/3): Geographic information systems (GIS) combined with remote sensing (RS) and the global positioning system (GPS), cornerstone 3S for space information.

E3634 Basic Engineering Mathematics (0/3): Basic engineering mathematics constructs various basic subjects of civil engineering, including ordinary differential equations, Laplace transform, Fourier analysis, vector analysis, matrix, complex variable analysis

E3762 Introduction to Civil Engineering Design (0/1): Introduction to civil engineering design: The main purpose is to implement the grouping method to encourage students to use the civil engineering concepts introduced in the classroom to complete the specified objectives (engineering design). The establishment of this course gives students the opportunity to develop their own imagination. And think about the discussion of mechanical behavior, and find solutions to engineering problems through team discussion, and at the same time use this course to assess and adjust the core competence of students.

E3763 Civil Engineering Capstone Project (2/0): This course is designed as a capstone course, which the main idea is to encourage students to tackle a multidimensional and complex engineering problem in the real world and try their best to find solutions for problems based on interdisciplinary knowledge, self-learning and teamwork.

E3082 Engineering Graphics And Computer Drawing (2/0): This course is designed to help students develop proficiency in communicating with other professionals through graphical languages. Students will learn the fundamental concepts of engineering graphics and computer-aided design skills as applied to engineer pursuits through lectures, readings, laboratory tasks, and discussions. Students will also learn AutoCAD as the beginning tools for practicing the knowledge and the skills introduced in this course.

T3174 Exploring Ssustainability (1/0): This course firstly understands the SDGs and the importance of sustainability, looks at sustainability issues from the perspective of engineering students, reflects on the problems that Taiwan may currently face, and tries to propose solutions or improvement solutions to achieve the goal of sustainability.

E4052 BIM Application And Programming Fundamentals for Engineers (2/0): This course will introduce the concepts of BIM, and learn operating techniques by the software Revit, which is currently used by many companies in the industry.

E0272 Structure Design (2/0): This course will introduce the types of structural system and design procedures. In addition to the design of structural systems and elements, we also focuses on the use of software in practical training for structural retrofit design.

E3409 Construction Estimating (2/0): This course is designed for students to understand the concepts of engineering cost estimation. Students will have the opportunity to learn the cost analysis and estimation of budget for civil engineering projects.

E4165 Low Carbon Green Building (2/0): Low Carbon Green Building

E1035 Highway Engineering (0/2): This course include: geometric design of highways, background and guidelines, practical design examples, transition curves, highway width and capacity, earthwork, thickness design procedures of flexible and rigid pavements used in Taiwan.

E1174 Engineering Statistics (0/2): This course is designed for students to understand concepts of statistics and its application to quality control, current QC systems for the construction of public works, statistical quality control, and the methods and application of design of experiment (DOE).

E0862 Tunnel Engineering (0/3): This course will introduce the tunnel behavior of excavation and support in rock mass. The construction methods and monitoring system for are discussed.

E1481 Application of Geosynthetics (0/2): This course introduces engineering properties and laboratory tests of the geosynthetics, and the analyses and design for the geosynthetics applied geotechnical problems. The knowledge is expected to apply to academic research and engineering practices.

E4260 Engineering Surveying (2/0): This course covers the following engineering surveying topics: 1. Construction setting out 2. Area surveying 3. Volume surveying 4. Cadastral surveying 5. Route measurement: horizontal curve 6. Route measurement: vertical curve 7. Photogrammetry 8. LiDAR measurement

Master's Program

E0016 Soil Dynamics (3/0): This course covers two basic areas: the liquefaction of loose saturated sands and the conventional dynamics of foundations due to the vibration of machines.

E0156 Finite Element Method (0/3): The finite element method is the most powerful structural analysis tool for civil engineers. The basic formulation and programming technique are introduced. According to the same procedures, the different elements such as truss, beam, plate and shell are easily formulated.

E0461 Advanced Reinforced Concrete Structure (0/3): The aim of this course is to train students to learn and understand the mechanical behaviors, seismic resistance, and ductility design of reinforce concrete members based on current codes and the current state of New RC.

E0608 Structural Dynamics (3/0): This course covers methods for analyzing the stresses and deflections developed in any given type of structures when they are subjected to arbitrary dynamic loading.

E1187 Rock Mechanics (3/0): Topics include the origin, formation, and characteristic of rock and rock joints. The index properties, engineering classification, and strength of rocks are presented in this course. Also included are the specific applications of rock mechanics for surface and underground excavations and foundations.

E2112 Fundamentals of Soil Behavior (0/3): This course introduces the fundamental principles of soil behavior. The major purpose is an understanding of the factors determining and controlling the engineering properties and behavior of soils under different conditions.

T0102 Seminar (0/1): The objective of this course is to bring up-to-date construction engineering information/technologies to students. Accordingly, special issues to do with structure, geological engineering, and construction management will be explored. Moreover, experts in related areas will be invited to deliver talks and engage in discussions with participants.

E3093 Construction Claims and Dispute Resolution (0/3): An introduction to types of construction disputes, litigation, arbitrations, mediations, and alternative disputer resolutions, claims, compensation for prolongation costs and evaluation methods.

E2087 Constitutive Laws for Geologic Materials (3/0): This course covers a variety of constitutive or stress-strain laws of soils. They play a significant role in providing reliable results from any solution procedure. Their importance has been enhanced significantly with the great increase in development and application of many modern computer-based techniques such as the finite element, finite difference, and boundary integral equation methods.

E3535 Engineering Project Management (3/0): This course mainly includes the following: Lean Project Delivery, Sustainability in the Construction Industry, Environment, Health and Safety of Construction Processes, and so on.

E0449 Advanced Structural Mechanics (3/0): This course have a symmetric way to discuss the analysis of structure and use programming manner to solve it. Students can understand the property of stiffness matrices of structure and their treatment.

E3731 Aerodynamics of Bridges ◇Bilingual (Chinese/English) (3/0): The objective of this course is

to focus on the wind effects on long-span bridges. The theory of the most significant effects, including flutter and buffeting, are emphasized. The analytical methods on the analysis of flutter and buffeting are addressed. In addition, the practices for the wind tunnel test is included.

E4095 Engineering Information Management (3/0): The course focuses on the introduction of database systems and other applicable information technologies for engineering information management. Students will have individual assignments designed to reinforce concepts from the lectures and to acquire necessary knowledge to use computers to improve management problems of construction business.

E4218 Design and Practice for Aero-Elastic Tests (3/0): To learn about aero-elastic behavior and aeroelastic wind tunnel testing. The aero-elastic model will be actually designed and fabricated, and the elastic model will be verified by wind tunnel tests.

E4220 Application of Artificial Intelligence in Construction Project (3/0): This course focuses on data mining and artificial intelligence technology. The purpose of this course is to introduce commonly used artificial intelligence methodologies, such as optimization methods, neural networks, and deep learning. Understand and learn how to start and evaluate applicable models with practical cases. Students can learn how to develop or use artificial intelligence tools, and to be able to conduct preliminary assessments of current practical problems.

E3908 Computer-Aided Engineering (0/2): Proper use of Computer-Aided Engineering (CAE) tools can reduce project time and cost while improving quality and safety. This course provides the necessary knowledge to use computer as a tool to aid in engineering calculation, analysis, design and construction. Engineering software packages and computer languages will be utilized for hands-on exercises.

E4219 Wind Resistant Design for Structures (0/2): Teach students to learn wind-resistant design methods for various building structure types.

E1919 Construction Automation (3/0): This course delves into "Construction Automation" and its role in modern civil engineering. Students will explore the latest in automation, the impact of digital transformation, and the relevance of digital twins in civil projects. Emphasizing hands-on experiences, the curriculum introduces practical applications of IoT and AI in construction. By the end, students will not only understand automation fundamentals but also apply them in real-world scenarios.

E4286 Geotechnical Engineering in Practice (3/0): The course will discuss the subjects which are required in preparing the National Exam for Professional Engineer in Geotechnical Engineering.

Ph.D. Program

E2615 Design Thinking and Cognition (0/2): Scholars working in the design psychology research field are invited to give lectures on their specific research topics, based on which students can formulate a broader vision for future research issues.

E3068 Information Culture Study and Architecture (0/2): This graduate seminar introduces information techniques in architecture, cyberspace, the development of information society, and contemporary architectural theory in digital design, as well as conducting information critiques.

T0102 Seminar (Cross-Disciplinary Seminar) (0/1): This course invites experts from different fields to give speeches, and helps students to learn more.

E3003 Independent Study (0/2): This course emphasizes on independent research and study ability of the dissertation.

E1142 Soil Structure Interaction (3/0): This course discusses the mechanism of soil-foundation interacting behavior. Emphases are placed on the theory and analysis of foundation vibrations, dynamic soil properties and their effects on SSI as well as modeling wave propagations in the soil media due to dynamic loadings. Moreover, the earthquake concern in foundation design and liquefaction problems are also presented. Students are expected to establish a good understanding of the importance of both static and dynamic soil-foundation interactions and their impacts on super-structures.

E3843 Special Topics in Rock Mechanics (3/0): This class focuses on several special topics of rock engineering, such as the HLW underground spaces and its dynamic stability analysis by earthquake. The numerical modelling using PFC and BEM methods will perform and discuss.

E4257 Zero Carbon Society and Science (2/0): This course emphasize on independent research and study ability of the dissertation.

E4226 Urban Redevelopment - Theory and Practice (II) (0/2): For the purpose of stimulating the revival and prosperity of the real estate industry, the Urban Renewal Act intentionally and overwhelmingly misinterpreted housing rebuilt as public interest. As a result, the private sector was empowered to borrow public authority to intervene in the constitutional right of the arrangement on private property. This seminar will guide students to rethink the demarcation between public and private rights by re-examining the division of rights and the attribution of obligations, to give an insight into the true meaning and direction of urban renewal.

E2680 Isle-Scape Design Theory on City (0/2): The course is to provide graduate students with a wide range of perspectives in design research and theories related to architecture and urban design fields.

E4221 Urban Redevelopment - Theory and Practice (I) (2/0): For the purpose of stimulating the revival and prosperity of the real estate industry, the Urban Renewal Act intentionally and overwhelmingly misinterpreted housing rebuilt as public interest. As a result, the private sector was empowered to borrow public authority to intervene in the constitutional right of the arrangement on private property. This seminar will guide students to rethink the demarcation between public and private rights by re-examining the division of rights and the attribution of obligations, to give an insight into the true meaning and direction of urban renewal.

T0139 Seminar (2/0): To train and strengthen the research ability of doctoral students in scientific research through discussion of different themes with professional teachers for their abilities of writing thesis plan and academic ethics.

DEPARTMENT OF WATER RESOURCES AND ENVIRONMENTAL ENGINEERING

Degrees Offered: B.S., M.S., Ph.D

Chairman: Hsiao-Chung Tsai (蔡孝忠)

The Department

The department was founded in 1964 as the Department of Water and Soil Conservation. In 1988, the department was renamed as the Department of Water Resources and Environmental Engineering. Currently the department offers an interdisciplinary undergraduate program that consists of joint programs in the fields of water resource and environmental engineering. The graduate programs offer M. Eng. and Ph.D. degrees.

The M. Eng. program provides graduate students with both professional knowledge and research skills. The Ph.D. program is designed to prepare students to become professional engineers or researchers capable of conducting both theoretical and practical engineering research.

The department's laboratories and facilities accommodate research in the fields of Fluid Mechanics, Open Channel Hydraulics, and Environmental Engineering.

Faculty

Professors
Shyh-Fang Kang (康世芳) ; Chi-Wang Li (李奇旺) ; Li-Chiu Chang (張麗秋) ;
Fu-Kuo Huang (黃富國)

Associate Professors
Po-Ching Lee (李柏青) ; Hsiao-Chung Tsai (蔡孝忠); Ching-Yu Peng (彭晴玉)

Assistant Professors
I-Chieh Chien (簡義杰) ; Sheng-Wei Cang (王聖瑋) ; Ta-Ken Huang (黃大肯) ;
Yu-Lin Huang (黃友麟) ; Vinh Ya (維恩亞)

Degree Requirements

1. Requirements for a degree of Bachelor in Engineering:
   Successful completion of 128 credits of courses, including 82 credits of required courses and 24 credits of elective courses. Courses include liberal arts and professional engineering subjects in water resources engineering and environmental engineering.
2. Requirements for a Master's degree in Engineering (degree offered in 2 fields):
   Minimum number of credits: 27 credits (not including master's thesis). Courses include subjects in advanced water resources engineering and advanced environmental engineering.
3. Requirements for a Ph.D. degree (degree offered in 2 fields):
   Minimum number of credits: 18 (not including doctoral dissertation). Courses include advanced theories in water resources engineering and environmental engineering.

Course Descriptions

Undergraduate Courses

S0290 General Physics (2/2): By extending the physics concept taught in high school to prepare for the study of the higher-level university physics courses. The understanding of the basic principles, theoretical and experimental is emphasized.

S0325 Calculus (3/0): This course will introduce Limits, Differentiation, and Applications of Differentiation, Integration, Application of Integration etc.

S0343 Environmental Chemistry (2/0): The purpose of this course is to understand the environment and the chemical processes and reactions that occur in it. We will introduce water chemistry, acid-base equilibrium chemistry, oxidation-reduction reactions and environmental chemical analysis.

S0482 Environmental Chemistry (I) (2/0): The purpose of this course is to understand the environment and the chemical processes and reactions that occur in it, especially in aquatic system. In the first semester, we introduce water chemistry, acid-base equilibrium chemistry and environmental chemical analysis.

S0483 Environmental Ecology (2/0): This course introduces the fundamental concepts of the ecology and the environment. Its emphases on recognizing the environment as the relationships among Mother Natural and all species. It highlights many interactions between lands, marine, climate change, species diversity and human development.

E0010 Soil Mechanics (3/0): Soil mechanics is a branch of engineering mechanics that describes the behavior of soils. Along with rock mechanics, soil mechanics provides the theoretical basis for analysis in geotechnical engineering, a sub discipline of civil engineering. Soil mechanics is used to analyze the deformations of soil and flow of fluids within natural and man-made structures that are supported on or made of soil, or structures that are buried in soils. Examples applications are building and bridge foundations, retaining walls, dams, and buried pipeline systems.

E0012 Introduction to Air Pollution (2/0): This course introduces the air pollution problems, its source and impact on human health. The air pollution related atmospheric physics and chemistry are also mentioned. The atmospheric air quality monitoring and the flue gas measurement are introduced. Lastly the strategies and measures for air quality management are discussed.

E0028 Engineering Statistics (0/3): This is a first course in engineering statistics. In the contents of this course, the topics and disciplines are fundamental for applying statistical analysis. The examples and exercises are engineering based to meet the needs of engineering students

E0031 Engineering Graphics (2/0): The purpose of this course is to instruct the use of AUTOCAD engineering drawing software. The content of the instruction includes 2D and 3D drawing application and design practice.

E0034 Engineering Mathematics (3/3): The course provides students with a comprehensive and up-to-date resource for learning engineering mathematics, that is, applied mathematics for engineers and physicists, mathematicians and computer scientist, as well as members of other disciplines. The content of the course varies between “calculus” and “differential equations” and is arranged into four parts: ordinary differential equations; linear algebra; Fourier analysis; complex analysis. A course in elementary calculus is the sole prerequisite.

E0057 Intermediate Hydrology (0/3): The purpose of this course is to introduce hydrological analysis and discuss some real applications. This course can help students to understand rainfall-runoff analysis and hydrologic processes.

E0101 Practice & Survey of Hydrology (2/0): The course is designed for students with a major in water resource engineering or related fields. The fundamental concepts and methods of hydrographic and land surveys are introduced. Land surveys include leveling, distance, angles and traversing. Hydrographic surveys include navigation channels, inland rivers, coastal engineering projects and underwater surveys. Modern surveying technologies, such as global positioning system, satellite survey, surveying computation and are briefly introduced.

E0102 Hydrology (3/0): This course aims to provide students with an understanding of the basic phenomena and fundamental theories underlying hydrology. Students will learn essential skills that are required for solving hydrological problems through this course.

E0110 Introduction to Water Resources and Environmental Engineering (2/0): This course introduces basic concepts related to the field of water resources and environmental engineering, including water resources planning, development and management, flood control, water environment creation, and water treatment technology, so that students can understand the basic concepts and knowledge of water resources and environmental engineering.

E0114 Water Resources Planning (0/3): This course equips students with a breadth of knowledge of water resources planning and current and future water uses and strategies in a changing future. Students will be able to evaluate water planning and management strategies to ensure adequate amounts of accessible, affordable, clean water for human use while maintaining environmental water flows.

E0144 Open Channel Hydraulics (3/0): Open channel hydraulics is a critical sub-discipline in water resources engineering, and can be applied in environmental and agricultural engineering. Major concepts of open channel hydraulics include the uniform flow, gradually varied flow, rapidly varied flow, spatially varied flow, unsteady flow. Hence, equation derivation will be introduced in this course to understand different flow behavior. Students can solve practical water resources problems by cases study.

E0160 Wastewater Engineering (3/0): In this course, following topics are discussed. Introduction of the types of sewerage systems. Quality and quantity of sewage. Design of sewer. Introduction of preliminary, primary, secondary, and advanced wastewater treatment process introduction of sludge treatment processes.

E0161 Wastewater Engineering Design (2/0): Sewage and sewer engineering facilities are mainly divided into two parts: sewage sewer pipes and sewage treatment plants. The classroom focuses on introducing engineering practice, explaining design books, drawings, and calculation cases from simple to deep, and teaching technical capabilities that meet the needs of the industry. In the mid-term, special assignments will be assigned to groups to check students' learning results.

E0180 Mechanics of Materials (3/0): This course introduces mechanics of materials, including stress, strain, mechanical properties of materials, axial load, torsion, bending, transverse shear, and stress-strain analysis of structural members under different loads.

E0296 Fluid Mechanics Lab. (1/0): Laboratory experiments designed to provide the student with an understanding of the apparatus, techniques, and procedures used to measure hydraulic properties and to verify the fundamental principles of open channel hydraulics.

E0301 Fluid Mechanics (I) (3/0): This course is the first fluid mechanics course for undergraduate engineering students. The objectives of this course are to introduce the basic principles and equations of fluid mechanics, including fluid statics and pressure, fluid kinematics and Reynolds transport theorem, the fundamental conservation laws of mass, momentum and energy.

E0302 Fluid Mechanics II (0/3): This course introduces fluid mechanics, including Reynolds transport theorem, Navier Stokes equations, turbulence, boundary layer, and so on.

E0390 Coastal Engineering (0/3): The instructor will introduce fundamental ocean wave theories, and equip students with skills of planning and designing projects of costal engineering.

E0617 Structural Theory (0/3): This course is an introduction to structural theory, focusing on the basic concepts of structure and structural analysis methods. The course content includes three parts: Engineering Mechanics, Materials Mechanics and Structural Science. Discuss the concept of balance of statically indeterminate structures, and master structural deformation calculation and statically indeterminate structure analysis procedures. The type of structure considered is limited to the structural system formed by one-dimensional structural members such as beams, trusses, rigid frames, arches and suspension frames.

E0620 Water Supply Engineering (0/3): Course contents include sources of water, water quantity and quality, drinking water standards, drinking water management related law, source water protection,

distribution system, leakage control, drinking water treatment processes, coagulation, sedimentation, filtration, disinfection, advanced treatment processes, chemical sludge treatment and disposal, case studies.

E0671 Engineering Application of Computer (3/0): Numerical methods are techniques by which mathematical problems are formulated so that they can be solved with arithmetic operations. This course is designed to help students to recognize the difference between analytical and numerical solutions, and to delineate the rules that underlie structed programming.

E0768 Numerical Methods (3/0): This course will introduce the numerical methods and their engineering applications.

E0969 Applied Mechanics (0/3): The objective of this course is to introduce the basic theory and engineering application of engineering mechanics. Through drawing free-body diagrams and solving equations, students will have the abilities to analyze and design engineering problems, to establish calculation skills, and to apply to practical engineering. This course includes force vectors, particle equilibrium, rigid body equilibrium, structural analysis, center of gravity and centroid, shear and moment, to help students build the essential academic abilities in the field of engineering.

E0975 Water Quality Analysis (1/0): In this course, students will learn and perform water quality analysis using current standard methods. Water quality parameters such as BOD, COD, DO, SS, etc. are covered.

E0982 Solid Wastes Treatment (3/0): An introduction to the integrated solid waste management systems includes legislation, sources, fundamental characteristics, collection and transportation, pretreatment, transformation, final disposal, and recycling. Service-Learning includes composting operation.

E0985 Air Pollution Control (0/3): The characteristics of air pollutants and their control processes are introduced and discussed.

E1107 Engineering Materials (2/0): This class aims to introduce a field of civil engineering material and identify the basic properties of the materials. The contents will present in four sections: introduction, aggregate, concrete, binder, and Masonry.

E1113 Environmental Chemistry (II) (0/2): The purpose of this course is to understand the environment and the chemical processes and reactions that occur in it. We will introduce water treatment processes, environmental chemical analysis, atmospheric chemistry and organic air pollutants

E1229 Fluid Mechanics (II) (0/3): This course introduces fluid mechanics, including Reynolds transport theorem, Navier Stokes equations, turbulence, boundary layer, and so on.

E1143 Environmental Planning and Management (3/0): This course has two teaching goals. The first goal is to build the basic knowledge of environmental economics and the method of cost benefit analysis. This is why we adopt the textbook of environmental economics. The second goal is to provide the basic knowledge for the planning and managing stages of an effective environmental policy execution. Topics such as environmental law, management, multi-objective decision making, environmental ethics, risk analysis, and sustainable development are briefly introduced.

E1144 Environmental Instrument Analysis (2/0): This course introduces analytical instruments frequently used in the field of environmental engineering. This class cover the important topics of spectroscopy and chromatography.

E1397 Environmental Microbiology (0/3): This course will lecture about the Basic Concepts on microbes, Cells and Metabolism, Kingdom of Microorganism, Classification of Microorganism, Growth of Microorganism, Control of Microorganism, Wetland Ecosystem, Soil and Water Ecosystem, Microorganism in Drinking Water, Sanitization and its Risk, Application of Microorganism, Biotechnology in Environmental Engineering.

E1583 Introduction to Water Resources Engineering (1/0): This course is to introduction the field of water resource engineering. Including reservoir, dam, spillway, open channel, flood control, drainage, coastal engineering, pressure conduit and hydroelectric power generation facilities basic concept.

E1586 Soil and Water Conservation Engineering (0/2): This course will introduce the fundamental theories of soil and water conservation engineering. Topics include basic hydrology, soil erosion, sediment induced disasters, and erosion and sediment control structures.

E1682 Noise and Vibration Control (0/2): The course of noise and vibration provides a comprehensive introduction to the principles and practices of noise and vibration. Topics include: the basic theory and applications of sound and vibration, the measurement technique, and environmental noise problems. The control of noise and vibration and their application will also be introduced, including the noise control standard and regulations.

E2175 Application of GIS for Engineers **(2/0):** This course is designed to introduce the fundamentals of GIS. Students will learn the engineering applications of GIS in this course.

E2720 Hazardous Waste (0/2): This course will include hazardous management regulations, site management and risk assessment, treatment and disposal methods, and also site remediation.

E3320 Environmental Soil Science (3/0): This course contents the basic concept related to the soil around human habitat, how the soil is formed, soil classification and soil remediation.

E3321 Introduction to Environmental Biotechnology (0/2): This course focuses on using microbes, animals and plants for controlling the environmental problems caused by human activities. Mostly, we will mainly discuss and use mathematical models to describe the phenomena of microbe activities.

E3339 Open Channel Hydraulics Experiments (1/0): The purpose of this course is mainly to introduce students to laboratory experiments of open channel flows.

E3358 Corporate Environment Management (0/2): The trade always combined with environmental topics. The corporates also focused on those topics in the environmental management system. The environmental topics included green design, RoHS, greenhouse gases reduction, Carbon footprint, green label etc. This course will introduce the fundamental concepts and operational experiences for those topics. It is helpful for students and enhance their own environmental management abilities.

E3359 Hydraulic Modeling Software (0/3): This course is designed to introduce the modeling software that are commonly used in hydraulic engineering, such as HEC-HMS, HEC-RAS, SWMM, and HSPF/BASINS. Through case studies, students will learn fundamentals of hydrology and hydraulics, hydrological data types, major components of the modeling software.

E3566 Environmental Analysis (I) (0/1): In this course, students will learn and perform water quality analysis using current standard methods. Water quality parameters such as BOD, COD, DO, SS, etc. are covered.

E3374 Water-Resources Engineering (I) (3/0): This course introduces the application of water resources management. Topics discussed include hydrological cycle, hydrograph analysis, pressurized pipe flow, open-channel flow, storm runoff, concepts of flood estimation, unit hydrographs concepts, wetland, integrated water management, integrated watershed management and integrated water resources management.

E3573 Environmental Analysis (II) (1/0): In this course, students will learn and conduct current standard methods related to microbiology for water quality analysis.

E3574 Engineering Statistics (I) (2/0): Many engineering problems are uncertain in nature. If what we need is an effective and quantitative representation for an uncertain event, or the statistical regularity of

a phenomenon, then probability and statistics serve this purpose. Since probability is the foundation of statistics, therefore this course introduces the basics of both fields.

E3575 Engineering Statistics (II) (0/2): The purpose of this course is mainly to introduce narrative statistics and inference statistics, statistical theoretical basis and statistical practice application, and to teach students to think about problems using statistical concepts. The contents of this course are statistical estimations, hypothesis tests, analysis of variance (ANOVA), and regression analyses.

E3576 Practice of Projects (I) (2/0): To enable undergraduate students to learn how to conduct research and collect information needed for research. Research topics will be designed by the teacher or professional mentors from the industries. By choosing research topics, finding the relevant literatures, establishing methodology, conducting experiments, and finally presenting research results, students can learn the skills and knowledge required for various stages of research, and at the same time can obtain the right attitude, develop active learning, independent thinking, and problem-solving skills.

E3577 Practice of Projects (II) (0/2): To enable undergraduate students to learn how to conduct research and collect information needed for research. Research topics will be designed by the teacher or professional mentors from the industries. By choosing research topics, finding the relevant literatures, establishing methodology, conducting experiments, and finally presenting research results, students can learn the skills and knowledge required for various stages of research, and at the same time can obtain the right attitude, develop active learning, independent thinking, and problem-solving skills.

E3578 Practice of Projects (III) (2/0): To enable undergraduate students to learn how to conduct research and collect information needed for research. Research topics will be designed by the teacher or professional mentors from industry. By choosing research topics, finding the relevant literature, establishing methodology, conducting experiments, and finally presenting research results, students can learn the skills and knowledge required for various stages of research, and at the same time can obtain the right attitude, develop active learning, independent thinking, and problem-solving skills.

E3634 Basic Engineering Mathematics (0/2): This course aims to provide the basis for the acquisition of the basic computational and theoretical skills necessary for the practicing engineer and introduces students to the mathematical and logical ways of thinking desirable in the training of engineers. The subject includes the following topics: integration techniques, infinite series, parametric equations, functions of several variables and multiple integration.

E3667 Environmental Analysis (III) (1/0): In this course, students will learn and perform experiments to analyze air and solid pollutants.

E3694 Flood Control and Drainage Engineering (0/3): This course is to teach the fundamental of flood-induced hazards and flood mitigation through the use of the advanced mathematical model of flow. Also, numerical model based on depth-integrated equations will be introduced and implemented on a selected engineering application.

E3778 Water Environment (2/0): This course introduces basic knowledge and applications on water environmental conservation. The content of course includes water environmental management related regulations, indicators (items) for managing water environmental quality, river pollution control strategies, water environmental conservation in reservoir watershed, case studies on water environmental management and conservation in Taiwan, and impact and adaption of climate change on water environment.

E3991 Groundwater and Soil Pollution (4/0): This course is designed to introduce the fundamentals of the soil and groundwater pollutions. Students will learn the fundamental principles of soil and groundwater contamination, regulations and remediation techniques.

E4249 Watershed Ecology and the Environment (2/0): To systematically introduce the interactions between water, the environment, and ecology, enabling engineering students to develop the ability to analyze the interactions among these three elements.

E4250 Introduction to Environmental Sustainability (0/2): Introduce the definition of sustainability and the content of SDGs, and explore the development of environmental sustainability by introducing environmental impact assessment, greenhouse gas inventory, carbon footprint, etc.

S0251 Foundation Engineering (0/3): Foundation Engineering is the engineering field of study devoted to the design of those structures which support other structures, most typically buildings, bridges or transportation infrastructure. It is at the periphery of Civil, Structural and Geotechnical Engineering disciplines and has distinct focus on soil-structure interaction.

D0331 Practicum in Educational Technology (2/0): Recommend the students to the government, consultants, research centers to experience for the workplace according to their wills. Students will discuss with teacher through internet or mail each week during the practical training period. The course is aim to cultivate the students with the abilities to fit with the practical workplace.

E3978 Introduction to Practice of Projects (2/0): Introduce water and environment engineering field details. At the same time to guide the students how to compose the report and presentation for advanced studies and getting a job in the future.

E3986 Irrigation and Water Resources System Analysis (3/0): Irrigation water is the major water use target in Taiwan. Taiwan is also the 18th water-scarce country in the world. With the current measure to promote long-term expansion of irrigation services, how to properly allocate water resource is an important issue. This course combines theories and practices. The course is to be introduced of water resources and policies, and then to introduce the calculation of irrigation water, planning and design of hydraulic structures, basic hydraulic calculation, and water resources system analysis methods in response to drought and water quality constraints.

E4322 Circular Economy (2/0): This course provides an in-depth understanding of circular economy principles and practices, including sustainable resource management, regenerative systems, and sustainable consumption and production. Students will learn how to design for circularity, and the course will provide insight into the opportunities and challenges of implementing circular economy practices in different industries and sectors.

M0022 Engineering Economics (0/2): It explains the concepts of engineering economics and various evaluation methods in a systematic way, and provides students with an engineering background with a set of systematic decision-making tools for personal economic planning and evaluation and analysis of various investment plans.

V0067 Practice of Projects (0/2): This course is designed to enable undergraduate students to learn how to conduct a research project. Research topics will be advised by the lecturer or professional mentors. Through literature review, developing and learning the research methodology and presenting the research results, the students will learn the skills that is required for conducting a research project. Furthermore, students will learn research ethics, essential skills for active learning, critical thinking and problem solving.

E4249 Watershed Ecology and the Environment (2/0): This course places great emphasis on helping students grasp the main concepts of ecology such as ecosystem ecology, energy and nutrient relations, population ecology, and ecosystem services. The course begins with the planet's natural history and ends with ecological check, landscape ecology, and geographic ecology.

Master's Program

E0202 Solid Wastes Treatment (3/0): An advance discussion to the non-hazardous solid waste management; includes the perspective, legislation, characteristics of wastes, collection and transportation, pretreatment, transformations, final disposal and recycling.

E0424 Advanced Engineering Mathematics (3/0): The course provides students with a comprehensive and up-to-date resource for learning engineering mathematics.

E0428 Advanced Hydrology (3/0): The content of this course includes 1. Precipitation 2. Abstractions from precipitation 3. Streamflow measurement 4. Runoff 5. Hydrographs 6. Floods 7. Flood routing. 8. Groundwater 9. Erosion and reservoir sedimentation.

E0434 Advanced Open Channel Hydraulics (0/3): The advanced open channel hydraulics is an advanced course building upon open channel hydraulics. However, the course includes a review of all sections of open channel hydraulics and solves application questions.

E0976 Water Quality Management (0/3): Topics include water pollution in Taiwan, water resource protection rules, sources of pollutants, investigation of point and non-point pollutant sources, reduction and control of pollutant sources, water quality models, and case studies.

E0977 Biological Wastewater Treatment (0/3): The purpose of this course is to introduce the theory and basic design of microbiology physiology, biological treatment, Aerobic wastewater treatment processes, Anaerobic wastewater treatment processes and Nutrient treatment processes, etc.

E1091 Environmental Impact Assessment (3/0): Topics include environmental impact assessment related laws, evaluation procedure of EIA, technical guidance on EIA, environmental monitoring, EIA audit、health risk assessment, and case studies on EIA.

E1162 Aquatic Chemistry (0/3): Principles of chemical equilibrium related to the treatment of water and wastewater are introduced. The effects of chemical interaction of domestic and industrial waste effluents on natural water system are discussed.

E2659 Remediation of Soil Pollution (3/0): This course introduces the fundamental concepts of the soil science and the remediation of soil contamination. It emphasizes the soil as a natural resource and soil as ecosystems. It highlights the many interactions between soil and other components of forest, range, agriculture, wetland and constructed ecosystems. The case studies and remediation techniques will be emphasized on this course.

E2684 Physical and Chemical Treatment Processes (3/0): Through journal papers reading, understand and learn how to apply up-to-date environmental physical and chemical treatment processes for contaminants removal.

E4054 Molecular Biological Techniques in Environmental Engineering (0/3): The course will explain and practice the environmental biotechniques especially focus on the topics related to nucleic acid replication, quantitative PCR, fluorescence in situ hybridization, and microbial phylogenic analysis etc.

T0140 Seminar（1/1）: The purpose of this course is to provide our graduate students with a broader professional knowledge in the field of water resources and environmental engineering. We invite professionals to give a lecture related with water resources and environment engineering concerned topics. The students have to participate in the class regularly and write a short report to describe the most important things he/she learned every week.

B0310 Data Analysis (3/0): This course mainly introduces numerical data analysis methods, using SPSS statistical software to teach students to conduct various statistical analyses, and train students to observe data and interpret analytical results.

Ph.D. Program

E2657 Pollution Prevention (0/3): The cognition of the policies, engineering, and researchs of pollution prevention, exploring the future development.

E2737 Advanced Physical Chemical Treatment Processes (3/0): 1. Review and critique the most current research papers related to water and wastewater treatment technology. 2. Introduction to Research Methodology and Writing of Research Papers.

E2754 Special Topic on Environmental Unit Operation (3/0): In this course, various advanced treatment processes will be introduced, especially Advanced Oxidation Processes (AOPs) and Membrane Fabrication and Filtration. Selected papers related to AOPs will be discussed.

E4285 Environmental Value Evaluation: Theory and Practice (2/0): The objective of this course is to develop a conceptual understanding and empirical evaluation skills of non-market valuation. For this goal, it emphasizes not only an understanding of the theories but also the development of empirical skills. Besides to theoretical lectures, it will also include exercises using relevant software to foster evaluation capabilities. The teaching approach will focus on lectures, exercises, and case discussions. The course will assess students through report writing, providing a suitable format for students who wish to learn how to conduct non-market valuation.

E4290 Carbon Neutrality and Circular Economy in Water (3/0): To achieve the sustainable development goals (SDGs), it is necessary to review resource management policies such as energy and water in all sectors of the economy such as industry, production and consumption, major infrastructure, transport, food and agriculture and waste management. At the same time, it is essential to recover resources from our waste. Join this course and gain the latest academic knowledge on biorefinery which can be applied to their ongoing studies or to advance their careers.

E4301 Application of Hydrochemistry Simulation Software (0/3): Throughout this course, we will utilize chemical equilibrium modeling software to simulate water and wastewater treatment processes. We will delve into selected papers that focus on acid/base reactions, precipitation phenomena, complexation processes, and gas/liquid equilibrium to enhance our understanding.

DEPARTMENT OF MECHANICAL AND ELECTRO-MECHANICAL ENGINEERING

Degrees Offered: B.S., M.S., Ph.D.

Chairman: Chyan-Chyi Wu (吳乾埼)

The Department

History

The Department of Mechanical Engineering was founded in 1970 and offers Bachelor's, Master's, and Ph.D. degrees. The department name was changed to Mechanical and Electro-Mechanical Engineering in 2002. Two major course programs are offered, including "Opto-Mechatronics" and" Precision Machinery." The department has passed IEET accreditation since 2004.

Goals

The department cultivates professionals in the field of smart manufacturing, offering undergraduate and graduate degree programs in precision machinery and opto-mechatronics engineering. These programs are designed to teach students the latest methodologies in engineering practice and provide them with fundamental training and logical thinking to support their continued growth throughout their professional careers.

Faculty

There are six professors, four associate professors, three assistant professors and two emeritus professors.

Courses

There are basic professional courses such as mechanics, material, manufacturing, thermal and fluid mechanics, machinery design, automatic control, etc. Also offered are courses in advanced and applied fields such as precision machine design, advanced micro electro mechanical systems, controls of electric machinery, intelligent control, opto-mechatronics, micro-fluid mechanics, thermal system and artificial intelligence practices, and image processing and machine vision etc.

Research Laboratory

System Control Lab., Assistive Technology Lab., Design Optimization & CFD Lab., Machine Vision Lab., Opto-Mechatronics Lab., Vibration & Acoustics Lab., Smart Sensors and Automation Lab., Bio-Medical Engineering Lab., Computational Mechanics Lab., Mechanics of Machinery Lab., Nano & Micro Systems Lab., Micro Electro Mechanical System Lab., Nano & Micro Electro Mechanical Systems Lab., Functional Materials & Manufacturing Lab., etc.

Special Features

The department focuses on smart manufacturing technology, with a curriculum that integrates three key areas: precision machinery, opto-mechatronics integration, and AIoT. The faculty and staff are dedicated to creating an excellent environment for learning and research. Our goal is to equip students with professional knowledge and skills.

Faculty

Professor Emeritus
Zuu-Chang Hong (洪祖昌) ; Chien-Jong Shih (史建中)

Professors

Shung-Wen Kang (康尚文) ; Chao-Hwa Liu (劉昭華) ; Yin-Tien Wang (王銀添) ;
Lung-Jieh Yang (楊龍杰) ; Tzung-Hang Lee (李宗翰) ; Ching-Bin Lin (林清彬)

Associate Professors
Ching-Lun Li (李經綸) ; Jr-Syu Yang (楊智旭) ; Chyan-Chyi Wu (吳乾埼) ; Yu-Tzu Wang (王鈺詞)

Assistant Professors
Jhao-Yu Guo (郭兆渝) ; Chia Wei Juang (莊家維) ; Yen-Ting Li (李彥霆)

Degree Requirements

1. Requirements for a degree of Bachelor in Engineering: Completion of 128 credits of courses, including 93credits of required courses and 35 credits of elective courses.

2. Requirements for a master's degree:
   Minimum number of credits: 26 credits, including 24 credits of elective courses and 2 credits of seminars. Students are also required to submit a written master's thesis completed under the supervision of a faculty member, and pass an oral examination. For a student enrolls in the more practical program collaborating with an engineering company, he/she must take 26 credits in school and complete one-year practical training in the company. He/she may choose to write a report instead of a thesis and take an oral defense.

3. Requirements for a Ph.D. degree:
   Minimum number of credits: 25 credits, including 21 credits of elective courses and 4 credits of seminars. Students are required to pass a qualifying examination in the first two years, publish at least two research papers in any journal listed in Science Citation Index, submit a written doctoral dissertation completed under the supervision of a faculty member, and pass an oral examination.

Course Descriptions

Undergraduate Courses

E4330 Practice of Engineering Graphics (1/1): Graphic instruments and their use; graphic geometry; lettering; orthographic drawing and sketching; pictorial drawing and sketching; auxiliary views; sectional views and conventions; dimensions, notes, limits, and precision.

E0034 Engineering Mathematics (3/3): This course covers ordinary differential equations, vectors, matrices, Laplace transform, Fourier analysis, partial differential equations and complex analysis.

E0165 Automatic Control (3/0): This course covers the Laplace Transform, mechanical system modeling, stability of linear control systems, time-domain analysis, root-locus techniques, frequency domain analysis, and the design of control systems.

E3210 Strength of Materials (I) (3/0): This course addresses the following subjects: material properties, uniaxial force members, plane stress and plane strain, torsion of circular sections, stresses in beams, deflections of beams, and energy concepts.

E0300 Fluid Mechanics (3/0): Dimensional analysis and similitude, internal incompressible viscous flow, external incompressible viscous flow, introduction to compressible flow, steady one-dimensional compressible flow.

E0629 Microprocessors (3/0): This course aims to introduce the structure of a microprocessor for students. In this course, students will learn how to handle digital and analog signals processing, I/O interface, motor control and so on by using Arduino Microprocessor Board. Student will learn the Arduino C code from scratch. Many practices will be provided in this course for students, so that students will easily learn the operations of the microprocessor.

E4352 Practice of Computer Graphics (0/1): The main purpose of this course is to teach students to use Auto CAD and Microstation to draw both two and three-dimensional engineering drawings.

E0782 Heat Transfer (3/0): This course covers the following subjects: basic modes of heat transfer, conduction, convection, natural convection, forced convection, heat exchangers, radiation, heat transfer with phase change.

E0815 Mechanism (0/3): Motion in machinery, velocity and acceleration analysis of mechanisms, transmission of motion, static and dynamic force analysis, balance of inertial forces, dynamic features of machinery.

E3207 Fundamentals of Precision Machine Elements (2/2): This course provides instruction on the design and application of standard precision machines. In particular, it emphasizes the correctness, accuracy and safety of the resultant design. It also emphasizes the production of creative and reliable designs. It is a fundamental course for modern mechanical system design.

E4351 Practice of Mechanical Drawing (1/0): This course covers the following subjects: section view; details and assembly drawing; the use of threads, fasteners, keys, rivets and springs; gear and cam; drawing of piping; welding; jigs and fixtures.

E0914 Precision Manufacturing (0/3): This course covers fundamentals and applications of various manufacturing processes such as the fundamentals of materials, machining processes, basic metal cutting theory, fundamentals of machine tools, non-traditional machining processes, forming processes, casting processes, joining processes, micro-nano fabrication processes, and automation and quality assurance.

E0867 Applied Mechanics (I): (Statics) (0/2): Fundamental principles, statistics of particles, equivalent systems of forces, equilibrium of rigid bodies, centroids and centers of gravity, analysis of structures, forces in beams and cables, friction, moment of inertia, method of virtual work.

E0722 Circuit Theory (3/0): This course introduces fundamental principles and analysis methods of electric circuits. The contents contain DC and AC circuits, transient and frequency responses of electric circuits, and AC power.

E2235 Computer Program Design (3/0): The purpose of this course is to introduce programming tools commonly used by scientists and engineers. This course includes the following subjects: (1) an introduction to programming; (2) input/output; (3) file processing; (4) decisions and the IF statement; (5) repetition and loops; (6) arrays; (7) functions and subroutines.

E2525 Strength of Materials (II) (0/3): The purpose of this course is to (1) teach students how to study mechanics, (2) introduce solutions of simple structures made of linear elastic materials, and (3) introduce failure modes including yielding, fatigue, and buckling.

E0868 Applied Mechanics (II) (3/0): Kinematics of particles, kinetics of particles, Newton's second law, energy and momentum methods, systems of particles, kinematics of rigid bodies, kinetics of rigid bodies, introduction to mechanical vibration.

E0961 Electronics (0/3): This course covers semiconductors and diodes, bipolar junction transistors, field-effect transistors and power electronics, operational amplifiers, integrated circuit electronics, digital logic circuits, and digital systems.

E1559 Mechatronics (3/0): This course aims to introduce the basic concepts and applications of mechatronics integration. Through theoretical learning and practical experiments, students will learn how to design and implement various mechatronic systems. The course content covers components of mechatronic systems, control methods, application of sensors and actuators, data processing, and real-world case studies.

E2157 Applications of Industrial Materials (3/0): This course is organized into three parts: (1) manufacturing, property and applications of the back-light modulus; (2) manufacturing, property and applications of fixable displays; (3) manufacturing, property and applications of optical films; (4) manufacturing, property and applications of white light LED.

E3403 Mechanism Design (0/3): This course is a continuation of Mechanism and is part of the

Mechanical Design series. It will cover the theoretical aspects of mechanism design along with practical engineering applications, aiming to provide students with a profound understanding of mechanism design. This knowledge will enable students to effectively address challenges encountered in structural design.

T0994 Key Issues in Career Planning (1/1): The purpose of this course is to help students develop the ability to think logically, and to enhance their problem-solving skills and techniques of expression. Logical thinking is developed by reading technical papers; while problem-solving skills are gained by solving engineering problems. Training in expression is carried out by writing reports.

E3755 Introduction and Practice of Computers (0/3): The course will cover basic syntax, data structures, flow control, and functions. The early phase focuses on fundamental concepts and simple applications. The mid-phase introduces modules and error handling. The latter phase concentrates on real-world projects and advanced topics such as object-oriented programming and data analysis. The course combines theory with practical work, including regular assignments and project evaluations, to ensure learning effectiveness.

E1108 Workshop Practice (1/1): The first topic discussed is woodworking, the second metal filing, the third metal removal processes—especially in turning—and the final, the welding process.

E1903 Analysis of Dynamic Systems (3/0): Topics in this course include: translational and rotational mechanical systems, electrical systems, analytical solution of linear models, Laplace transform and transfer function analysis, electromechanical systems, block diagrams, and computer analysis.

E1277 Mechanical Vibrations (0/3): Dynamics, oscillatory motion, free vibration, energy methods, forced periodic vibration, initial conditions and transient vibration, damping, damped forced vibration, two degrees of freedom, and nonlinear vibration.

E1954 Digital Signal Processing (0/3): The course will cover the concepts of continuous-time sinusoidal signals, discrete-time signals and systems, the frequency spectrum, and filter design. Students will improve their digital application ability in the control field.

E3209 Applied Physics (3/0): The course focuses on the application and property of the various classes of physics, Important topics include: electrical, semiconductor physics, superconducting physics, magnetic physics, dielectric, optical physics, modern physics and nano-physics.

E3088 Materials Science and Engineering (0/3): This course is organized into four parts: part one: Fundamentals; part two: Microstructure Development; part three: Property of Materials; and part four: Materials Synthesis and Design.

S0434 Thermodynamics (2/2): Concepts and definitions; properties of a pure substance; work and heat; the first and the second law of thermodynamics; entropy; power and refrigeration cycles; thermodynamics of mixtures; thermodynamic relations; chemical relations; phase and chemical equilibrium.

E0158 Introduction to Finite Element Method (0/3): The purpose of this course is to introduce the numerical method to solve practical physical problems. Course content includes the stiffness method, truss element, beam element, frame element, the plane stress and plane strain stiffness equation.

E0710 Computer Aided Design (0/3): This class is designed to introduce a person to the fundamentals of PTC's Pro/ENGINEER software. Topics include sketch module, part module, assembling module, drawing module, mechanism module, and much more. Students will learn how to properly set up CAD projects using Pro/E. The goal of this course is to familiarize engineering students with fundamental principles of computer aided design and perform basic engineering design using solid modeling and parametric design using Pro/E software. At the end of this course, students will have created a project and will better understand CAD office standards.

E3208 Principle of Precision Machine (3/0): The course will explore the fundamental principles and calculations of precision machine, introduce mechanical measurement instruments, and provide considerations for precision machinery design. Additionally, this course will cover examples of precision machining techniques, such as precision grinding and turning/milling precision machine. This will enable

students to understand the current technological developments in precision machinery and acquire basic professional knowledge in the industry.

E3217 Digital Logic Design (3/0): This course covers: software/hardware understanding and basic application of electronic circuits, power electronics, open/closed loop control systems and microprocessors (MCU), logic chips (CPLD, FPGA), Internet of Things (IOT). The teaching process takes "learning by doing" and "ability-based" as the main axis, and guides students to construct: In the current digital generation, they have basic technology, exploration, analysis, and design capabilities.

E3341 OPTO-Mechatronics Laboratory (I) (1/0): The purpose of this experimental course is to introduce principles of fundamental electric devices and applications of these circuits.

E3342 OPTO-Mechatronics Laboratory (II) (0/1): The purpose of this course is for students to conduct experiments to gain basic knowledge in mechanics, material properties, and metallography. In mechanics it includes solid mechanics, fluid mechanics, and thermal science.

E3343 OPTO-Mechatronics Laboratory (III) (1/0): The experiments in this course includes: Electromagnetic and photo sensors; microprocessor and PC-based controllers; DC motor drive and actuator; wireless communication; kinematic simulation of differentially-driven mechanism; and implementation of mechatronics using a vision-based robot system.

E3761 OPTO-Mechatronics Laboratory (IV) (0/1): This experimental course is organized into two part: (1) Fluid mechanics-related experiment; (2) Thermal engineering-related experiments. Important experiments include Weir experiments, forced Vortex test, Jet impact test, Reynolds experiment, Orifice, Pipeline flow meter test, Testing Fans for Rating performance using wind tunnel; Analysis of a Concentric Tube Heat Exchanger; IC thermal impedance, Conduction, and convection, CPU Cooler thermal impedance measuring.

E3344 Precision Mechanical Engineering Laboratory (I) (1/0): The experimental course is organized into two parts: (1) Metallographic test; (2) Properties of materials test. Important experiments include tensile test, hardness test, impact test and fatigue test.

E3345 Precision Mechanical Engineering Laboratory (II) (0/1): The purpose of this experimental course is to introduce principles of fundamental electric devices and the usages of the corresponding application circuits. In the first half-semester, we focus on the characteristic presentations and usages of these fundamental devices. In the second half-semester, we introduce principles and related usage techniques of fundamental application circuits.

E3346 Precision Mechanical Engineering Laboratory (III) (1/0): Experimental Fluid Mechanics: (1) the weir experiments (2) forced vortex (3) momentum experiment (4) Reynolds, (5) opening (6) meter line experiment (7) experimental jet trajectory. Thermal experimental: (1) fan performance curve wind tunnel tests; (2) concentric tube heat exchanger; (3) IC thermal impedance (4) heat conduction and convection (5) CPU Cooler thermal impedance measuring (6) heat transfer wind tunnel (7) vapor absorption refrigeration cycle.

E3347 Precision Mechanical Engineering Laboratory (IV) (1/0): This course includes the following experiments: Dimensional Metrology, Optical Metrology, Surface Metrology, Machine Tool Metrology, Interferometers, confocal microscope, autocollimator, and laser interferometer etc.

E0826 Machine Design (3/0): The primary goals of this course cover the knowledge, analysis, design and application of general machine components. The particular interests emphasize the correctness and safety of the resultant design. This is a fundamental course for mechanical system design**.**

E3340 Engineering Optics (2/0): In this course, we will teach students the principles, phenomena, and components of optics. We will also explain the application of engineering optics. The contents of this course include geometric optics, physical optics, and opto-mechatronics.

E1400 Industrial Control Engineering (0/2): The basic principle and application of industrial control are introduced in this course. The major topics are sensors, hydraulic/pneumatic system, and the PLC (Programmable Logic Controller) programming and case study.

E3660 Fundamentals and Applications of Engineering Metrology (0/2): This course covers fundamentals and applications of engineering metrology. Topics such as Dimensional Metrology, Uncertainty Analysis, Optical Metrology, Surface Metrology, Machine Tool Metrology, Interferometers, Image analysis / Fringe analysis, Diffraction / Photoelectric detectors will be addressed and discussed.

E3262 Engineering Application of Computers (I) (2/0): This course will introduce the use of computer numerical principle, the principle of error handling, the numerical techniques for root finding and seeking within an interpolation, curve fitting and function approximation, numerical integration and differentiation, solving linear simultaneous equations, initial value problem-solving, boundary value problem-solving, the use of iterative method for solving simultaneous equations and other numerical methods. Ability in using MATLAB is also developed.

E3263 Engineering Application of Computers (II) (0/2): This course introduces how to use numerical methods in engineering analysis with the computer.

E4111 IoT Sensing Circuit Design (0/3): This course is an introduction of a series, sensors and its components and application circuits, from a single sensor is a component of understanding, coupling e-related courses, from sensing applications circuit analysis and design, support Automation electromechanical integration and various sensing circuit robot.

E4156 CNC Operating Practice (0/2): This course is to introduce computer-aided design software, program programming content, basic introduction and operation of machine tools, and make processing plans for parts of different shapes. This course makes students increase their professional knowledge of automated processing and meet the needs of the industry earlier, which will help future employment and career planning.

E4158 Computer Aided Manufacturing (2/0): This course aims to strengthen the capability of the students in computer-aided manufacturing professional knowledge, and make students able to use the computer to define the processing design, familiar with the numerical control code programming, make good use of computer-aided design model preparation, and post-processing manufacturing. This course helps students learn manufacture practices in future employment.

Master's Program

E0424 Advanced Engineering Mathematics (3/0): Topics include: the method of eigen-function expansion, The Dirac delta function and its relationship to Green's, Green's functions for ordinary differential equations, and partial differential equations, calculus of variations, the Rayleigh Ritz Method, the perturbation method, and the similarity method.

E0629 Microprocessor (0/3): Objectives of this course include: **(**1) To teach the architecture of a micro-controller; (2) To show that a micro-controller can be programmed and be useful in everyday applications; (3) To introduce the basics of electronic design by constructing various interfaces of the micro-controller with other devices; and (4) To equip students with basic skills in electronic design and micro-controller programming.

T1433 Research Method (I) (1/0): This course offers lectures on various subjects of mechanical and electro-mechanical engineering. The speakers are invited from industry, university, and related research institutes. Students will be encouraged to engage in discussion and will be required to hand in one report for each lecture.

E2505 The Design of a Nano-Material Applied Bio-Chip (0/3): This course intends to develop students' ability in biochip design with nano-materials. Current issues related to biomedical engineering will be mentioned. The type, the characteristics, and the present status of 4 ene chip, protein chip, DDS chip and Lab on a chip will be introduced. The types, properties and applications of nano-materials will also be discussed.

T1111 Research Method (II) (0/1): This course provides students with lectures on the various subjects of mechanical and electro-mechanical engineering. The speakers are invited from industry, universities, and related research institutes. Students will be encouraged to engage in discussion and will be required

to hand in one report for each lecture.

E2938 Advanced Energy Conversion (0/3):
This course covers fundamentals of thermodynamics, flow and transport processes as applied to energy systems. Topics include analysis of energy conversion in thermomechanical, electrochemical, and photoelectric processes in existing and future power and transportation systems, with emphasis on efficiency, environmental impact and performance. Applications include Concentrated Solar Power Stirling Engine Generation System, Thermal Storage System, and fuel cells and batteries, etc.

E2945 Viscous Fluid Flow (3/0): The content of the course include the following: vector and tensor calculus, introduction to the continuum fluid, conservation laws, static equilibrium of fluids and interfaces, the Navier-Stokes equations, unidirectional flows, approximate methods, laminar boundary layer flows.

E3720 Advanced Heat Transfer (3/0): The course will cover PART 1: Conservation equations, viscosity and stress terms, boundary layer equations for momentum, heat and mass transfer. PART 2: Momentum and heat transfer for laminar boundary layers, laminar flow in pipes/ducts, turbulent boundary layers, turbulent flow in pipes/ducts, heat transfer by natural convection, influence of temperature-dependent fluid properties on convective heat transfer and friction.

E3873 Design and Practice of Electric Motors (0/3): This course will be based on the team project. To guide the students to understand the electric motor design. Learn the required knowledge and techniques for real applications.

E3945 Artificial Intelligence and Machine Learning (3/0)： Artificial Intelligence (AI) has the definite goal of understanding intelligence and building intelligent systems. However, the methods and formalisms used to reach this goal are not firmly set. Also, the applications of AI are so diversified which has resulted in AI consisting of a broad cross-disciplinary subject. This introductory AI course is conveying as many subjects as possible without losing too much depth and focus.

E3949 Integrated Technology of Information and Mechatronics (3/0): This course aims to train qualified students to meet the needs of the intelligent manufacturing system (IMS). The course contains two parts: An information system for a manufacturing system and an AI information analysis system. This course also includes the data acquisition technique and communication technique, which tell you how to collect and dispatch data. You have to do a project about the IMS and make a discussion for the project. This course will organize one or two keynote speeches about the advanced IMS.

E3959 Integrated Technology of Biomedical Engineering (3/0): Biomedical engineering is a specialized discipline that combines engineering technology and clinical medicine in disease diagnosis or treatment to design and development medical devices. This course will explore the integration technology of this interdisciplinary research in a simple way.

E4019 Visual Sensing Technology and Applications (0/3): This course provides basic concepts of visual sensing technology and its applications in the industry. Four major topics include (a) Introduction of the integration of sensing technology, image processing algorithms, and programming language and library. (b) The environment of programming language and OpenCV library. (c) The Sensing technology of object detection and recognition algorithms. (d) The applications of sensing technology in the industry. The students will implement many experiments to understand the practical sensing technology for the automatic industry.

E4148 Advanced Medical Devices Design Practice (0/3): The course will introduce the international regulations and standards for medical devices and the safety testing that advanced medical devices must pass to convey the concept of the regulations and the importance of functional testing for advanced medical devices.

E4342 Surface Treatment Technology (3/0): This course aims to introduce various surface treatment techniques and their applications. These techniques are widely used in materials science, manufacturing, and engineering fields to enhance material performance by altering the physical and chemical properties of the material's surface. The course will cover traditional techniques such as heat treatment, carburizing, and nitriding, as well as modern techniques like electroplating, anodizing, and micro-arc oxidation.

E4345 Design and Applications of Additive Manufacturing (3/0): This course introduces the fundamental principles, design methods, and applications of additive manufacturing (commonly known as 3D printing). Students will learn about various additive manufacturing technologies, including Fused Deposition Modeling (FDM), Selective Laser Sintering (SLS), Stereolithography (SLA), and Binder Jetting (BJ), understanding the advantages, disadvantages, and appropriate use cases for each technology

E3751 Project Management Practice (I) (3/0): This course aims to integrate and strengthen the mechanical and electro-mechanical knowledge students acquired from previous courses. Students will be asked to fabricate, test, and analyze their design. The importance of team work and work attitude will be emphasized throughout the course.

E3752 Project Management Practice (II) (0/3): This course aims to integrate and strengthen the mechanical and electro-mechanical knowledge students acquired from previous courses. Students will be asked to fabricate, test, and analyze their design. The importance of team work and work attitude will be emphasized throughout the course.

E3836 Research Technology Practice (I) (3/0): This course aims to integrate and strengthen the mechanical and electro-mechanical knowledge students acquired from previous courses. Students will be asked to fabricate, test, and analyze their design. The importance of team work and work attitude will be emphasized throughout the course.

E3837 Research Technology Practice (II) (0/3): This course aims to integrate and strengthen the mechanical and electro-mechanical knowledge students acquired from previous courses. Students will be asked to fabricate, test, and analyze their design. The importance of team work and work attitude will be emphasized throughout the course.

E3838 Production-Line Technology Practice (I) (3/0): This course aims to integrate and strengthen the mechanical and electro-mechanical knowledge students acquired from previous courses. Students will be asked to fabricate, test, and analyze their design. The importance of team work and work attitude will be emphasized throughout the course.

E3839 Production-Line Technology Practice (II) (0/3): This course aims to integrate and strengthen the mechanical and electro-mechanical knowledge students acquired from previous courses. Students will be asked to fabricate, test, and analyze their design. The importance of team work and work attitude will be emphasized throughout the course.

Ph.D. Program

T0095 Seminar (I) (1/0): This course aims to strengthen students' critical thinking and problem-solving skills in the specific areas of mechanical and electromechanical engineering. Course content includes information retrieval, reading and commenting on specific topics, building a research tree, oral presentations, and technical manuscript writing.

T1002 Seminar (III) (1/0): This course aims to strengthen students' critical thinking and problem-solving skills in the specific areas of mechanical and electromechanical engineering. Course content includes information retrieval, reading and commenting on specific topics, building a research tree, oral presentations, and technical manuscript writing.

T0096 Seminar (II) (0/1): This course aims to strengthen students' critical thinking and problem-solving skills in the specific areas of mechanical and electromechanical engineering. Course content includes information retrieval, reading and commenting on specific topics, building a research tree, oral presentations, and technical manuscript writing.

T1003 Seminar (IV) (0/1): This course aims to strengthen students' critical thinking and problem-solving skills in the specific areas of mechanical and electromechanical engineering. Course content includes information retrieval, reading and commenting on specific topics, building a research tree, oral presentations, and technical manuscript writing.

E4143 Practice of Business Research and Development (3/0): From the necessities of enterprise R&D

to various strategies, introduces an enterprise R&D structure that includes three blocks: product concept (that is, planning), product development (narrowly defined R&D design) and product launch (and promotion), and practice the tools commonly used in enterprise, and emphasizes patents and design avoidance required for innovation.

E4335 Optimal Development and Reuse of Geothermal and Industrial Waste Heat: Geothermal heat is the "saturated steam water" which is extracted from the ground. Through the principle of the steam power plant, we use the "temperature difference and entropy change diagram" in thermodynamics to drive the steam turbine and generate electricity. In addition, Taiwan is also an industrial island country. The industrial waste heat from many factories will contribute to global greenhouse gas warming. In addition to geothermal power generation, industrial waste heat can also be used to generate electricity.

E4344 PICO 7 Tools (3/0): The three Chinese sets: Grey System, Extension Theory, and Pan-System Analysis; the three American sets: Fuzzy Mathematics, Neural Network, and Genetic Algorithm; the Japanese set: Taguchi Experimental Design. Prof. Dr. Chang combines these seven sets to be called "PICO 7 Tools".

E4350 Unmanned Aerial Vehicle Networks, Communications, Navigation and Counterattack (3/0): This course starts with the assembly and theory of "quadrotor drone", explores it through communication and inertial navigation experiments, and finally conducts the artificial intelligence Internet of Things (AIOT) application of drones and analysis of Counterattack.

DEPARTMENT OF CHEMICAL AND MATERIALS ENGINEERING

Degrees Offered: B.S., M.S., Ph.D.

Chairman: Cheng-Lan Lin (林正嵐)

The Department

The Department of Chemical Engineering was founded in 1971 to provide society with high-quality education pertinent to the chemical engineering discipline in response to the rapid growth of petroleum and chemical industries. In 2003, the department was renamed "Department of Chemical and Materials Engineering," complying with the demands of the high-tech industry. A 4-year undergraduate curriculum leading to the Bachelor of Science degree has been offered since then. To date, more than 6,500 alumni have graduated and served in various industries globally.

To pursue excellence in research, teaching, and service in chemical, bio, and material engineering, graduate programs were established in 1992 (MS) and 2001 (Ph.D.). By incorporating a wide selection of advanced courses and the opportunity of conducting independent research, students are trained to possess in-depth frontier knowledge, high-technical skills, and planning ability that are vital to their future careers in industry or academia.

In support of the broad triple-objective (globalization, information-oriented education, future-oriented education) of the University, our department's teaching and research activities are being restructured and reactivated.

- Computer and software usage are incorporated into our core curriculum. Computer programming techniques are strengthened and applied to chemical process modeling, design, and problem-solving.
- A series of courses focusing on material engineering, energy resource, and fine separation processes have been developed with contents conforming to current needs and future trends.
- Research is conducted based on collaboration and teamwork not only within the department but also outside the University. Novel research topics are selected in parallel with the rapidly evolving scientific environment, the foremost being nano-technology, biomaterial, and environmental control.

The faculty and the staff of the Chemical and Materials Engineering Department are endeavoring to build the department into an internationally renowned center of excellence for research and education in its field.

Faculty

Honorary Professor
Zuu-Chang Hong (陳幹男) ; Liao-Ping Cheng (鄭廖平)

Professors
Chii-Dong Ho (何啟東) ; Hsuan Chang (張 煖) ; Hsuan-Fu Yu (余宣賦) ; Tung-Wen Cheng (鄭東文) ; Trong-Ming Don (董崇民) ; Wei-Chi Lai (賴偉淇) ; Cheng-Lan Lin (林正嵐) ; Shih-Chieh Hsu (許世杰) ; Chao-Tsai Huang (黃招財)

Associate Professors
Chao-Ching Chang (張朝欽) ; Yih-Hang Chen(陳逸航) ; Yi-Wun Wang (王儀雯)

Assistant Professors
Shu-Chuan Liao (廖淑娟) ; Hsiao-Chi Hsieh (謝孝基)

Degree Requirements

1. Requirements for a degree of Bachelor in Engineering:
   Completion of 128 credits of courses, including 96 credits of required courses and 16 credits of elective courses in the program of chemical and materials engineering.
2. Requirements for a Master's degree in Engineering:
   Completion of 27 credits of courses, including 3 credits of required courses and thesis courses.

3. Requirements for a Ph.D. degree in Engineering:
   Completion of 24 credits of courses, including 4 credits of required courses and thesis courses.

Course Descriptions

Undergraduate Courses

E0028 Engineering Statistics (0/3): We will go over some fundamentals about statistics and how to apply it in Python. The students are expected to be able to process and analyze the data to deduce some conclusion in terms of trends through the use of statistical calculations. Because machine learning is built upon a statistical framework, we will use machine learning for understanding and benchmarking data as well as for model validation.

E0034 Engineering Mathematics (3/3): A knowledge of calculus is a prerequisite for this course. This course begins with a detailed treatment of ordinary differential equations. Solution techniques for solving partial differential equations are then introduced. Matrix methods are also covered.

E0067 Separation Processes (0/3): Prerequisite: Transport Phenomena and Unit Operations II. This course covers the application of unit operation principles in designing process separators such as heat exchangers, evaporators, distillation columns, extractors, absorbers and other separation equipment.

E0080 Chemical Engineering Thermodynamics (3/0): Prerequisite: Physical Chemistry. Study of system properties is due to changes of state for pure substances or mixtures. Energy balance and entropy balance in chemical engineering process as well as prediction and calculation of equilibrium state variables are covered.

E0081 Chemical Engineering Equipment (0/3): Prerequisite: permission of the instructor. This is an introductory course concerning basic structures and principles of equipment used in chemical processes such as transportation of fluids and solids, powder technology, heat exchange, crystallization, evaporation, distillation, and gas absorption.

E0084 Chemical Reaction Engineering (0/3): Prerequisite: Physical Chemistry. This is an introductory course covering chemical engineering kinetics, design and analysis of ideal reactors, both homogeneous and heterogeneous, isothermal and non-isothermal, and a discussion of non-ideal flow patterns.

E0091 Solar Energy Engineering (0/3): This introductory course emphasizes the principles of solar energy use and provides updated information on the development of solar energy technologies and solar energy applications.

E0182 Materials Science (0/2): An introduction to the applied physical and chemical principles of materials, and a presentation of fundamental types of engineering materials.

E0419 Polymer Processing (0/3): This course will describe the polymer processing methods, polymer melt rheology, and the design of polymer products. We will introduce the fundamental topics that are associated with processing of both thermoset based composites and thermoplastic polymers. These include impregnation, consolidation, and performing techniques.

E0597 Process Control (2/0): Prerequisite: Engineering Mathematics. This is an introductory course covering process dynamics, computer simulation, command control, and a discussion in measurement and control hardware, and some advanced control strategies.

E0803 Material and Energy Balances (0/2): An introduction to the basic principles and calculations of

chemical engineering, presentation and discussion of mathematical procedures, material balance, fluid properties, and energy balance.

E0879 Introduction to Environmental Engineering (0/3): The goals of this subject are to lead the students to understand the basic problems about the environment, the treatment technologies for air, water, and solid waste pollution, the concepts for resource recycle and recovery, and the ISO 14000s. The class will move forward with slides by PowerPoint. Students are asked to turn in a Chinese translation of an English academic journal article about specific topics to enhance their learning abilities.

E1053 Introduction to Chemical Process Safety (0/3): The objective of this course is to encapsulate the important technical fundamentals of chemical process safety. The emphasis on the fundamentals will help the students understand the concepts and apply them accordingly. This application requires a significant degree of fundamental knowledge and technology.

E1099 Transport Phenomena and Unit Operation I (0/3): Prerequisite: Engineering Mathematics. This is an introduction to momentum transfer and its application to fluid mechanics. This course includes topics in momentum balance, flows in pipes and channels, turbulent flow, multiphase flow, flow of compressible fluids, flow and pressure measurement, liquid mixing, and pumping of fluids.

E1100 Transport Phenomena and Unit Operation II (3/0): Prerequisite: Transport Phenomena and Unit Operation I. This course covers the transport phenomena of heat and mass. The course introduces the application of conservation laws （equations of energy and continuity for components in a mixture） in various process conditions.

E1213 Biological and Chemical Engineering (0/3): This course introduces the content of bio-industry to students, and helps them to learn how to apply the core knowledge of chemical engineering to bio-industry.

E1247 Electrochemical Engineering Principles (0/3): The goal of this course is to outline the basic principles and modern methodology of electrochemistry. Topics include potentiometry, voltammetry, electrochemical titrations, a practical, up-to-date summary of indicator electrodes, solvents, electrolytes and electrochemical cells and instrumentation for useful electrochemical measurements.

E1365 Polymer Physics (0/3): The relationship between polymer physical properties and chemical structures; glass transition and melting temperature; polymer morphology; polymer crystallization kinetics; polymer solution.

E1862 Waste Minimization for Chemical Processes (3/0): Concepts and methodologies of pollution prevention and waste management are introduced. A particular focus is on chemical processes, emphasizing emission estimation, life-cycle assessment, waste audits and emission inventory, pollution prevention for both unit operation and flow sheet levels.

E1864 Introduction to Semiconductor Processing (3/0): This course chiefly introduces a sketch of the semiconductor procedure. The discussion contains the main production equipment in business world, manufacture principles and procedures. We hope the students with the background of fundamental physics and chemistry or those are interested in the semiconductor procedure will take this optional course.

E2342 Introduction to Polymeric Materials (3/0): Any large molecule that is formed from a relatively large number of smaller units with covalent bonding is called a polymer. In this course, we will discuss about (1) the basic definition and classifications of polymers, (2) molecular weight and molecular weight distribution, (3) synthetic methods and reaction mechanisms, (4) structures and properties of the polymers, (5) major applications of polymeric materials (plastics, rubbers, fibers, coatings and adhesives.

E2538 Biomaterials Engineering (3/0): This course is open for those who would like to understand the preparation and applications of biomaterials. Based on the recent development of artificial organs, students are expected to be able to enhance the basic concepts and professional ability involved in the control design of biomaterials.

E2541 Introduction to Separation Process Principles (0/3): This course introduces Unit Operation

and Transport Phenomena of Chemical Engineering.

E2549 Inorganic Materials (0/3): This course addresses crystal structures, synthesis, and applications of inorganic materials. Recent developments in relevant topics will also be covered.

E2550 The Physics and Chemistry of Solids (0/3): This course is concerned with the structures and properties of solids. The level is designed to be introductory in nature. The subject matter is divided into three sections: structures and microstructures, reactions and transformations, and physical properties.

E2551 Chemical Engineering Laboratory I (1/0): Prerequisite: Transport Phenomena and Unit Operation I. There are five parts in this course: determination of efflux time, screen analysis and cyclone separator, fluid flow, frame and plate filtration, and the practice of combining pipelines.

E2552 Chemical Engineering Laboratory II (0/1): Prerequisite: Transport Phenomena and Unit Operation II. There are five experiments in this course: jacket type heat exchanger, shell and tube heat exchanger, thermal conductivity of solids, fluidization and fluidized bed heat transfer, and film evaporation.

E2553 Chemical Engineering Laboratory III (0/1): Prerequisite: Separation Processes. Four experiments are included in this course: batch plate and packed distillation column, wetted wall gas absorption column, liquid-liquid extraction, and packed column absorbers.

E2554 Materials Engineering Laboratory (1/0): This experiment consists of 5 topics. Students will learn about the preparation of materials such as polymers, membranes, and micro-particles through chemical and physical methods. The physical or mechanical properties are then characterized.

E2825 Chemical Process Computer-Aided Design (0/3): This course studies the use of process simulation software, such as Aspen Plus and Aspen Dynamics, for unit operations and process flow-sheet design, as well as the use of various mathematical tools, such as Matlab and Polymath, to conduct data analysis in process design.

E3063 New Energy Materials (3/0): This course is to introduce many kinds of new energy (green energy) materials. The properties and manufacturing processes of the new energy materials are described. The new energy materials contain solar cell materials, fuel cell materials, biomaterials, etc.

E3126 Introduction to Nanomaterials (0/2): This course is an introduction for students to learn the fundamentals of nanomaterials, including structures, properties, preparations, and applications.

E3350 Introduction to Chemical and Materials Engineering (1/0): The goal of this course is to introduce the history, present status and future developments of chemical engineering. An introduction to the chemical engineering related industries and activities as well as the role and responsibility of a chemical engineer are also the major goals of this course.

E3559 Lectures on Chemical Materials (2/0): This course covers the current status of the chemical material profession, providing students with pre-job orientation. It does this in part by inviting lecturers from chemical materials companies and research centers, including R&D directors, CEOs and other officials.

E3563 Optoelectronic Material and Technologies (3/0): This course includes the following subjects: introduction of crystal growth process; the vapor crystal growth process (Thin-film deposition techniques); overview of fabrication using nanotechnology; high brightness LED process and application; the fabricate process in the solar cell; introduction of Liquid Crystal Display techniques.

S0108 Organic Chemistry (2/2): This course is designed for students to learn the fundamentals of organic compounds, including nomenclatures, structures, properties, reactions, and synthesis.

S0111 Organic Chemistry Laboratory (1/0): Students learn the principle of organic chemistry through doing hands-on experiments. The former parts of this course are spent learning techniques in organic chemistry, including recrystallization, distillation, extraction, crystallization, and column/thin-layer chromatography. Once these techniques are learned, they are employed in the later five labs of the

semester. These experiments are designed to let students not only get familiar with various lab techniques, but also are able to observe the detailed reaction changes at each step.

S0143 Physical Chemistry (3/3): The basic ideas of work, heat, and energy are introduced. The laws of equilibrium thermodynamics are developed and employed in solving practical engineering problems such as mixing, phase equilibrium and chemical equilibrium. Topics in chemical kinetics are presented with an emphasis on the rate laws and mechanisms of chemical reactions. Quantum mechanics and statistical thermodynamics are briefly introduced.

S0146 Instrumental Analysis Lab (0/1): This course covers the major principle of instrumental analysis that the students learned from the lecture, and allows students to experiment with the essence of instrumental analysis first hand. This class provides the basic training to meet the future challenge from research and work places.

S0148 Physical Chemistry Lab (0/1): Students learn physical chemistry by doing experiment themselves. Through the course design, students not only get familiar with the basic concept, but also gain insight into the principle of physical chemistry.

S0195 Polymer Chemistry (3/0): Topics include molecular weight distribution, chain polymerization, step growth polymerization, stereo-specific polymerization, physical properties and microstructure of polymers, applications of polymers and industrial processes.

S0288 General Chemistry (2/2): The goal of this course is to introduce the fundamentals and applications of data processing and analysis, titration methods and electrochemistry in analysis chemistry.

S0289 General Chemistry Lab. (1/1): In this course we aim to teach the freshmen some basic skills of performing general chemistry experiments. Through hand-on practice, students can strengthen the related knowledge of the general chemistry course.

S0290 General Physics (2/2): The purpose of this course is to introduce the basic concepts and principles of physics. It includes: mechanics, mechanical waves, and thermodynamics.

S0307 Process Design (3/0): Prerequisite: Separation Processes. This course focuses on the application of knowledge taught in the core courses of chemical engineering and economics. In doing so, it facilitates the design and operation of chemical processes. During the course, students are required to carry out a design project.

S0325 Calculus (2/2): This course introduces the theory of the Calculus, the calculation approaches and its applications. We aim to improve students' interests in learning and to develop their thinking and computing abilities.

S0415 Instrumental Analysis (0/2): Prerequisite: Analytical Chemistry, Organic Chemistry, Physical Chemistry. This course offers an introduction to the principles of spectroscopic, electrometric, and chromatographic methods of analysis. After taking this course, students should understand methods of sample treatment and preparation, data analysis, various components of instruments, theories and applications of various instrumental methods of analysis.

S0960 Introduction to Biotechnology (3/0): The course presents an introduction to the historical background aspects of biotechnology. The points of our discussion include food, human health, and environmental problems.

T0136 Research Seminar (1/1): Prerequisite: Restricted to chemical engineering seniors.

Master's Program

E0459 Advanced Transport Phenomena (0/3): The contents of this course contain the fundamentals of momentum, heat and mass transfer, and the course instruction focuses on the development of a mathematical model to the analysis of an engineering system.

E1235 Advanced Chemical Engineering Thermodynamics (3/0): Thermodynamic properties of pure

materials and mixtures; criteria of equilibrium for homogeneous and heterogeneous systems; correlation and estimation of properties, consistency testing and availability analysis of chemical processes.

E1248 Advanced Chemical Reaction Engineering (3/0): Analysis of unsteady state reactors, multiphase reactors, non-ideal reactors, stability and sensitivity, non-elementary reactions, and special topics of current interest.

E1363 Principles of Polymer Processing (3/0): The purpose of this course is to provide the basic background needed by polymer engineers to (1) determine experimentally and interpret the rheological behavior of polymer melts and (2) apply it to analyze flow in processing operations.

E1517 Membrane Separation Processes (0/3): The topics of this course include introduction to the fundamentals of membrane and membrane separation process, membrane materials and the preparation techniques, measurements of membrane characteristics, transport mechanisms in membranes, driving forces of membrane process, polarization phenomena and membrane fouling and the applications of membrane process.

E1606 Ceramic Microstructure Processing (3/0): This course shows the effects of microstructures on the properties of advanced ceramic materials and discusses the methods of ceramic processing and their effects on the characteristics of ceramic products. Also, the application and importance of the materials phase diagrams on the ceramic processing is discussed.

E1786 Advanced Ceramic Powder Synthesis (3/0): Traditional and unconventional techniques for advanced ceramic powder synthesis are the main focus of this course. The effects of characteristics of the ceramic powder on the performance of final products are also discussed.

E1817 Advanced Process Analysis and Simulation (3/0): The objectives of this course are twofold. First, it is an introduction to the principles of model building and skills needed for the application of mathematical models. Secondly, numerical analysis for solving system equations of mathematical models in science and engineering will be introduced.

E1932 Advanced Polymer Chemistry (0/3): Mechanisms of step-growth polymerization and chain polymerization are expanded in detail. Molecular weight, physical properties, and chemical modification of polymer are discussed.

E2128 Process Integration (0/3): This course introduces the concept and methodologies for process heat integration, water integration and waste minimization. Pinch design methods as well as other systematic methods are also taught.

E2514 Materials Structure and Properties (3/0): This discipline of materials science and engineering considers the behavior of materials and is concerned with the structure, properties and performance of these materials. Understanding the relationship between properties and structures can allow students to make more effective application of the materials.

E2769 Advanced Polymer Physics (0/3): This course offers detailed discussion on the interrelationships between structure, morphology, and physical and mechanical properties of polymers. Emphasis is placed on discussing the role of configuration and conformation in determining the physical behavior of polymers.

E2770 Advanced Solid-State Physics and Chemistry (0/3): The course is designed for advanced concepts of solid physics and chemistry. Students can apply that knowledge and skills to their future work.

E3034 Special Topics of Material Characterization (3/0): 1. Introduction to analytical techniques of material including spectroscopy (IR, UV), mechanical and physical properties (tensile strength, viscometer), optical and electronic microscope. 2. Practice of preparation of sample from raw materials; practice of chemical, physical and morphological measurements.

E3037 Advanced Electrochemical Engineering (0/3): The field of electrochemistry includes many different phenomena (e.g., electrophoresis and corrosion), devices (electro analytical sensors and

batteries), and technologies (the electroplating of metals and the large-scale production of aluminum and chlorine). In addition to an overview of the basic principles of electrochemistry, the main emphasis here is on the application of electrochemical methods to the study of chemical systems.

E3038 Applications of Computational Fluid Dynamics Software (0/3): This subject shows some examples of engineering problems solved by CFD software FLUENT. Students will learn FLUENT to solve their problems.

E3445 Technical Writing (1/0): This graduate course provides a methodological approach in guiding Chinese students to get a technical manuscript published. Selected papers published in the related fields will be demonstrated and discussed throughout this course.

E3596 Practice and Applications of Chemical Engineering and Technology (0/3): The purpose of this course is to present the core knowledge of chemical and materials engineering necessary to develop and apply technologies. The subjects include literature survey, research plan preparation, experimental system design and experiments, results analyses and writing a technique report.

E3597 Practice and Applications of Materials Engineering and Technology (3/0): This course allows students an opportunity to lay a solid professional background for applied material engineering.

E3630 Special Lectures on Engineering Ethics and Industrial Practice (0/2): The goal of this course is to provide some practical guidelines for students to become chemical and materials engineers. It covers theoretical background, industrial applications, engineering ethics and occupational safety, patent and confidential issues, career potential, and practical training knowledge.

T1555 Seminar I (1/0)

T0993 Seminar II (0/1)

T2795 Seminar III (1/0)

T8000 Thesis (0)

Ph.D. Program

E0091 Solar Energy Engineering (0/3): This course emphasizes solar applications in buildings, industrial process heat, thermal conversion to electrical energy generation, and evaporative processes. This course is aimed entirely at the development of students' ability to present quantitative methods for estimating solar process performance.

E0137 Petroleum Process Engineering (3/0): This course deals with the more traditional topics in chemical engineering. The following topics will be covered: petroleum refining, crude topping, vacuum distillation, catalytic reforming, catalytic cracking, alkylation processes, residue oil conversion, gasoline blending, reformulated gasoline blending, naphtha cracking, derivatives of ethylene/propylene/butadiene, derivatives of aromatics/synthetic gas. Additionally, each individual student should carry out a case study.

E1362 Process Dynamics and Its Applications (0/3): An understanding of the process dynamic behavior is important from both the standpoints of process design and process control. While it is easy to design a chemical process based on steady-state considerations in real-world situations, it might be uncontrollable in the light of dynamics.

E1851 Paper Writing Technique (1/0): The skills for writing technical paper and report are introduced. The key elements include: title, authors, introduction, method, results and discussion, conclusion, references, acknowledgement.

E2311 Physical Properties of Particulate Solids (0/3): Many raw materials and products used in industrial processes, such as ceramic, medical, fine chemicals, material and chemical engineering, are particulate solids. This course introduces the characteristics, physical properties and behavior of systems containing solid particles. The applications in property measurements, fine particle manufacturing, packing of particles, flow through porous media, particle mechanics and rheology of slurries. The

handling of bulk solids is also described and discussed.

E2313 Chemical Engineering Separation Techniques (0/3): Unusual techniques unknown to most chemical engineers are discussed, such as thermal diffusion, zone refining, and membrane extraction.

E2314 Transport Phenomena in Materials Processing (0/3): Phase transformations and interfacial phenomena are typical subjects of interest in material processing. Transport phenomena play certain roles in these processes, which will be discussed in this course.

E2366 Selected Topics in Polymeric Membranes (0/3): The main topics in this course include: thermodynamics of polymer solutions, multi-component diffusion, electron microscopy of membranes, X-ray analysis of membranes, membrane surface modification using plasma polymerization, composite membranes.

E2367 Polymer Morphology (3/0): This course conducts detailed discussion on the important subjects of the form and structure of polymer materials. Emphasis is placed on discussing morphologies of crystallized polymers, liquid crystalline polymers, polymer blends, block copolymers, and morphologies associated with processing. The use of optical, electron and force microscopy to investigate polymer morphology is also discussed.

E2368 Colloid Science and Interface Phenomena (0/3): Colloid science and interface phenomena are very important in many industrial technologies, such as ceramic, medical and many fine chemical and material engineering processes. This course introduces the characteristics and the interface phenomena of colloids. Many applications of colloid and surface science are also described and discussed.

E2369 Advanced Mathematical Methods in Chemical Engineering II (0/3): This graduate course covers the theory, properties, and relations to physical problems of partial differential equations. Emphasis is placed on the importance of correct problem formulation through the use of physical reasoning. An attempt to provide a guide of understanding and appreciation on numerical methods is included.

E2371 Select Topics of Membrane Filtration (3/0): Membrane filtration can be applied to the separation of fine particles and/or molecules ranging from sub-micro to nano scales. In this course, the fundamentals and applications of the membrane filtration processes, including microfiltration, ultrafiltration, nanofiltration and reverse osmosis, will be described.

E2373 Biodegradable Polymers (3/0): This course offers a chance to understand technologies for synthesizing, testing, evaluating, and disposing of biodegradable polymers. In this course, we will discuss structures, properties, and applications of polyglycolide and polylactide, polycaprolactone, poly (hydroxyalkanoates), polyanhydrides, biodegradable hydrogels, gelatinized starch products, cellulose, and protein. In addition, we will discuss degradation mechanisms of biodegradable polymers, test methods and standards for biodegradable plastics.

E2461 Thermodynamics and Kinetics of Polymerization (3/0): In this course, it is assumed that students are already familiar with the concepts and methods of chemical thermodynamics and chemical kinetics. In part I, the basis of thermodynamics of polymerization developed on traditional lines will be considered. Part II presents a brief introduction of the statistical methods employed for analyzing polymerization kinetics phenomena.

E2518 Advanced Separation Techniques in Chemical Engineering (3/0): Unusual techniques not familiar to most chemical engineers are discussed in this course, such as thermal diffusion, zone refining, dialysis, membrane extraction and membrane gas absorption. Separation techniques explored in this course will be of a relatively advanced level.

E2544 Scaling Concepts in Polymer Physics (0/3): A single chain, polymer melts, polymer solutions in good solvents, incompatibility and segregation, polymer gels, dynamics of a single chain, many-chain systems, entanglement effects, calculation methods.

E2834 Special Topic in Membrane Distillation Processes (3/0): A special topic on membrane distillation is a high-purity technique of possibilities. This course will discuss a practical application with

emphasis on process description, key unit operations, plant equipment description, equipment installation, safety and maintenance, process control and plant start-up, operation and troubleshooting.

E2844 Special Topics in Solid State Physics (0/3): Optical aspects of solids, review of semiconductor physics, detectors and generators of electromagnetic radiation.

E2934 Controlled Drug Delivery (0/3): This course covers the following topics: historical perspectives of drug delivery systems; carrier materials for drug delivery; the membrane-based drug delivery system; the mass transfer and modeling of controlled-release devices.

E2979 Characterization and Analysis of Material Properties (3/0): (1) Safety operations in the laboratory; (2) Preparation of polymer membranes and the mechanism of membrane formation; (3) Analysis of surface properties of membranes by ATR-FTIR, contact angle, UV-visibility, N & K; (4) Analysis of mechanical and thermal properties using the Tensile Test, DMA, TGA, DSC; (5) Analysis of structure and micro-morphology by XRD, SEM, POM; (6) Measurement of polymer molecular weight by Viscometer, GPC, SLS.

E3444 Colloid and Surface Phenomena (0/3): The colloidal Science and surface chemistry are studied in this course. Several applications in this field will be discussed.

E3487 Membrane Separation Processes (3/0): This course includes the introduction of fundamental knowledge of membrane and membrane separation processes, membrane filtration and separation principles, membrane fouling analysis and mitigation, and membrane module design, etc. Several special topics for membrane technology and applications, such as membrane methods in water and wastewater treatment, desalination based on membrane processes, membrane methods for biopharmaceutical product purifications, are selected and discussed thoroughly.

E3625 The Technology for Opto-electronic Thin Film (3/0): In comparison with bulk materials, thin films, such as 2-D microscope materials, have quite different properties. Such films are very useful and widely used in optoelectronic industries. This course focuses on the application of thin film materials.

E3626 Advanced Polymer Physics in Solid State (0/3): This course examines the relationship between polymer physics in solids and the chemical properties; glass transitions and melting temperatures; polymer morphology; polymer crystallization kinetics.

E3627 Special Topics on Optically Instrumental Analysis (0/3): This course focuses on the principle and application of optical instruments. We also introduce the development of optical analysis of materials.

E3690 Special Topics on Light-emitting Diodes (3/0): This course focuses on the theory, fabrication, and market trends of light-emitting diodes. Discussion and presentation are emphasized in the classes.

E3692 Advanced Analytical Electrochemistry (3/0): The goal of this course is to introduce advanced electrochemistry theories as well as electroanalytical methods, and their related applications.

T0095 Seminar (1): Guest speakers from other institutions and Ph.D. students of the Chemical Engineering department offer sessions in advanced Chemical Engineering and Material Science subjects.

T0096 Seminar (II) (0/1)

T1002 Seminar (III) (1/0)

T1003 Seminar (IV) (0/1)

T8000 Thesis (0)

DEPARTMENT OF ELECTRICAL AND COMPUTER ENGINEERING

Degrees Offered: B.S., M.S. and Ph.D.

Chairman: Peter Liu (劉寅春)

The Department

Established in 1971 as the Department of Electronics Engineering and renamed in 1992, the Department of Electrical Engineering offers both regular and evening classes for undergraduate students. Graduate programs for Master's and Ph.D. degrees began in 1993 and 1997. A Master's program in Robotics Engineering was established in 2007. Since August 2015, it was renamed as the Department of Electrical and Computer Engineering.

Currently, the Department has **27** full-time faculty members, all with Ph.D. degrees. Specialized research areas include: microwave applications, signal processing, pattern recognition, neuro-fuzzy systems, automatic control and power systems, VLSI design and electrical circuit systems, computer engineering, semiconductor devices and optical fiber communication systems, wireless communication systems, AIOT, next generation communication systems, mobility computation, intelligent control, and non-linear and dynamic controls.

Research facilities include the Wireless and Optical Communication Lab, AMOS Lab, Embedded System Lab, Computational Intelligent and Human Computer Interaction Lab, Intelligent Control Lab, System on a Programmable Chip Lab, Robotic Vision Lab, Advanced System Analysis and Control Integration Lab, Digital Communication Signal Processing Lab, Automatic Control Lab, Microwave and Communication Lab, Parallel Architectures and Networks Lab, Multimedia Lab, Cybernetics Lab, Signal Processing Lab, and Electrical Motor Lab, etc., in addition to basic experimental labs.

A minimum of 128, 30, and 18 credits, respectively, are required for the Bachelor, Master's, and Ph.D. degrees. A thesis is required for both Master's and Ph.D. degrees. The Department is divided into three major categories for academic study; namely, Communication and Microwave Systems, Control Chips and Systems, and VLSI Design and Computer Systems. The MS degree is divided into three major categories; namely, Artificial Intelligence and Internet of Things, System-On-Chip and Control System, VLSI Design and Computer System. For the graduate program of Robotics Engineering, the two major study areas are Intelligent Evolution, and Embedded Systems.

Faculty

Professor Emeritus
Yih-Guang Jan(詹益光)； Fun Yu (余繁)

Professors
Jen-Shiun Chiang (江正雄) ; Chien-Ching Chiu (丘建青) ; Po-Jen Chuang (莊博任) ;
Yang-Han Lee (李揚漢) ; Ching-Lieh Li (李慶烈) ; Ching-Chang Wong (翁慶昌) ;
Wei-Tsong Lee (李維聰) ; Chun-Fei Hsu (許駿飛) ; Jin-Yuan Liu (劉金源) ; Chi-Yi Tsai (蔡奇謚) ;
Yung-Shan Chou (周永山) ; Peter Liu (劉寅春) ; Horng-Yuan Shih (施鴻源)；
Wei-Bin Yang (楊維斌)；Chun-Nan Chen (陳俊男)

Associate Professors
Jiann-Chyi Rau (饒建奇) ; Chun-Liang Yang (楊淳良) ; Chi-Hsiao Yih (易志孝) ;
Hsin-Wen Wei (衛信文) ; Shih-An Li (李世安) ;Kelvin Lee (李光啟) ; Yu-Jen Chi (紀俞任)；
Jhen-Young Hong (洪振湧)

Assistant Professors
Chih-Cheng Liu (劉智誠); Shu-Han Liao (廖書漢); Hsin-Liang Chen(陳信良);
Cheng-Chang Ho(何政昌)

Degree Requirements

1. Requirements for a Bachelor of Science degree in Electrical and Computer Engineering:
   Completion of 128 credits of courses, including 97 credits of required courses (including 26 credits of General Education), 15 credits of elective professional courses, and 16 credits of free elective courses.

2. Requirements for a Master's degree in Science:
   Completion of 30 credits of courses studies, including 6 credits from the following compulsory courses: Technical Paper Written and Presentation, Electrical Teaching and Training, Introduction to Intellectual Properties. Students are required to publish at least one technical paper in any major conference or journal, complete a Master's thesis, and pass an oral examination under the supervision of a faculty member.

3. Requirements for a Ph.D. degree in Science:
   Completion of 18 credits of courses. Students are required to pass a qualifying examination in the first two years of being accepted into the Ph.D. program, publish at least one technical paper in any journal listed in the Science Citation Index (SCI), complete a doctoral dissertation, and pass an oral examination under the supervision of a faculty member.

Course Descriptions

Undergraduate Courses

A1927 Digital Images Processing (2/0): Digital image processing has become one of the most popular courses in computer science and electrical engineering. The techniques of digital image processing have been rapidly developing and have been widely adopted in numerous applications. This course will introduce the mathematical foundations and practical techniques for digital manipulation of images. Students will learn spatial and frequency image processing, segmentation, wavelet processing, color image processing, and compression.

E0034 Engineering Mathematics (3/3): Topics include: (1) Ordinary differential equations of the first order, (2) linear ordinary differential equations of the second order, (3) Laplace transforms, (4) series solution of ordinary differential equations, and special functions, (5) higher order ordinary differential equations, (6) matrix analysis, (7) vector analysis, (8) Fourier series and integrals, Fourier transforms, (9) partial differential equations, (10) complex variables, (11) transforms, and (12) digital signals and differential equations.

E0122 Semiconductor Devices (0/2): Semiconductor devices are the key building blocks of modern-day electronics, including ultra-large-scale integration circuits. This course gives a general introduction to semiconductor devices, including PN junction diode, bipolar transistor, JFET and MESFET, and MOSFET. The course is designed for junior undergraduate students who have already taken a course in fundamental semiconductor physics or its equivalent.

E0175 Operating Systems (3/0): The course Operating Systems is designed for managing system resources, such as CPU, memory, and storage. This course will introduce the basic concept of operating systems, including system structures, process concept, process scheduling and management, process synchronization, memory management, etc.

E0334 Computer Organization (2/0): Introduction and historical development of computer classification, stratified analysis the real mode of operation of computer systems, and a description of how a computer performs the process of programs and instruction.

E0479 Control Systems (3/0): Introduction to the analysis and design of control systems from the time-domain and frequency-domain approaches.

E0531 Communication Systems (3/0): In the design of a communication system, the system designer works with mathematical models that statistically characterize the signal distortion encountered by physical channels. In this course, we first introduce the fundamental ideas of analog signal and system

in time domain, and then through Fourier series and transforms we study signals in the frequency domain. With this principle, we are able to get more insight to the characteristics of channels and learn how various modulation technologies work for a particular channel.

E0632 Introduction to Microprocessors (0/3): This course offers a study of software and hardware architectures of the ARM processors, including memory systems, interrupts and exceptions, fault handling, memory-mapped peripherals, and floating-point data processing. Prerequisite: ARM Assembly Language Programming.

E0650 Data Structures (3/0): This course offers a study of data structures, including stacks, recursion, queues, lists, trees, sorting, searching, and graphs. Prerequisite: Introduction to Computers and C Language Programming.

E0688 Electronics I (0/3): To let students have basic knowledge of electronics, and understand the properties of electrical elements. Furthermore, to train students can have the abilities of analyzing electric circuits and use computer to simulate the properties of electric elements.

E0692 Electrical Engineering Experiment (1/0): This course introduces LEGO MINDSTORMS NXT hardware and software so that students can learn various aspects of a robot. By using LEGO block, motor, and sensors, students will be able to understand kinematics, mechanical design, programming, sensor applications, and motor control.

E0710 Computer Aided Design (2/0): Using CAD software to analyze and simulate electric circuits

E0721 Electric Circuit Experiment (1/1): This course covers digital and analog circuit theory and allows students to use software tools and hardware instruments to measure circuits.

E0722 Circuit Theory (3/2): Electric circuit analysis and solutions to circuits in time, phasor, and frequency domain in conjunction with computer-aided analysis.

E0738 Practical Electronics (0/3): This course includes design of systems and circuits of wireline and wireless transmission systems. Students can better find related research and jobs after taking this course.

E0760 Digital Systems Design (0/2): Following from previous courses on logic design, this course introduces principles and hardware, digital computer designs and microprocessor-based logic systems.

E0762 Digital Signal Processing (0/3): Digital signal processing and digital filter design, including the discrete-time filters and discrete signal processing.

E0766 Digital Communication System (0/3): This course **(**1) how communication systems work, (2) the effect of noise, and (3) wire and wireless communication system.

E0767 Numerical Analysis (0/2): The current course introduces applications of numerical methods for engineers and scientists. Using the program Matlab, the learner can understand how to solve problems of engineering applications for computers.

E0836 Introduction to VLSI (3/0): The current course introduces design principles and methodologies of Very Large-Scale Integrated Circuits (VLSI).

E0902 Logic Design (2/0): Introduction to number systems and conversion, Boolean algebra, algebraic simplification, applications of Boolean algebra, Karnaugh maps, Quine-McCluskey method, multi-level gate networks NAND and NOR gates, and multiple-output networks.

E0933 Assembly Language (2/0): This course covers the introduction of the Assembly Language for Intel-based Computers (x86 Processors).It can help students get familiar with the syntax and operations of the assembly language (the low-level language), gain the ability to write the assembly language programs for various purposes, and meanwhile attain a background study of the organization and architectures of Intel processor systems so as to lay a foundation for future utilization of various processor systems.

E0961 Electronics (3/3): Electronics is devoted to the study of electronic devices and basic circuits. It starts with a concise introduction to semiconductors and PN junction. Then the bipolar junction transistor (BJT) and the MOS transistors are introduced. Electronics II starts with the study of digital electronics. Both MOS digital circuit and bipolar digital are covered. We then go on to study the differential amplifier, in both bipolar and MOSFET forms. Electronics III deals with more advanced topics in amplifier design.

A2273 Computer Programming (I) (2/0): This course offers an introduction to computer science. We start from the binary system. The main hardware components of computer systems such as CPU, Memory, and I/O devices are described. Next, the software system and the programming language VB and C/C++ are introduced. In the programming languages, we focus on the modern programming methods: structured, modularized, object oriented and visualized. Techniques such as conditional statement, loop statement, and structure/classes are illustrated in this course.

A2274 Computer Programming (II) (0/2): Learn how to write programs using Visual C++.

E1060 Computer-Aided Simulation (0/3): Using CAD software to analyze and simulate electric circuits.

E1120 C language (0/3): Learn how to write programs using Visual C/C++ associated with the OOP concepts.

E1121 Probability (3/0): The purpose of this course is to introduce the fundamental theory of probability. It can be used to model random signals in the related areas of electrical engineering, and characterize their behavior as they traverse through deterministic systems disturbed by background noise and interference signals.

E1200 Fuzzy Theory (0/3): This course introduces the theory and relative applications of fuzzy systems. The main topics include fuzzy set, fuzzy relation, fuzzy logic, fuzzy inference, and fuzzy system, and fuzzy control.

E1285 Signals and Systems (0/3): The objective of this course is to present the technologies of analyzing linear systems. Primary emphasis is placed on Fourier transform, Laplace transform and Z-transform.

E1562 Basic Electric Experiments (1/1): Students will learn to operate APP Inventor to design basic Android APP. Students will learn how to operate Android SDK and basic APK design and compiler.

E1563 I/O Interface Experiments (1/0): This course will introduce design of 8051 and explains the embedded system development process action plan. At first, we will introduce the key techniques of 8051, then we will introduce how to use a device programmer. We will also use the code generation tool and simulator. We will use explanation, discussion, actual operation, and thinking models of the leadership to strengthen students' logic analysis and creative ability.

E1565 Microprocessor Experiments (1/0): This course will introduce design and explain the embedded system development process action plan. At first, we will introduce the key techniques of FPGA and VHDL, then we will introduce how to use device programmer for downloading the final codes into memory. We will also use code generation tool, simulator, and IDE, hardware testing tools. We will use explanation, discussion, actual operation, and thinking models of the leadership to strengthen students' logic analysis and creative ability.

E1568 Electronic Experiments (1/0): This course will teach the students to be familiar with the syntax of the Verilog HDL. It will further teach the students to understand the design methods and procedures of the IC cell-based design.

E1868 Wireless Communication Networks (0/2): This course introduces the concepts of the wireless communication networks, the basic operations of network transmission, and other related issues as well as their current solutions. After this course, students will attain a strong professional background for possible future study in this field.

E2022 Control of Electrical Machines (0/3): This course introduces the fundamental theorem and analysis methodology for digital control systems. Students may learn the basic capability to apply the

digital control technology to engineering applications.

E2067 Control System Design (0/2): Modelling, design, numerical simulation verification, and controller design methods, examples.

E2135 Introduction to Mobile Communication System (2/0): This course will introduce the fundamentals of wireless and mobile systems. The topics cover cellular system infrastructure, mobile radio propagation, channel coding and allocation, existing wireless systems, and so on. Students will have a basic knowledge of mobile systems.

E2162 Introduction to Computer Networks (0/2): This course will introduce the basic knowledge of a computer network, including the OSI model, TCP/IP, ARP/ RARP/ICMP protocols, routing, and other related topics. Through this course, students will have a basic understanding of the network and have related skills.

E2344 Embedded Systems (0/3): In this course, we introduce the structure of embedded systems and programing. To improve their programming ability, students need to finish their program project each week.

E2357 Hardware Description Language (0/2): Introduction of HDL and High-Level IC design and verification methods.

E2556 Computer Firmware Design Lab (0/1): The current course uses C programming language to implement various algorithms. Then the C source code is used with related knowledge.

E2643 Introduction of Wireless Network System (3/0): With the rapid development of wireless network technologies, people can access the network via using various techniques. Therefore, this course will introduce the various wireless communication techniques including wireless local area network, Bluetooth, wireless sensor network, wireless ad hoc network, and so on.

E2670 FPGA System and SOPC Design (3/0): This course introduces hardware and software designing. It explains the embedded system development process action plan. Key techniques of FPGA and SOPC are first introduced. Then we will introduce how to use the device programmer for downloading the finalized codes into memory, use code generation tools, simulator, and IDE. Use of Hardware testing tools is also studied.

E2683 Introduction to Fiber Optics (2/0): This course introduces fundamental knowledge of fiber optics, fiber-optic components, fiber-optic communications, and the development and future of optical fiber communication technology.

E2705 Introduction to Robotics (2/0): The main purpose of this course is to let the students learn the architecture, theory, application and future development of various robots.

E2964 Introduction to Digital Communication and Networks (0/2): This course teaches students to learn Theory of Communication, Signal Coding and TCP/IP Protocol.

E2965 Applied Specific Integrated Circuit Design (0/2): The current course introduces design principles and methodologies of the Application-Specific Integrated Circuits (ASIC).

E3073 Fiber-Optic Transmission Practices (0/2): This course presents the fundamentals of several subjects on which fiber-optic technology is based. These include fibers, optics, communications, fiber optic communications, and, finally, fiber optic test and measurement. In addition, there is a hands-on section: instrument operation.

E3091 Robotic Experiments (1/1): This course introduces hardware and software design. Action plans for embedded systems development are explained. The key techniques of FPGA and SOPC are first introduced, and then the device programmer for downloading the final codes into memory is examined. A code generation tool, simulator, and IDE are introduced, and hardware testing tools will also be studied. Finally, a Verilog hardware circuit to receive sensor signals and control motor will be explained.

E3121 Introduction to Electrical Engineering (2/0): This course introduces the key areas of electrical engineering; helping freshmen recognize the discipline of electrical engineering; and its origins from the application of electric energy and/or the related messages/information carried. Generally, these applications involve the research and application of electricity, electronics and electromagnetism. The course will cover initial knowledge, summarized principles and formulas within these areas, as well as the tools and resources needed to perform analysis and design.

E3122 FPGA Development Platform Introduction (0/2): This course will introduce digital circuit design for the FPGA chip and the operating method of the synthesis tool. The course introduces the FPGA chip and explains how to operate the Quartus II software. After this, the syntax of Verilog HDL will be discussed. The course uses discussion, actual operation, and leadership to strengthen students' logic analysis and creative ability.

E3128 RF Circuit Design (0/2): In contrast to basic analysis and design of low-frequency electronic circuits, this course is concentrates on high frequency/RF electronic circuits. In particular, analysis of RF circuits is rooted in the concept of voltage wave propagation. This course together with Circuitry provides comprehensive electronic circuit design principles.

E3228 Protocols for Mobile Communications (2/0): Introduction mobile communication networks, including the media access control layer, physical layer, and related specifications Agreement on technology, such as Bluetooth, Zigbee, Wi-Fi and LTE.

E3413 FPGA-Development Platform Laboratory (0/1): This course introduces digital circuit design and the operating of the synthesis tool for FPGA chip. FPGA chip, Quartus II software and Verilog HDL will be discussed. The goal is to increase student's logic analysis ability and creativity through hands-on practice.

E3516 Fundamental Communication Laboratory (0/1): This course will teach students how to use MATLAB/SIMULINK and software-defined-radio development board to realize various analog and digital communication systems.

E3535 Engineering Project Management (0/3): This course provides students with a basic exposure to the tasks and challenges facing today's projects and in particular, those of the project manager. Students are required to manage globally distributed teams while adhering to scope, budget, time constraints, all while balancing project risks and rigorous quality demands. The course provides students with the tools and all of the important behavioral skills to systematically manage projects for profit and non-profit organizations.

E3579 Advanced Communication Laboratory (1/0): This course is a lab-oriented introductory course on optical fiber communication, wireless communication, and wireless control for fourth-year undergraduate students. This course comprises three parts: 1. Basic theory of optical fiber communication, and Ethernet over plastic optical fiber. 2. Applications in wireless communication: some wireless communication and wireless control projects. 3. Microwave components: understand basic theory of passive microwave components and learn how to measure these components using vector network analyzer.

E3634 Basic Engineering Mathematics (0/1): Integrals; Applications of integration; Inverse functions, Exponential functions; Logarithmic functions; integrals solving skills; infinite sequences and series; partial derivatives; multiple integrals.

E3651 Circuit Theory (I) (0/3): This course covers the operation of passive components and active components for electronic circuits, circuit calculations and circuit analysis. After learning this course, you will have the basic ability of circuit calculation, design and analysis.

E3665 Special Topics in Electrical & Computer Engineering Laboratory (0/1): This course will help students get familiar with basic networking operations and the practice of SDN (Software-Defined Networking), and complete the further study/research on related topics of SDN.

E3665 Special Topics in Electrical & Computer Engineering Laboratory (1/0): This course will introduce the basis of Linux and applications of IoT, which includes Raspberry Pi, Python, GCP and so

on.

E3683 Creative Thinking (0/2): This course will help students generate new ideas and bring them to life as a product or service. This approach to problem solving can be applied to any real-world challenge.

E3744 Industry Internet of Things (IOT) (0/2): This course will plan the introduction and development of the Industrial Internet of the Things (IIoT). IIoT will introduce its perception layer, network layer and application layer, in order to understand the application of IIoT.

E3867 Leadership Development for Enterprise Business (2/0): To develop needed business knowledge and skills so as to enable each Electrical-Engineering-majored college graduate prominently have favorable competitive edges gained for doing a better job at every position undertaking during their entire business career. Thus, consequently this course is aimed to allow a learner to better equip practical and useful business knowledge and skills so as to become an effective and successful business professional someday soon that will be more capable of leading and managing an enterprise successfully.

E4083 Development Practice of IOT (3/0): At the beginning of this course, the visual programming language editor Blockly Duino is used to generate Arduino programs to learn the functions of sensors. The purpose is to allow students to quickly design applications through the editor. And students can learn the program flow through the generated Arduino program. Then the Arduino program is used to learn design of the application including WiFi connection, Bluetooth setting and connection, cloud service docking, and peripheral hardware control. So that students can learn the concept of Internet of Things (IoT) by way of implementation.

E4084 Development Practice of Cloud Service (0/3): This course aims to provide basic concepts of cloud computing, innovation models, and its applications. Students can understand and practice the principles of cloud computing, IoT, big data, and the related applications. Moreover, the course introduces the definition and essential characteristics of cloud computing, its history, and the business case.

E4085 Design and Development Practice of Robots (0/3): This course will teach students to learn the mechanism principle, mechanism design and control program of robots. Let students understand the basic operation of Arduino, and provide a series of basic practical examples to make a robot which has several functions such as movement, remote, collision avoidance and line-following tracking. Meanwhile, focus on understanding the related technologies and applications of robot applications. Finally, a team of 2~3 people will work together to complete a robot-related topic, and the prototype work must be produced before the end of the semester.

E4138 Computer Programing and Applications (2/0): In this course, we introduce the structure of embedded system and the programing. To improve the programing ability, the students need finish their program project in each week.

E4037 Artificial Intelligence Practice (2/0): This course will introduce deep learning related models, techniques and tools. Students will have a better understanding of machine learning models and the ability to develop AI applications through hands-on practice.

F1237 Apprentice Program (0/9): This course is for summer internship program.

S0058 Physics of Semiconductors (3/0): Solid state is the foundation of modern material science and semiconductor electronics. The course is designed to familiarize students with fundamental principles of solids such as crystal structure, thermal properties, band theory, electronic properties, optical properties, etc.

S0290 General Physics (2/2): This course introduces the basic concepts of natural forces and the laws of motion. By understanding these basic laws, students will be able to analyze and solve practical physical problems.

S0325 Calculus (3/0): This course will introduce the continuity, differentiation and integration of single and double variables functions. The convergence of infinite series will also be introduced.

S0337 Electromagnetic Waves (3/0): This course discusses Maxwell's equations, propagation of electromagnetic waves, transmission line equations, characteristics of transmission lines, reflection and transmission coefficients, standing wave ratios, Smith charts, impedance matching, microstrip line and digital transmission lines, rectangular waveguides, TE and TM modes, circular waveguides, resonators, optical and dielectric waveguides, parameters and characteristics of antennas, dipole and slot antennas, broad band and array antennas.

S0338 Electromagnetics I (0/3): This course concerns vector analysis, Coulomb's law, Gauss' law, static fields in conditions and dielectrics, polarization, boundary conditions, capacitance calculation, static electric energy and force, Poison and Laplace's equations, methods of images, boundary value problems, steady current and Ohm's law, resistivity calculation, Biot-Savart's law, Ampere's circuits, magnetic dipoles, magnetization, magnetic circuits, boundary conditions inductance calculation, static magnetic energy and force.

S0338 Electromagnetics II (3/0): This course discusses Faraday's law, electromagnetic induction, Maxwell's equations, electric and magnetic potentials in time-varying fields, boundary conditions, wave equation and its solution, propagation of uniform plane waves in different media, time-harmonic fields, Doppler effect, propagation of electromagnetic energy, Poynting's theorem, normal and oblique incidences on different interfaces, parallel and perpendicular polarizations.

S0439 Linear Algebra (3/0): This course looks at the fundamentals of linear algebra, such as systems of linear equations and matrices, determinants, vector space, inner product spaces, eigenvalues, eigenvectors, and linear transformations.

E4159 Electromagnetic Compatibility Practice (3/0): This course aims to enable students to understand the electromagnetic interference phenomena encountered in actual product design, understand the types, sources, analysis methods, and countermeasures of electromagnetic interference. And understand the regulatory requirements and test methods, projects, etc., so that students can acquire more concepts when designing high-speed electronic circuits and wireless communication devices.

Master's Program in Electrical Engineering

E0628 Microwave Engineering (3/0): The course objective is to let the students understand how an electric circuit behaves when its physical size is the same order of magnitude as the wavelength of excitation. The course helps understand how electromagnetic waves in the microwave regime can be guided through well-defined modes and how coupling, matching and filtering operations etc., become key to efficient microwave systems. The probable topics include: transmission line theory; network analysis; impedance matching techniques; design of resonators, couplers, and filters; diodes; mixers; and microwave amplifiers.

E1390 Analog Integrated Circuits Design (3/0): The basic principles, design, and analysis of analog integrated circuits is taught in this course. Students have the ability to design and analyze analog integrated circuits after learning this course and can then explore related research and employment.

E1391 Electromagnetic Theory (3/0): Topics covered by this course include: Generalized Maxwell's Equation, EM boundary value problem, Green's function, Eigen function expansion technique, Conservation of EM energy, EM radiation from simple sources, general EM field, Hertzian potentials, Dyadic Green functions.

E1490 Technical Writing (2/0): This course helps students understand the differences between technical writing and normal daily writing with an emphasis on how to find, read, summarize and write technical documents in a professional manner.

E1957 Antenna Engineering (3/0): The objective of this course is to enable students to understand the mechanism of radiation, and the basic principles, parameters, and terms of antennas. After completing the course, the students should be able to use them to appreciate the utility of different types of antennas.

E2330 Power Electronics (3/0): This objective of course is power electronics. Course content is designed to enable students to understand the application architecture and IC design of the power supply, as well as a dedicated power supply control and AC motor drivers. The curriculum content is for the

purpose of making the student to understand: (1) The electric power electron elementary theory. (2) Each kind of electric power electronic component basic principle of works. (3) Each kind of electric power electronic DC-to-DC basic converters principle of works and behavior characteristic parameter computational methods.

E2590 VLSI Testing and Design for Testability (0/3): The goal of this course is to present a comprehensive guide to new DFT techniques, showing students how to design a testable and quality product, drive down test costs, improve product quality and yield, and speed up time-to-market and test-to-volume.

E2740 Mobile Broadband Network (3/0): The goal of this course is to introduce mobile, broadband and satellite communication systems.

E2807 Introduction to High Technology Patents (0/1): In this course, students learn the meaning and use of patents, patent applications, and statutory limits. Understanding is accomplished through simulation and practical writing, thus helping students better understand the importance of patents obtained and how to protect the key technologies and creativity in the future.

E3260 Principles and Applications of Optical Sensing (3/0): This course shows how light waves achieve the goal of optical sensing. Optical sensors work in a variety of ways, sometimes just using optical fibers or free space to deliver light, other times monitoring changes induced in light transmission caused by external effects. Optical sensors can measure pressure or temperature, serve as gyroscopes to measure direction and rotation, sense acoustic waves at the bottom of the sea, and do many other tasks.

E3402 The Design of Human Computer Interface (3/0): The current course first introduces the basic concept of human computer interface and the related techniques, including image processing, Kinect, pattern recognition techniques. The course also teaches how to design HCI projects by using Kinect, 3D printers, laser cutting machine.

E3457 Technologies and Applications of Internet of Things (0/3): The main goal of this course is to introduce the basic concepts and technologies in Internet of Things (IoT). Techniques of IoT in sensor layer, network layer, application layer, and so on will be included in this course. Students will have a comprehensive understanding of applications in IoT through the discussion and paper reading.

E3490 Optimization Techniques in the Design of 5th Generation Mobile Networks (0/3): This course introduces the Fourth-Generation Mobile Communication SPEC and relative information, and introduces optimization techniques involved with Fifth-Generation Mobile Communication's possible future.

E3494 Antenna Principles and Engineering Applications (3/0): This course helps students to become familiar with the antenna radiation mechanism, the formulas and the basic characteristics; and to learn the working principles of conventional linear antennas and the antenna arrays, the structure of the planar antennas, and the slot antennas. In addition to design techniques of the dual-band, multi-band and wideband antennas will be presented. Finally, there are various cases involving the engineering application of different antennas.

E3535 Engineering Project Management (3/0): This course provides students with a basic exposure to the tasks and challenges facing today's projects and in particular, those of the project manager. Students are asked to imagine managing globally distributed teams while adhering to scope, budget, time constraints while balancing project risks and rigorous quality demands. This course will provide students with the tools and behavioral skills to systematically manage projects for profit and non-profit organizations.

E3618 Mobile Programing and Mobile Learning Design (3/0): In this course, we introduce the development platforms of Window Mobile, iPhone and Android. In addition, mobile-phone programming and related research are also studied in this course.

E3619 Model-based Communication IC Design (3/0): Seamless realization from conceptual wireless communication algorithm to practical integrated circuit (IC) implementation are important subjects. Matlab/Simulink recently incorporates HDL-coder to ease and expedite the design flow for module-

based communication IC design. In this course, students will learn how to construct communication systems in simulink and convert them into RTL codes via HDL-coder automatically. The generated RTL codes will be prototyping in Zedboard FPGA hardware for state-of-the-art architecture explorations.

E3668 Principles and Applications of Sonar Systems (0/3): Sound/acoustic waves suffer less attenuation than electromagnetic waves in water, and thus become an effective means in underwater communication. Such waves are necessary for long-range propagation. Devices that use sound for navigation and ranging are referred to as sonar. This course introduces the principles and applications of a sonar operation, and analyzes sonar parameters in the sonar equation. A side scan is used to show sonar design, operation, and images. The course serves as a cornerstone for underwater system analysis, which may be applied to sonar design in submarines or surface ships.

E3670 Deep Learning (3/0): This course will provide a hands-on introduction to neural networks and deep learning. Topics covered will include linear classifiers, multi-layer perceptions, optimization methods, convolutional neural networks, recurrent neural networks, auto encoder and generative models

E3797 Invited Lectures on Electrical and Computer Engineering (2/0): This course will invite professional scholars in the related areas of electrical engineer to give a speech for the graduate students that focuses on an advanced research or industrial topic. It also provides graduate students who are going to defend their thesis a platform and gives a chance to prompt the research experience exchange and fully discuss with each other.

E3864 Planar Antennas and Their Application for 5G Communications (0/3): This course is to let the students learn the principles of radiation, formulas and basic properties of planar antennas. A variety of planar antenna structures will be introduced, which include rectangular and circular patch antenna. The students will also be made familiar with the characteristics of various antennas used in a variety of mobile devices operated under different protocols, such as GSM 900, DCS 1800,3 G, Bluetooth, WiFi/WLAN antenna, GPS antenna, etc. Finally, the students are asked to go through the antenna sample fabrication by use of laboratory equipment and supplies.

E3865 Introduction of Deep Learning for Artificial Intelligence (0/3): Introduce and discussion the artificial intelligence, and introduce the deep learning future. An introduction to the basic architecture of deep learning neural networks for artificial intelligence, such as convolutional neural networks, recurrent neural networks, reinforcement learning, and generative adversarial networks. For the understanding and development trend of various important neural network applications, analyze the market situation of artificial intelligence industry technology, as well as mainstream applications and future prospects.

E3868 Internet of Things Platforms (0/3): This course will introduce the power of Raspberry Pi and Python to create exciting IoT Projects. The students require just elementary knowledge of computers, programming, and Raspberry Pi. This course teaches the students to resolve the most challenging part that is interfacing hardware with software and sending data to cloud for visualization and analysis with the hands-on DIY projects. In the end, students will be able to build state-of-the-art solutions for IoT.

E3913 Introduction to Sensors and Internet of Things (0/3): This course introduces the relevant knowledge required to build IOT. In the part of the application layer, several services and applications brought by the IoT will be introduced. In the part of network layer, various kinds of wireless interfaces will be introduced, enabling students to understand the differences in frequency, distance, and power consumption of each technology. In the part of perception layer, sensors and technologies used for data collection and data acquisition will be introduced. This course will make students have more ideas on the application of IoT.

E3936 5G Communication System Enabling Technology (0/3): To foster students with the fundamentals of the 5G NR physical layer (waveform, modulation, channel and multi-antenna schemes).

E3989 Applications of AI in The Internet of Things (3/0): This course will introduce the various application categories of the Internet of Things and the critical role of adding a layer of Platform Layer with intelligent features. Utilizing artificial intelligence machine learning and big data provides users with services that meet or exceed expectations, so users have a better experience.

E4072 Iterative Learning Control (3/0): This course introduces the fundamental concepts and algorithms of iterative learning control. Simulation using Matlab/Simulink will be conducted in class.

E4073 Data-Driven Sensing and Decision Making: The course introduces fundamental concepts of probability, statistical methods and computer programming strategies to perform data analyses and develop mathematical models for engineering applications.

E4073 Data-Driven Sensing and Decision Making: Data-Driven Sensing and Decision Making This course introduces the fundamental concepts and algorithms of data-driven sensing and decision making. Simulation using Matlab/Simulink will be conducted in class.

E4098 Opto Semiconductors and Information Communication Concepts: With the large requirements of development of IoT, AI and cloud storage, the high-speed demand for large data centers such as GOOGLE and MICROSOFT is becoming more and more important. The transmission of data requires with fast and large quantities, and the optical interconnect technology with high broadband becomes the most important foundation. This course introduces related important technologies such as semiconductor components and processes, laser principles, communication principles, signal processing and electromagnetic simulation, etc.

E4128 Robust Decentralized Iterative Learning Control (3/0): Iterative learning control (ILC) is a data-based control technique that executes the same task multiple times. It is model-free, which computes new control inputs based on the present and the data in the previous trials (or iterations). In this course, both model-based and model-free control design methods are studied. First, some background control knowledges are reviewed. The topic system identification (a procedure from data to systems) and a few model-based controls are presented. For comparison purpose, he same control problems are considered using ILC and some recently developed data-driven control designs. Simulations will be conducted in class to numerically verify the effectiveness of the design methods.

E4147 Smart Home Healthcare Technology (0/3): This course introduces the intelligent home healthcare technology in the current application, business opportunities, and prospects, including Internet of Things technology, artificial intelligence technology, personal and wearable devices, and intelligent mobile health devices.

E4149 Practical Applications of Internet of Things (0/3): This course mainly introduces the relevant technologies and its practical applications of the Internet of Things. The key points of the teaching are briefly described as follows: (1) Introduction to the Internet of Things, (2) The application of the Internet of Things, (3) Introduction to the perception layer, network layer, and application layer of the Internet of Things, (4) introduction to various sensors, (5) Wireless transmission technology of the Internet of Things, such as Bluetooth, WiFi, LoRa, NB-IoT, etc. (6) Thematic practice and case analysis of the Internet of Things.

M0423 Machine Learning (2/0): This course introduces the basic concepts of machine learning and statistical learning. Topics include: supervised learning, unsupervised learning, reinforcement learning, and the related applications.

T1196 Scholastic Paper Study (0/1): This course will invite professional scholars in the related areas of electrical engineering to give a speech for the graduate students that focus on an advanced research or industrial topic. It also provides the graduate students, who are going to defend their thesis, a presentation platform and further promotes research exchange and full discussion with each other.

E1111 Algorithms (3/0): Based on the courses of basic concepts of computers and data structures, students learn the advanced and more efficient principle of programming to solve more complex problems.

E1503 Theory and Applications of Sensors (3/0): This course includes basic sensor theory, such as signal transformation and also introduces the various basic and advanced sensors with their application and design methodology.

E4129 Data-driven system identification and control (3/0): LMI programming, System identification, Model-based and Data-Driven control (DDC), including stabilization, H2 control design, H-infinity control design.

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Master's Program in Robotics Engineering

E1490 Technical Writing (2/0): This course helps students understand the differences between technical writing and normal daily writing with emphasis on how to find, read, summarize and write technical documents in a professional manner.

E2807 Introduction to High Technology Patents (0/1): In this course students learn about patents, patent applications, and statutory limits. Through simulations and practical writing, students understand the importance of patents obtained and how to protect the key technologies and creativity in the future.

E3128 RF Circuit Design (0/3): This course covers RF system and circuit design, including system-level planning and design considerations related to high-frequency circuit design. After taking this course, you can have the foundation required to engage in related research and work.

E3472 Design and Practice of Intelligent Control (0/3): This course involves the basic theory of intelligent control systems including fuzzy systems and neural networks. The course applies intelligent control systems to control intelligent robots, with a comparison among several intelligent control systems being made. In addition, the course considers the practical applications of intelligent controllers and emphasizes the effectiveness of intelligent control systems.

E3474 Introduction to the Design and Application of Intelligent Electronics (3/0): The current course first introduces the basic concept of intelligent electronics and the related techniques, including IOT, Unity, 3D printing, Arduino, and laser cutting.

E3475 Estimation Theory and Its Practical Applications (0/3): This course introduces the fundamental theories of system parameter and system state estimation methods. Students may learn the basic capability to study the topic of system identification and state estimation.

E3477 Design of Servomotor Control (3/0): The main purpose of this course is to let students better understand motor drivers including stepping motor, DC motor and AC motor, as well as the design of a controllers for motor drivers.

E3478 Application Practice of Robot Manipulators (3/0): This course uses the world-renowned company KUKA robot manipulator as training materials. The course introduces the knowledge and practical aspects of robot applications. The course is divided into three parts, including (1) methods of the robot manipulator and calibration methods, (2) the writing of robot manipulator programs, (3) the dismantling of robot manipulators as exercises. Course objectives are to enable students gain practical experience and obtain a genuine license for the KUKA robot manipulator.

E3497 Design Practice of Robot Manipulator (0/3): The course will introduce how to design robot manipulators. The course is divided into four parts: (1) kinematics of the robot manipulator, (2) SCARA robot design, (3) six-axis robot manipulator design, (4) seven-axis robot manipulator design. Course Objectives is to enable students to have the design and practical experiences of the robot manipulator.

E3498 Visual Sensing Technology and its Practical Applications (3/0): The course introduces the fundamental visual tracking algorithms and their programming methods with OpenCV and MFC libraries. Students acquire the capability to study closely visual tracking.

E3499 Special Topics Practice in Robotics (0/3): This course introduces a variety of robot competition held in Taiwan and the world, and enables students to understand how to design and implement the robot for the competition. Through the introduction of building an actual robot platform environment or designing a robot to enhance the ability of students to design an intelligent robot.

E3535 Engineering Project Management (3/0): This course allows students to understand how to use

project management to improve work efficiency. In addition, it improves students' leadership, communication and coordination skills.

E3797 Invited Lectures on Electrical and Computer Engineering (2/0): This course will invite professional scholars in the related areas of electrical engineering to give a speech for the graduate students that focuses on an advanced research or industrial topic. It also provides graduate students who are going to defense their thesis a platform and provides a chance to prompt the research experience exchange and full discussion with each other.

E4080 Embedded system design for artificial intelligence (3/0): The purpose of this course is to use FPGA chip as an AI embedded system platform, teaching students how to design AI ccelerator and AI software programming in FPGA chip. This course will first introduce the FPGA hardware platform and hardware accelerator design methods. After that, students will learn the joint design method of software and hardware with AI thematic practical design.

E4081 Innovative Robots Design (0/3): A microcontroller is suitable to actual applications that require small size and low-power consumptions. The course introduces the TSTM32 Nucleo board such as GPIO, ADC, PWM, Interrupt and etc. It is important that students must design a robotic platform in real.

E4082 Artificial Intelligence and Robotics (3/0): In this course, students must write program simulations of robotic arms, be familiar with forward kinematics, inverse kinematics, derive system equations. Then students use trajectory planning, motion control, and artificial intelligence related applications to complete the walking planning of biped robot.

E4229 Technologies and Applications of 5G/B5G and Next-Generation Communications(6G) (3/0): The current course introduces the basic concept of 5G technologies, including 5G Technology Drivers, 5G Architecture, Standardization, Mobile Network and Core Network operations, as well as 5G Air Interface and Multi-Access Edge Computing (MEC) in 5G.

T1196 Scholastic Paper Study (0/1): This course will invite second year graduate students and professional scholars of electrical engineering to give a lecture or speech. They will introduce and direct a popular topic, and students will discuss the topic in class.

E3686 Introduction To Computer Netubrk Protocol (3/0): Introduction to Computer Network Protocol.

E4242 Foresighted Smart Home Development And Practices (3/0): The concept of IoT and its applications.

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Ph.D. Program

E1093 Neural Network (0/3): This course introduces the application of neural networks using Neural Network Toolbox 4.0 in MATLAB 6.1. The configuration of neural network includes single-layer, multilayer, radial basis function, self-organized and recurrent neural networks. Various learning algorithms, e.g., back-propagation, 1st order gradient descent, 2nd order gradient descent, are also introduced.

E1185 VLSI Design (0/3): The current course introduces design principles and methodologies of the Very Large Scale Integrated Circuits (VLSI).

E1851 Paper Writing Technique (0/3): This course discusses the technique of writing research papers. Once the target skill areas and means of implementation are defined, the teacher will proceed to focus on what topics can be employed to ensure student participation. By pragmatically combining these objectives, the teacher can expect both enthusiasm and effective learning.

E2386 Fuzzy Systems (3/0): The course discusses the basic theory of fuzzy systems and how to design a fuzzy control system. The final report will involve the practical application of fuzzy controllers where students can understand and apply them to relevant research.

E2882 Ultra-Wideband Communication Systems (0/3): The current course introduces the following: (1) Smart Antenna; (2) Code Division Multiple Access; (3) Orthogonal Frequency Division Multiplexing; (4) Ultra-Wideband; and (5) Multi-Input Multi-Output.

E3030 Introduction to the AI and Gan (Generative Adversarial Network) (3/0): Introduce the application and discussion of artificial intelligence, and introduce the vision of generating anti-network technology. This course will introduce an introduction to neural networks and basic architectures such as artificial intelligence, and compare different understandings and trends of neural networks such as artificial intelligence neural algorithms, as well as mainstream applications and prospects for future courses.

E3917 Introduction to The Ai and GAN (3/0): Introduce the application and discussion of artificial intelligence, and introduce the vision of generating anti-network technology. This course will introduce an introduction to neural networks and basic architectures such as artificial intelligence, and compare different understandings and trends of neural networks such as artificial intelligence neural algorithms, as well as mainstream applications and prospects for future courses.

E4074 Design of Emgedded Hardware Accelerator for Machine Learning (0/3): This course is designed to familiar with the multimedia DE2 board, and learns Verilog hardware description language to design digital circuits. The control methods and architectures of CMOS capture module and LTM display module will be introduced. Finally the basic principles of digital image processing will be introduced and explain that how to make the hardware circuit to process images.

E4093 Introduction to Artificial Intelligence of Things for Digital Transformation (2/0): Introduce the application and discussion of artificial intelligence, and introduce the vision of generating anti-network technology. This course will introduce an introduction to neural networks and basic architectures such as artificial intelligence, and compare different understandings and trends of neural networks such as artificial intelligence neural algorithms, as well as mainstream applications and prospects for future courses.

E4094 Application Practice of Robotics (2/0): The purpose of the course is to let students integrate knowledge learned from different courses to perform practical applications and researches in robotics. Two forms of projects can be selected, make-oriented group project and academic individual research project.

M0837 Network Security (3/0): This course introduces numerous related issues involving network security. The main purpose of the course is to let students understand these problems and issues and consider current possible solutions (establishing a strong professional background for further study).

T0136 Research Seminar (3/0): This course will focus on the application of deep learning algorithms, reinforcement learning algorithms, and deep reinforcement learning algorithms to the object grasping by robot manipulators, and introduce how to effectively search for papers and how to evaluate papers.

E4304 Ntelligent Mixed-Mode Integrated Circuit Design (3/0): This course introduces and discusses mixed-mode circuits, such as ADCs, DACs, PLLs, and Filters. These topics will be addressed, from architectures to detailed circuit techniques. Especially, the calibration schemes for PVT variations will be discussed to improve the accuracy of these circuits. Students could learn and practice one of these topics wi/wo calibration scheme.

T8000 Thesis (0)

DEPARTMENT OF COMPUTER SCIENCE AND INFORMATION ENGINEERING

Degrees Offered: B.S., M.S., Ph.D.

Chairman: Shih-Hsin Chen (陳世興)

The Department

Established in 1969, the Department of Computer Science and Information Engineering is one of the first programs of computer science and engineering established in Taiwan. The department has now 29 full-time faculty members and 40 part-time instructors. The undergraduate program covers all aspects of computer science, information engineering, software applications, and computer theory. With the newly developed technologies in computer networks, multimedia computing, and telecommunication, the department offers elective courses in a number of related areas. In 2024, there were about 1204 students in the Department, along with 126 Master's students and 20 Ph.D. students.

The department offers academic degrees of BS, MS, and PhD in Computer Science and Information Engineering, and an MS degree in Intelligent Computing and Application. The department faculty and students are involved in a wide range of research areas. Several research labs have been established and receive continued support by TKU as well as government agencies, such as the Ministry of Science and Technology of the Republic of China, which provides various research grants.

Research Areas:

- Computer Networks
- Distance Learning Technologies and Standards
- Multimedia Computing
- Software Engineering
- Parallel and Distributed Computing
- Database Systems, Data Mining and Applications
- Artificial Intelligence and Fuzzy Theory
- Computer Graphics and Virtual Reality
- Image Processing, Pattern Recognition and Machine Vision
- Embedded Systems
- Wireless Communication, Mobile Computing, and Sensor Networks
- Information Security and Cryptography
- Bioinformatics
- Web Technology, Electronic Commerce, and others

Internationalization is one of the goals of our department. Starting in 2000, several graduate courses have been conducted in English; while in 2014, a new English master program was instituted. One of the perspectives of our department is to admit international graduate students, with the permission of the Ministry of Education and Tamkang University.

In the past few years, the department faculty have carried out several joint research projects with partners in Hong Kong, Japan, China, Russia, Canada, and other countries. International research is another aspect of the department's activities. Our faculty members constantly travel overseas to share and exchange professional expertise and experiences with researchers from other countries. In the future, we will continue to build up the department's reputation in the international community.

Faculty

Professor Emeritus
Louis R.Y. Chao（趙榮耀）

Professors

Huan-Chao Keh (葛煥昭) ; Chin-Hwa Kuo (郭經華) ; Chih-Yung Chang (張志勇) ;
Ying-Hong Wang (王英宏) ; Kuei-Ping Shih (石貴平) ; Hwei-Jen Lin (林慧珍) ;
Wen-Bing Horng (洪文斌) ; Hui-Huang Hsu (許輝煌) ; Ren-Junn Hwang (黃仁俊) ;
Shwu-Huey Yen (顏淑惠) ; Chien-Chang Chen (陳建彰) ; Chi-Yi Lin (林其誼) ;
Shih-Jung Wu (武士戎)

Associate Professors
Shin-Jia Hwang (黃心嘉) ; Jui-Fa Chen (陳瑞發) ; Yi-Chia Tsai (蔡憶佳) ; Huang-Wen Huang (黃煌文); Feng-Cheng Chang (張峯誠) ; Lin Hui (惠霖) ; Shih-Hsin Chen (陳世興)

Assistant Professors
Cheng-Shian Lin (林承賢)；Meng-Luen Wu (吳孟倫)； Liou Chu (朱留)；Duen-Kai Chen (陳惇凱)；Fu-Yi Hung (洪復一) ；Thi Trang Ho(胡氏妝)；Chen Hsia-Hsiang(陳夏祥)；Chen Chii-Jeii(陳啓禎)；Sheng-Zhi Huang(黃勝志)

Degree Requirements

The Department of Computer Science and Information Engineering offers programs at the undergraduate and graduate levels.

1. Requirements for a degree of Bachelor of Science in Computer Science & Information Engineering:
   Completion of 128 credits of courses, including 87 credits of required courses (including 24 credits of General Education), 11 credits of elective professional courses, and 30 credits of free elective courses.

2. Requirements for a degree of Bachelor of Science in Computer Science & Information Engineering (English Taught Program)
   Completion of 128 credits of courses, including 79 credits of required courses (including 24 credits of General Education), 19 credits of elective professional courses, and 30 credits of free elective courses.

3. Requirements for a degree of Master in Computer Science and Information Engineering:
   Completion of 30 credits of courses, including 8 credits of required courses. Students are also required to submit a written master's thesis completed under the supervision of a faculty member and pass an oral examination.

   Required courses:
   Research Methodology (I) & (II), Computer Algorithms, Formal Language and Automata Theory, Thesis.

4. Requirements for a degree of Master in Computer Science and Information Engineering (English program):
   Completion of 26 credits of courses, including 8 credits of required courses. Students are also required to submit a written master's thesis completed under the supervision of a faculty member and pass an oral examination.

   Required courses:
   Research Methodology (I) & (II), Artificial Intelligence and Machine Learning, Deep Learning, and Thesis.

5. Requirements for a degree of Master in Intelligent Computing and Application:
   Completion of 30 credits of courses, including 8 credits of required courses. Students are also required to submit a written master’s thesis completed under the supervision of a faculty member and pass an oral examination.

   Required courses:
   Research Methodology (I) & (II), Artificial Intelligence, Data Science, and Thesis.

6. Requirements for a Ph.D. degree in Computer Science and Information Engineering:
   Completion of 20 credits of courses, including 4 credits of required courses. Students are required to

pass a qualifying examination within the first three years, publish at least one research paper in any journal listed in Science Citation Index or Engineering Index, submit a written doctoral dissertation completed under the supervision of a faculty member, and pass an oral examination.

Course Descriptions

Undergraduate Courses

Required Courses

E0034 Engineering Mathematics (3/0): This course introduces methods of solving common types of ODE and numerical methods used in approximating equation solutions, functions, integrals, derivatives, and solutions to systems of differential equations.

E0175 Operating Systems (3/0): This course introduces fundamental concepts of operating systems, including computer-system structures, operating-system structures, processes, threads, CPU scheduling, process synchronization, deadlocks, memory management, virtual memory, file systems, I/O systems, and mass-storage structures.

E0334 Computer Organization (0/3): The goal of this course is to introduce the basic architecture and organization of the computer. It includes an overview, data representation and operation, device, processing unit, instruction sets, memory, and I/O systems of the computers.

E0342 Computer Programming (4/4): This course will teach C Language, and it is divided into basic syntax and advanced syntax. The basic syntax includes variable, operators, control flow, loop, function, string, array, etc. The advanced syntax includes pointer, function pointer, generic pointer, struct, enum, etc. Through this course, students can learn how to write and use C Language to solve problems. /The goal of this course is to introduce the object-oriented programming language features, including the following: classes and object, inheritance, polymorphism, function overloading, template, and exception handling.

E0644 Database (0/3): This course deals with the effective management and utilization of data. Topics include: objectives of database management system (DBMS); three-level architecture, data independence; file organization and access methods; relational systems, SQL language, data definition and manipulation, views; relational model theory, relational algebra and calculus; database environments, transactions, concurrence, security and data integrity.

E0651 Data Structure (3/0): This course introduces fundamental concepts of data structure, including basic concept, arrays, stack, queue, list, tree, graph, sorting technology, hash function and search technology.

E0761 Digital Systems (0/3): Fundamental concepts of digital systems design are covered, including registers, counters, memory, programmable logic array, programmable logic array device, combinational logic circuits analysis, combinational logic circuits design, VHDL language, sequential circuits analysis and sequential circuits design.

E1034 Introduction to Computers (3/0): This course provides an overview of computer science, including hardware, such as basic digital logic design and computer organization, and software, such as programming, algorithms, and data structures.

E1039 Introduction of Computer Network (3/0): This is an introductory course to modern day communication technologies. It provides a broad and thorough exploration of a variety of network technology and protocol suites, including wired and wireless networks. Topics to be covered include the design and implementation of computer communication networks, their protocols, and applications.

E1111 Algorithms (0/3): This course addresses the design and analysis of computer algorithms. Although theoretical analysis is emphasized, implementation and evaluation techniques are also covered. Topics include: Big-O notation, sorting, useful data structures, graph algorithms and matrix calculations.

S0439 Linear Algebra (0/3): This course covers Gaussian elimination, determinants, Euclidean and

general vector spaces, basis, dimension, inner product spaces, linear transformations, changes of basis, eigenvalues and eigenvectors, special matrices, singular value decomposition, orthogonality, and least squares solutions.

S0487 Discrete Mathematics (3/0): This course centers on the mathematics most directly applicable to computing. From this course, students can develop maturity in mathematics and improve skills related to problem solving.

T0141 Special Topics Lab （1/1）: This course is designed to allow students to integrate theories and practical applications. Students choose topics they are interested in and discuss and/or do presentations regularly with professors. From this training, they learn how to do research, solve problems, and bring theories into reality.

E3764 Probability and Statistics (0/3): This is an introduction to probability theory and statistics. Topics in probability include discrete and continuous random variables, probability distributions, some well-known random variables and their distributions. Topics in statistics include sample distribution, sample mean and variance, the central limit theorem, point estimation, interval estimation, correlation, and hypothesis testing.

E3765 Open Source Practice (3/0): This course introduces from installing Linux operating system through understanding file system, network configuration, secure server and shell scripting.

E3766 Logic Design Laboratory (0/1): The main goals of this course are (1) teach students using EDA tools to design digital circuits, including simulate the behavior of the designed circuits on computers (2) mapping of a design into PLDs or FPGAs by Quartus II, (3) using hardware description language to design register, counter, simple ALU and arithmetic processor.

E3767 Information System Laboratory (1/1): This course is designed for students to integrate theories and applications. Students choose topics they are interested in, and discuss and/or do presentations regularly with professors. From this training, they learn how to do research, solve problems, and realize theorems into reality. In this semester, this course will focus on training students to have the capabilities to design IoT applications.

E3996 Computer Experiments (1/0)：This course is designed for students to integrate theories and applications. Students choose topics they are interested in, and discuss and/or do presentations regularly with professors. From this training, they learn how to do research, solve problems, and realize theorems into reality.

M0007 Artificial Intelligence (0/2)：This course will give a brief history of development of Artificial Intelligence (AI). We will cover basic principles and methods of AI, including machine learning, deep learning, data science, natural language processing, and computer vision and their applications.

E2302 Information Security (0/2)：This course introduces the basic concepts and theory for information security and cryptography. After this course, students will be ability to join the course about Internet security or system security.

Elective Courses

There are many elective courses, including introduction of wireless lan, building embedded systems, introduction to information security, big data analytic techniques, image processing, personal communication systems, software project management, the industrial trend of information and communication techno, internship of enterprise, cloud computing, virtualization technology, advanced c programming, wireless lans and pans, ction to mobile computing and rfid, network security, network programming, wireless network security, multimedia processing technology, wireless local area networks, the trend of information and communication technologies, practical data science on python, introduction to artificial intelligence, and so on.

Undergraduate Courses (English Taught Program)

M0724 Object Oriented Programming (0/3): C++ is a popular object-oriented programming language for large-scale software development. It is flexible in that both high-level and low-level syntactic features

are supported. We will learn C++ by drawing on various kinds of examples, and focus on solving practical problems in the OO approaches.

S0325 Calculus (3/0): This course provides instruction on basic calculus, with examples and practical applications of theories to help students establish a foundation for future advanced courses.

E0175 Operating Systems (0/3): The purpose of this course is to describe the theory of operating systems. It concentrates on each of the "managers" in turn and shows how they work together. Then it introduces network organization concepts, security, ethics, and management of network functions. In the second half of the semester, we will introduce actual operating systems, how they apply the theories presented in the first half and how they compare with each other.

E0646 Database Systems (0/3): This course is designed to provide individuals with a complete introduction to database concepts and the relational database model. Upon completion of the course, students should be able to understand a user's database requirements and translate those requirements into a valid database design.

M0490 Network and Communication (0/3): The goal of this course is to give students a superior foundation in network communications and a focus on the OSI seven layers' model.

E0651 Data Structure & Processing (3/0): This course incorporates C programming language to solve special problems for applications and computers. It emphasizes data storage, fetch, algorithm design and complexity evaluation.

E1111 Algorithms (0/3): This course introduces the design and analysis of algorithms. Course topics include: Fundamentals of the Analysis of Algorithm Efficiency, Divide-and-Conquer, Decrease-and-Conquer, Transform-and-Conquer, Space and Time Tradeoffs, Dynamic Programming, Greedy Technique, and Iterative Improvement.

V0067 Practice of Projects (3/0): This course will involve a number of different teams with several students each that will work to complete a research project on certain specific topics.

E0521 Software Engineering (3/0): Combining the fundamental knowledge of information systems and the experience of programming, this course teaches students how to develop high quality software using an engineering approach.

V0005 Practices in Management of Information and Communication TEC (3/0): This course introduces the infrastructure of information and communication technology management systems and related management theories and practical applications. Through group projects, reports, and expert lectures on the information and communication technology industry, we will introduce the current situation and future of the industry so that students may learn about practical future trends in the ICT industry.

E1173 Introduction to Computers (3/0): This course provides an introductory survey of computer science. Progress of this course follows a bottom-up arrangement of subjects that proceeds from the concrete to the abstract. Course materials in this semester includes Number Systems, Computer Organization, Computer Networks, Operating Systems, and Intellectual Property Rights.

E0342 Computer Programming (3/0): Introduce the concepts of programs and flows, learn how to represent a solution in a procedural style, and finally implement in C language.

M0724 Object Oriented Programming (0/3): The object-oriented analysis/design/programming is the mainstream approach to develop large software systems. Java is one of the popular object-oriented programming languages. In this course, we will learn object-oriented concepts by programming with Java.

M0171 System Analysis and Design (0/3): This course starts with an introduction of fundamental concepts, philosophies, and trends that provide the context of systems analysis and design methods, followed by systems analysis and its overall importance in a project. It offers specific system analysis skills with an emphasis on logical system modeling.

S0487 Discrete Mathematics (3/0): This course familiarizes students with discrete mathematics, which is an important fundamental knowledge in computer science and software engineering. It will further help students to understand major topics and functions in discrete mathematics.

E3764 Probability and Statistics (0/3): This course includes Combinatorial analysis, probability space, axioms of probability, conditional probability and independence, discrete/ continuous random variables, jointly distributed random variables, properties of expectation and limit theorem.

Master's Program in Computer Science and Information Engineering

Required Courses

E0349 Computer Algorithms (0/3): The objective of this course is to study paradigms and approaches used to analyze and design algorithms and to appreciate the impact of algorithm design in practice. It also ensures that students are familiar with fundamental algorithms and algorithmic techniques and understand how to analyze the running time of a given algorithm, how asymptotic notation is used to provide a rough classification of algorithms, and how a number of algorithms for fundamental problems in computer science and engineering work and compare with one another.

E1354 Formal Language and Automata Theory (3/0): This course is to introduce students to the abstract models of digital computers, programming languages, and related matters. Students learn the foundations and basic principles of computer science.

T0081 Research Methodology (1/1): Basic skills of writing research papers/thesis and selecting research topics will be delivered in class. Students will have a short presentation to show their direction of thesis writing. The instructor will invite domestic/international scholars to present their work as requested.

T8000 Thesis (4): By selecting a good topic for graduate students' research and transforming an idea to reality, we try to organize the paper and the thesis.

Elective Courses
There are many elective courses, including multiple professional courses in the IT area, such as Pattern Recognition, Cryptology, Broadband Wireless Networks, Ubiquitous Computing Security, Machine Learning, Image Processing, Object-Oriented Software Engineering, Component-based Software Development Technology, Complex Networks, Data Mining, Distributed System, and so on.

Master's Program, Department of Computer Science and Information Engineering (English Taught Program)

Required Courses

T0081 Research Methodology (1/1): Basic skills of writing research papers/thesis and selecting research topics will be delivered in class. Students will have a short presentation to show their direction of thesis writing. The instructor will invite domestic/international scholars to present their work as requested.

E3945 Artificial Intelligence and Machine Learning (3/0): The course is an introduction to artificial intelligence application and machine learning technology. It will teach students the concept of artificial intelligence technology and machine learning and its industrial practical applications. At the same time, students are expected to have the ability to plan and integrate relevant technologies in valuable applications.

E3670 Deep Learning (0/3)： The course is a data analysis technology that teaches computers to imitate humans to learn from experience. Machine learning "learns" information directly from data, instead of relying on predetermined programs as models. We will explore various machine learning techniques and their learning process.

T8000 Thesis (0): By selecting a good topic for graduate student's research and transforming an idea to

reality, we try to organize and complete the thesis.

Elective Courses
There are many elective courses, including multiple professional courses in the IT area, such as Broadband Access Networks, Cryptography and Network Security, Wireless Local Area Networks, Digital Image Processing, Soft Computing, Internet Technology, Computer Networks, Wireless Sensor Networks and Internet of Things, Cryptographic Algorithms, Information Hiding, Computer Vision, and so on.

Master's Program in Intelligent Computing and Application

Required Courses

M0007 Artificial Intelligence (3/0): This course will give a brief history of development of Artificial Intelligence (AI). We will cover basic principles and methods of AI, including machine learning, deep learning, data science, natural language processing, and computer vision and their applications.

E4039 Data Science (0/3)：This course is an interdisciplinary field that uses scientific methods to extract knowledge and insights from structured and unstructured data. In this course, we will cover some methods for data science, including data preprocessing, machine learning, data mining, and data visualization.

T0081 Research Methodology (1/1): Basic skills of writing research papers/thesis and selecting research topics will be delivered in class. Students will have a short presentation to show their direction of thesis writing. The instructor will invite domestic/international scholars to present their work as requested.

T8000 Thesis (0): By selecting a good topic for graduate student's research and transforming an idea to reality, we try to organize and complete the thesis.

Elective Courses
There are many elective courses, including multiple professional courses of C&C area, such as Computer Vision, Internet Cryptography, Web-based Software Engineering, Ubiquitous Computing, Wireless Sensor Network, Personal Communication, Information Indexing and Retrieving in The Web, Grid Computing, Network Security, Embedded System, Mobile Computing, Digital Signal Processing, Multimedia Network Applications, and so on.

Ph.D. Program

Required Courses

T0102 M0878 Seminar (I) & (II) (2/2): The instructor supervises students as a study group in reading state-of-the-art research issues. Students will present their studies in English and deliver a draft paper for conference/journal submission. Students are free to choose their own research topic. However, an individual should discuss with his/her supervisor to decide a reasonable title for the presentation and paper.

T8000 Thesis (0): By selecting a good topic for graduate student's research and transforming an idea to reality, we try to organize the paper and the thesis.

Elective Courses
The Department offers many elective courses, including multiple advanced and professional courses in the IT area, such as Digital Communication, Bioinformatics, Soft Computing, Text Mining, The Design of Multimedia Systems, Intelligent Web Information System, Semantic Web Technology, Mobility Management, Parallel Computing, Multimedia Digital Watermarking, and so on.

DEPARTMENT OF AEROSPACE ENGINEERING

Degrees Offered: B.S., M.S.

Chairman: Fu-Yuen Hsiao (蕭富元)

The Department

The Department of Aerospace Engineering was founded in 1972, the first of its kind among Taiwan's universities (http://www.aero.tku.edu.tw). The Department trains students at the bachelor and master's levels, with primary emphasis on flight vehicles. There are at present 18 faculty and staff, 600 undergraduate students, 21 graduate students (Master) and 8 graduate students (Executive Master) in the Department. Today, there are more than 3,000 alumni, who are now working in a variety of fields.

First year study focuses on the fields of mathematics, physics, humanities, and social science. The second, third and fourth years emphasize aerospace disciplines and related engineering sciences. In addition, juniors are required to obtain short-term internship experience in aerospace related institutes during the summer session. A minimum of 128 credit hours is required for the bachelor's degree. There are several areas of specialty available: Theoretical Aerodynamics, Computational Fluid Dynamics, Helicopter Aerodynamics, Combustion Stability, Composites, Optimal Theory, Aeroelasticity, Flight Dynamics, Air Traffic Control, Aviation Safety, Trajectory Optimization, Orbit Mechanics, Optimal Control of Space Vehicles, and so on. A minimum of 29 credit hours and a thesis are required for the master's degree. The Department of Aerospace Engineering and its graduate program have been accredited by IEET, the Institute of Engineering Education Taiwan (a full signatory of the Washington Accord).

Faculty

Professor Emeritus
Chao-Kang Feng(馮朝剛)

Professors
Tzeng-Yuan Chen (陳增源) ; Yi-Ren Wang (王怡仁) ; Shi-Min Lee (李世鳴) ; Feng Tyan (田 豐) ; Pu-Woei Chen (陳步偉) ; Yi-Shyong Ing (應宜雄) ; Fu-Yuen Hsiao (蕭富元) ;Yang-Yao Niu (牛仰堯) ; Wen-Jer Tzeng (曾文哲)

Associate Professors
Jing-Min Tang (湯敬民) ; Chien-Chun Hung (洪健君) ; Kwan Ouyang (歐陽寬)

Assistant Professor
Kaiti Wang (汪愷悌) ; Su-Sheng Ma (馬述聖)

Degree Requirements

1. Requirements for a degree of B.S. in Aerospace Engineering:
   Completion of 128 credits of courses, including 95 credits of required courses and 17 credits of elective aerospace engineering courses.

2. Requirements for a Master's degree in Aerospace Engineering:
   Completion of 29 credits of courses, including 3 credits of required courses and 2 credits of seminar. Students are also required to submit a written master's thesis completed under the supervision of a faculty member and to pass an oral defense.
   Required courses:
   Advanced Engineering Mathematics, Seminar.

3. Requirements for an Executive Master's degree in Aerospace Engineering:
   Completion of 27 credits of courses, including 3 credits of required courses. Students are also required to submit a written master's thesis completed under the supervision of a faculty member and to pass

an oral defense.

Course Descriptions

Undergraduate Courses

E0034 Engineering Mathematics I (3/0): This course aims to develop techniques for solving linear, nonlinear first and second order ordinary differential equations along with engineering applications, which include undermined coefficient method, variation of parameters, power series solutions, Laplace transform method and phase plane analysis, etc.

E0034 Engineering Mathematics II (0/3): This course covers advanced topics in Linear Algebra, including matrix, eigenvalue problems and vector operations, Laplace transforms, Fourier series, Fourier integrals and transforms for various engineering applications.

E0090 Space Flight Mechanics (0/3): Motion of aerospace vehicles in space: Two-Body Motion, Orbit determination. Orbit Maneuvers, Relative Motion, Interplanetary Trajectories and Introduction to Rocket Theory.

E0156 Finite Element Method (2/0): This course presents a clear, easy-to-understand explanation of finite element fundamentals and enables students to use the method in research and in solving practical, real-life problems. It develops the basic finite element method of mathematical formulation, beginning with physical considerations, proceeding to the well-established variation approach, and placing a strong emphasis on the versatile method of weighted residuals, which has proved to be important in non-structural applications. This course also demonstrates the tremendous power of the finite element method to solve problems that classical methods cannot handle, including elasticity problems, general field problems, heat transfer problems, and fluid mechanical problems. They supply practical information on boundary conditions and mesh generation, offer a fresh perspective on finite element analysis with an overview of the current state of finite element optimal design, and give students the real insight needed to apply the method to challenging problems.

E0165 Automatic Control System (3/0): This course introduces analysis and design of continuous-time control systems using frequency and time-domain methods. Also covered are the classical methods of control engineering, which are: Laplace transforms and transfer functions, root locus design, Routh-Hurwitz stability analysis, frequency response methods, including Bode, Nyquist, and Nichols; steady-state error for standard test signals; second-order system approximations, and phase and gain margin and bandwidth.

E0180 Mechanics of Materials (0/3): This course introduces students to the fundamental principles and methods of solid mechanics. Topics include: analysis of static equilibrium, support conditions, analysis of static-determinate planar structures (bars, beams, trusses), stresses and strains in structures, states of stress (shear, bending, torsion), statically indeterminate systems, and displacements and deformations.

E0222 Aerodynamics I (3/0): The dynamics of gases especially of atmospheric interactions with moving objects is studied. Content includes: potential flow theory, superposition of simple flows, Biot-Savart law, Kutta-Joukowski theorem and generation of lift, Kutta condition, Vortex sheet and thin-airfoil theory, aerodynamic characteristics of NACA airfoil.

E0222 Aerodynamics II (0/2): The dynamics of gases especially of atmospheric interactions with moving objects is studied. Contents include: finite wing theory, downwash and induced drag, linearized compressible flow with small perturbation assumption, airfoil in subsonic flow. Prandtl-Glauert transformation, supersonic flow, critical Mach number, and brief introduction of hypersonic flow are also covered.

E0296 Fluid Mechanics Lab (0/1): Fluid Mechanics has been widely applied in all aspects of the engineering field. The essential objective of the course of the Fluid Mechanics is to help students to understand fundamental fluid mechanical related phenomena and natural laws, so that they can apply the knowledge to various scientific fields. Since most phenomena of flow are very complicated, they have to be verified experimentally. The objective of this course is to equip students with the various experimental techniques so that they can incorporate the results obtained in the laboratory with the

knowledge learned from the book.

E0300 Fluid Mechanics (3/0): This course offers an introduction to the basic phenomena and principles of fluid flow. We discuss fluid properties, fluid statics, conservation of mass, momentum and energy. Emphasis is on quantitative analysis of velocities, pressures, shear stresses, and flow forces. The application of basic fluid mechanics concepts to the analysis of pipe flow, and flow over or around objects are stressed in homework assignments and exams. Flow phenomena are illustrated in CD-ROM tutorials and laboratory demonstrations. Measurement of fluid properties, pressures, velocities, and flow forces are performed in laboratory sessions.

E0371 Engineering Vibrations (2/0): This course focuses on the study of oscillatory motions of bodies and the forces associated with them. It reviews several fundamental principles of mechanics, and then covers the following topics: system modeling, modal analyses of forced vibration problems, finding dynamic responses of discrete and continuous systems, and measurements of characteristic parameters of vibration systems. It is very important for both theoretical investigations and engineering applications.

E0373 Workshop Practice (0/0): Students taking this course need to carry out on-site practical training at various organizations. This is designed to help students gain experience in practical applications of the knowledge learned in the course.

E0381 Gas Dynamics (0/2): Basic Laws of Fluid Mechanics and Thermodynamics, Control Volume Analysis, Definitions and Equations of Compressible Flow, Varying-Area Adiabatic Flow, Normal Shock Waves, Oblique Shock Waves, Prandtl-Meyer Flow, Fanno Flow, Rayleigh Flow.

E0402 Introduction to Aeronautical Engineering (1/0): The invention of the heavier-than-air flying machine is one of the remarkable achievements in the 20th century. The main objective of this course is to offer an introduction to aeronautical engineering from the technological and historical points of view. This course will include the following topics: the history of flight, the development of Taiwan aerospace industry, the principles of flight, aircraft structures and its material, the power plant, navigation system, and airworthiness.

E0404 Aircraft Materials (0/2): Since aluminum was first used in the beginning of the 20th century as a structural material for the aviation industry, all kinds of new materials have been developed and tailored to fit the needs of airplane and engine builders around the world. The main objective of this course is to introduce characteristics of materials used in aviation industries, which includes basic phase diagrams, thermal processes, alloys/super alloys and recently developed composite materials.

E0406 Aircraft Engines (3/0): Aircraft Engines is a complicated course and covers a vast range of disciplines. This course covers fluid mechanics, thermodynamics, aerodynamics, gas dynamics, strength of material, materials, etc. It introduces the design and working principles of ramjet, turbojet, turbofan, turboshaft and turboprop. It also teaches the design and analysis of the major components of aircraft engines such as inlet, compressor, combustor, turbine, nozzle and afterburner. The basic physical concepts are also reviewed in this course.

E0408 General Navigation (2/0): This subject area is the study of the theory and practical application of heading, speed, altitude, and temperature pressure; position indicating on aircraft. During this course the student will learn how to operate within the civil aviation regulations (CCAA, FAA, EASA) and gain an understanding of how to utilize instrument navigation systems. The student will learn about the operation of aircraft instruments and navigation systems and develop their ability to maneuver the aircraft only with reference to instruments. This course also addresses how to check, operation and maintain various types of aviation instruments.

E0431 Advanced Strength of Materials (2/0): Advanced Strength of Materials is an extended course that follows on from the course ‘Mechanical of Materials’. Specialized topics include: pressure vessels analysis, thermal effects, dynamics loading, statically indeterminate beams, deflection analysis, and column buckling analysis.

E0466 Dynamics (3/0): Dynamics is a subject rich in its varied applications; therefore, it is important that students develop a feel for realistically modeling an engineering problem. Consequently, this course is to provide students a working knowledge of the motions of bodies and the forces that accompany or

cause those motions. The topics include the plane and 3-D kinematics of particles, plane and 3-D kinetics of particles, and the kinematics and kinetics of rigid bodies in plane motion, which are the bases of further studies in Aerospace Engineering.

E0671 Engineering Application of Computers (0/3): Numerical analysis is the study of computer algorithms developed to solve the problems of continuous mathematics. Students taking this course gain a foundation in approximation theory, functional analysis, and numerical linear algebra from which the practical algorithms of scientific computing are derived. A major goal of this course is to develop skills in analyzing numerical algorithms in terms of their accuracy, stability, and computational complexity. Topics include: best approximations; least squares problems (continuous, discrete, and weighted), eigenvalue problems, and iterative methods for systems of linear and nonlinear equations. Ordinary differential equations appear in the movement of celestial bodies (planets, stars and galaxies); optimization occurs in portfolio management; numerical linear algebra is essential to quantitative psychology; stochastic differential equations and Markov chains are essential in simulating living cells for medicine and biology.

E0693 Electrical Engineering (2/0): This course covers the principles and applications of basic electric components and systems for aerospace engineering students. Major topics include principles of basic electric theory, electric circuit components, Kirchhoff's voltage law, Kirchhoff's current law, resistive network, Thevenin equivalent network, AC circuits, transient analysis, frequency response, filter, principles of electro mechanics, and an introduction to electric machines.

E0828 Mechanical Drawing I (1/0): Engineering drawing is concerned with the expression of technical ideas or ideas of a practical nature, and it is the method used in all branches of technical industry. The main objective of this course is to introduce the basic drafting skills, arrangement of views, shape description, dimensioning, principal of datum, sectional view, and auxiliary view.

E0828 Mechanical Drawing II (0/1): Engineering drawing is concerned with the expression of technical ideas or ideas of a practical nature, and it is the method used in all branches of technical industry. Besides the traditional handmade drawing that is taught in the first semester, the main objective of this course is to teach students the basic skill of computer aided drawing. CAD has been widely used in the technology industry for designing and manufacturing. This course will include the following topics: the fundamental of CAD, sectional view, and 3D-modeling.

E0830 Manufacturing Processes (0/3): Manufacturing is the process of converting raw materials into products. Manufacturing also involves activities in which the manufactured product itself is used to make other products. Examples could include large presses to shape sheet metal for appliances and car bodies, machining to make fasteners, such as bolts and nuts, and sewing machines to make clothing. The process of manufacturing is a complex of activities involving a wide variety of sources and activities, such as the following: design, machinery, process planning, materials, manufacturing, quality control, etc.

E0865 Statics (0/3): Statics is the specific field of study dealing with forces in equilibrium and/or bodies held in equilibrium by the forces acting on them. Statics is a part of the broad field of mechanics which is the study of the action of forces on material bodies. In the course, the rigid body （bodies） in equilibrium, the elements of statics in two and three dimensions, centroids, analysis of structures and machines are considered.

E0961 Electronics (0/2): This course introduces the principles and applications of basic electronic components and systems for aerospace engineering students. Major topics include principles and applications of operational amplifier, active filters, semiconductors and diodes, bipolar junction transistors, field effect transistors, power electronics, digital logic circuits, digital systems, electronic instrumentation and measurements.

E0959 Advanced Fluid Dynamics (0/2): The purpose of this course is to introduce the viscous flows of incompressible fluids, General properties of Navier-Stokes equations, Exact solutions of the full N-S equations, Low-Reynolds number flow, High-Reynolds number flow, Boundary layer equations for incompressible flow, Exact and Approximate solutions of the boundary layer equations, Boundary layer separation, Boundary layer control and high lift device of airplane.

E0962 CAD/CAM (0/3): In the life cycle of engineering products, computer assisted design and

manufacture play a major role in success. They not only shorten complex engineering work but also improve the product's performance and quality assurance. The purpose of this course is to establish the comprehensive overview of the application of computers to the design work. This course will also train students to use Pro-Engineer software to design various 3D models.

E1034 Introduction to Computers I (2/0): An introduction to the modern computer science and its application will be given in this course, which offers a rough idea and basic knowledge of how computers and networks function. This course will cover 12 topics, including Data storage, Number representation, Internet and TCP/IP, Internet and WWW, Wired and wireless communication, and so on. A final team project about application of technology of computer to aerospace engineering should be submitted as one of the class evaluations. There will also be an oral presentation as part of the final project.

E1034 Introduction to Computers II (0/2): This course teaches methodologies related to programs. The instructor will spend the majority of time teaching Fortran and the last three weeks on important commands in Matlab. Fortran was developed for scientific and engineering computation and is widely used throughout the world. Its meticulous structure is also a good tool for beginners to establish their programming logic. Fortran 95 will be the basic tool used; however, that will also be compared with Fortran 77, which is the most popular version in the past. On the other hand, Matlab, on the basis of matrix operation, is widely used in the automatic control field. There will be a midterm qualification examination after a midterm paper test to ensure that students taking this class acquire the ability to write programs.

E1052 Rocket Propulsion (2/0): The purpose of this course is to introduce the basic technology, performance and design rationale of rocket propulsion. The course contents provide an understanding of basic principles, descriptions of key physical mechanisms and designs, and an appreciation of the applications of rocket propulsion to flying vehicles.

E1106 Electronic and Circuit Laboratory (0/1): This course provides students with an introduction to electronic circuits measurements. Topics include: basic measuring instruments, resistors, capacitors, inductors, transformers, diodes, transistors, operational amplifiers, and logic circuits.

E1107 Engineering Materials (2/0): The main objective of this course is to present the basic fundamentals of materials science and engineering. Materials science involves investigating the relationship that exists between the structures and properties of materials. On the other hand, materials engineering is, on the basis of those structure-property correlations, designing or engineering the structure of a material. This course will present the basic atom structures, structure of crystalline solids, and mechanic properties of metals.

E1108 Workshop Practice (1/0): This course will provide students, as prospective excellent engineers, with practical Aerospace Engineering skills through their participation in practical machinery work. This course will also train students in safety aspects and discipline. After successful completion of this course, students will be able to exercise practical judgment and make advances in their understanding of machining work and in the quality of their craftsmanship.

E1178 Aircraft Structures (3/2): Aircraft structure analysis plays an important role in aircraft design. Therefore, the course of aircraft structure will provide students with fundamental concepts in the analysis and design of aircraft structures, and develop unified analytical tools for the prediction and assessment of structural behavior. In addition, the course will help students to study the structural analysis method and develop a thorough understanding of the important factors which must be considered in the design of aircraft structural components.

E1179 Aircraft Design (I) (3/0): This course introduces a preliminary layout of a military or civil transport aircraft using design and calculation techniques developed in aerospace engineering courses. Materials covered include design goals, aerodynamics review, performance analysis, wing/fuselage layout, weight and wing loading estimations, engine and material selections, stability analysis, etc.

E1516 Special Topics in Rotary-Wing Aircraft (0/2): Helicopters are highly capable and useful rotating-wing aircrafts that have a variety of civilian and military applications. Their usefulness lies in their unique ability to take off and land vertically, to hover and to fly forward, backward, or sideways. This course begins with a technical history of helicopter flights, then covers basic methods of rotor

aerodynamic analysis （Momentum Theory and Blade Element Theory） and related issues associated with helicopter performance, and ends with rotor blade design.

E1521 Aircraft Systems (3/0): Aircraft Systems provides a basic introduction to the function and operation of aircraft systems, including basic aircraft structures, hydraulics, pneumatics, landing-gear, electrical system, air conditioning, flight control systems, flight management systems, fuel systems, aircraft instruments, avionic systems, and engines.

E1540 Aircraft Performance Analysis (0/2): This course familiarizes students with the fundamentals of airplane design. The airplane will be treated as a point mass and the equations of motion are derived. The only parameters which determine the performance of an airplane are wing loading (W/S), lift-to drag ratio (L/D), thrust-to-weight ratio (T/W) and the (thrust) specific fuel consumption of the powerplant. Factors for discussion include descent, glide, and cruise, which covers range and endurance, climb, turn, take-off, and landing.

E1555 Air Traffic Control (3/0): This course provides an analysis of Air Traffic Control (ATC) functions, studies the history, development, and structure of the National Airspace System, and explores navigation aids, ATC radar systems, terminal and end route control, flight service and weather facilities, instrument flight rules, and airspace. It helps students understand the procedures used in radar and non-radar air traffic control and the future enhancements to the national airspace system are also included.

E1556 Avionics System (2/0): Topics include: the evolution of avionics, system design considerations, digital technology, flight decks and cockpits, navigation systems, communication systems, future trends and developments.

E1557 Modern Control System Design (0/3): This course is an advanced class in automatic control. Students will learn from this course how to stabilize an unstable system and choose a set of good parameters that gives better performance to a system. Starting from reviewing basic ideas in automatic control, this course will introduce several controller designing skills, such as output feedback with PID controller and frequency domain design. State-space analysis and design will also be introduced in class. Homework, midterm examinations, and a final team project will be used for evaluation. Several Matlab commands will also be included in the lectures.

E1582 Aviation Quality Assurance (0/2): Aviation safety has been a topic of great concern to the general public since the very first day airplanes took to the sky. The best way to prevent or oversee any problems is to establish a quality management system that sets industry standards and complies to government requirements. This course will provide students with knowledge on basic quality systems, aviation quality assurance processes and related essential skills needed to manage an organizational safety system.

E1598 Aerospace Engineering Experiments (1/0): This course is designed to familiarize students with the operation and control of PXI system, LabView, and magnetic bearing system. The students are also required to operate the industrial standard FANUC robot in the computational dynamics and control lab.

E1598 Aerospace Engineering Experiments (0/1): This is an engineering laboratory course for aerospace engineering seniors. Students need to understand the engineering experimentation through design and execution of “project” experiments. Students construct and test equipment, make systematic experimental measurements of phenomena, analyze and discuss data, and complete the experimental report finally. Groups of five or six students work together on one project during the semester.

E2015 Signals and Systems (0/2): This course presents the mathematical study of signals and systems. Major topics include the MATLAB tool, natural response of first and second order systems, rational function and partial fraction expansion, qualitative analysis of systems, transfer function and convolution, frequency response, bode plot, Fourier transform, discrete time signals and systems.

E2053 Flight Mechanics (0/3): The goal of this course is to provide students with the fundamentals of airplane design. The static stability of the airplane will be presented first. The rigid body dynamics is then applied to the study of airplane's motion. With the perturbation method used, the equations are linearized. During the linearization, the aerodynamic stability derivatives are introduced. Since the derivatives are the functions of the aerodynamic and physical properties of the airplane and are important

in understanding the motion of the airplane, their physical meanings are discussed. Based on the derived linearized equations of motion, the aerodynamic transfer functions, dynamic responses, handling and flight qualities, and autopilot design are presented.

E2139 Fundamentals of Astronautics (1/0): This course covers basic ideas of astronautics, including satellite subsystems, two-body problem, 3D trajectory, orbit change, relative motion, gravity assist, three-body problem, and booster performances, etc. As part of this course, a tour to the National Space Office, the space center responsible for the space activities of our country, will be arranged. In addition, there will be a midterm project of designing a satellite so that students will have a clearer understanding of the field of astronautics.

E2535 Introduction to Nano and Nano Engineering (3/0): Micro and Nano technology is a fundamental component of every aspect of modern engineering, including aerospace engineering. This course is designed to introduce multidiscipline expertise, while presenting students with a theoretical background, processing techniques, and engineering applications. This technology's correlation to aerospace engineering (micro air vehicles) will also be addressed.

E2593 Aerospace Project Management (0/2): Project Management is both people and technology-oriented. With full understanding of project management concepts, the course will greatly enhance aeronautic engineering students' competitiveness as project managers.

E2642 Heat Transfer in Electronic Devices (0/2): Quite a few students work in heat transfer related companies after graduating from our department. This course introduces the physical mechanisms and basic principles behind the three heat transport modes: conduction, convection, and radiation. We also teach in detail external and internal forced convections, natural convection as well as boiling and condensation. This course will teach students how electronic heat transfer devices operate and how to measure their performance. Finally, this course will teach students how to use the electronic heat transfer simulation software known as CEPAK.

E2719 Introduction of System Engineering (0/2): System engineering is both a technical and management process. It is a discipline that ties together all aspects of a program to assure the individual parts assemble and sub-assemble. It is also a logical sequence of activities and decisions transforming an operational need into a description of system performance parameters as well as a preferred system configuration. This course introduces basic system engineering and analysis techniques, including "statement of work," "work breakdown structure" and "risk management."

E2749 Flight Safety (0/2): An in-depth course on the modern civil aviation safety analysis. Materials covered including introduction of safety, aviation safety theories, human factors (both mental and physical), mechanical design or maintenance factors, environmental factors, modern air traffic management (CNS/ATM), aviation accidents analysis, and aviation accident prevention, etc. Besides homework and final exam, each student is required to submit a project report at the end of semester.

E2858 Management and Technology (0/2): Exerting the result of technology development efficiently needs good management understanding. This course mainly discusses the interrelationship and interaction between technology and management. It also teaches management concepts through practical case studies to demonstrate how to integrate management with technology.

E3224 Introduction to Green Energy Technology (0/3): This course introduces green energy technology, such as solar energy, wind energy, fuel cell, tidal energy, and so on. The main focus of the course will be an introduction to technological systems used in solar energy, wind energy and fuel cells. It will consist of demonstrations of these energy sources as well as movie watching.

E3223 Thermodynamics I (3/0): Thermodynamics is an exciting and fascinating subject that deals with energy, the substance of life. Thermodynamics has long been an essential part of engineering curricula all over the world and has a broad application area, ranging from microscopic organisms to common household appliances, transportation vehicles, power generation systems, and air conditioning systems. This course begins with an introduction of thermodynamics, including energy, energy transfer, general energy analysis, properties of substances, energy analysis of closed and open systems, and the second law of thermodynamics and entropy. The second part of this course covers the applications of thermodynamics, including gas power cycles, vapor and combined power cycles and refrigeration cycles.

E3225 Special Topic on Small Wind Turbine System (3/0): A wind turbine combines the science and engineering of aerodynamics, generators, design and manufacture, energy conversion, energy control and so on. Thus, wind turbine is a form of system engineering. Students taking this course will gain basic concepts in system engineering.

E3226 Aviation Weather (0/2): Introduction to weather phenomena that affects flight such as the atmosphere layers, wind and air parcel stability, air mass and fronts, precipitation, gust wind, low level wind shear, thunderstorm, ice accretion, etc.

E3267 Fundamentals of Heat Transfer (0/2): Quite a few students work in thermal management companies after graduating from our department. This course introduces the physical mechanisms and basic principles behind the three heat transport modes: conduction, convection and radiation. Convection is the more complex heat transport mode. This course therefore explains in detail the internal and external forced convections, natural convection as well as boiling and condensation. We also guide students in operating electronic heat transfer devices and measuring their performances.

E3272 Thermodynamics II (0/3): Thermodynamics is an exciting and fascinating subject that deals with energy, the substance of life. Thermodynamics has long been an essential part of engineering curricula all over the world and has a broad application area, ranging from microscopic organisms to common household appliances, transportation vehicles, power generation systems, and air conditioning systems. This course begins with an introduction of thermodynamics, including energy, energy transfer, general energy analysis, properties of substances, energy analysis of closed and open systems, and the second law of thermodynamics and entropy. The second part of this course covers the applications of thermodynamics, including gas power cycles, vapor and combined power cycles and refrigeration cycles.

E3325 Aviation Management (3/0): This course introduces the latest market trends in the international aviation industry. Through this course, students will better understand the competitive nature of the industry and gain insights into opportunities available. Students will also develop business management skills – such as budget planning, project management, and risk management—required for working in local aviation enterprises such as AIDC, China Airlines, AirAsia, and EGAT, among others. The course will also provide case studies to prepare students for the aviation industry.

E3436 English for Aircraft Systems (2/0): Through learning the terminologies, phrases, grammar and sentences to be used in technical documentation of civil aviation repairs and maintenance on site field services. Students are able to understand the descriptions in the technical documents, and express the ideas in Chinese, then execute the given procedures.

E3482 Instrumentation (2/0): This course encourages learners to investigate the purpose of air navigation and how they contribute to the overall effectiveness of aircraft operation. Topics include warning systems, pilotage, dead reckoning, radio navigation, LORAN, global positioning systems and the use of civil aviation publications. Topics include a study of instruments, instrument flight charts, instrument flight planning, approach procedures, and compliance with ATC procedures.

E3483 Aviation English (0/2): This course contains a carefully sequenced selection of training material, giving progressive, systematic practice in radiotelephony phraseology for students. The exercises are designed primarily to teach operational fluency in the “Routine” phraseology for IFR flight. This course is suitable for students who wish to learn the language used for radiotelephony communications.

E3484 Introduction of PPL Ground Course (2/0): The objective of the course is to give a basic introduction to the ground courses needed for getting a Private Pilot License.

E3488 Aviation Program Internship (0/9): This course is part of our new Civil Aviation Program that cooperates with airliners and institutions. The Department of Aerospace Engineering has signed a contract with China Airlines, EVA Airways, TransAsia Airways, and Aerospace Industrial Development Corporation to promote University-Industry cooperation. The purpose of this course is to help students who possess the fundamental knowledge of aeronautical engineering to obtain further practical experience in the field. Qualified senior students may apply for internship to participate in this program. This is a nine credit hours course and interns should be available to work in the contracted company during the second semester of his/her senior year.

E3990 Unmanned Aerial Vehicle and Rocket Practice Course (0/1): To realize the goal of USR (University Social Responsibility), under the guidance of teachers, students will introduce the knowledge of UAV and rockets to elementary or junior high school students by through popular sciences.

E4008 Technology Foresight for Industrial Application (0/2): This course comprises a series of speeches, introducing the art of state of the current industries, including electronic engineering, computer science, optical electronics, and aerospace engineering industries etc. Lecture materials ranges from basic facts of the industries to the current and future development. This course will bring students a basic understanding on industries and help them to be well prepared.

E4009 Application of Drone (0/2): This course comprises a series of speeches, introducing the art of state of the current industries, including solar panel inspection, engineering surveying, smart city, and aerospace engineering industries etc. Lecture materials ranges from basic facts of the industries to the current and future development. This course will bring students a basic understanding on industries and help them to be well prepared.

S0290 General Physics (2/0): Basic concepts and knowledge of fundamental physics concepts every engineering student should know are introduced in this course. Topics like kinematics, mechanics, and thermodynamics will be taught. Students should also have a basic knowledge of algebra and basic calculus. The operation of vectors will also be introduced in this course.

S0325 Calculus I (3/0): This course is an introduction to the topics of differentiation, integration and infinite series. It involves research on variation and practical applications in the areas of science, engineering and economics. Calculus consists of differentiation and integration. The former is an operation of computing derivatives and the latter provides a general method to compute areas and volumes.

S0325 Calculus II (0/3): The main topics of calculus are functions, limits, differentiations, applications of differentiation, integration, applications of integration, integration skills, sequence and series, calculus of multivariable. Calculus is the foundation of modern science, which provides quantitative analysis of the basic theory and tools in multiple disciplines. In this course, students will learn advanced mathematical theories and develop the ability to perform calculation in various disciplines.

S0439 Linear Algebra (0/2): This course offers an introduction to linear algebra that is useful in various fields. Starting with matrix arithmetic, the lectures cover several topics, including determinants, LU factorization, introduction of vector space, linear transformations, bases and dimensions, inner and outer product, and similarity and diagonalization. Computer programming will be applied so that students learn how to make use of computer technology and linear algebra to solve engineering problems. Homework, midterm and final examinations will be used for evaluation.

E3634 Basic Engineering Mathematics (0/3): This course introduces freshmen to basic mathematics, laying the foundation for advanced engineering mathematics. The topics cover trigonometric functions, vectors, matrices, vector analysis, linear algebra, and Fourier series. Conceptual understanding, as well as actual calculation are the primary focuses. This course also plays an important role in serving as a bridge to connect the content of high school mathematics to college engineering mathematics.

E3990 Unmanned Aerial Vehicle and Rocket Practice Course (0/1): The objective of this course is to cultivate students' abilities of project execution as well as to promote academic service-learning. Under the guidance of the teacher, students will discuss the goals and schedules of various tasks, and then group students, assign tasks. Students taking this course need to write final result reports, and deliver presentations.

M0442 C Language Programming (0/3): This course is a fundamental one for C language, and it is designed for students without any previous learning in computer programming. The content will start from introduction of the compiler to topical tutorials on variable types, operators, input/output, program structures, array, data structure, etc.

Master's Program

E0424 Advanced Engineering Mathematics (3/0): Topics include: mathematical models, computer graphics, boundary-value problems and characteristic function representation, Sturm-Liouville eigenvalue problems, the Rayleigh quotient, solution of partial differential equations of engineering science, nonhomogeneous problems, methods of eigen-function expansion, the Dirac delta function and its relationship to Green's function, Green's functions for ordinary differential equations, Green's functions for partial differential equations; Calculus of variations, the Euler-Lagrange Equation, Hamilton Principle, Application to problems from Continuum mechanics, and the Rayleigh Ritz method.

E0439 Advanced Aerodynamics (0/3): Topics include: basic concepts, review of fluid dynamics, theory of wing sections, conformal transformation, Theodorsen transformation, 2-D incompressible flows, 3-D incompressible, incompressible slender body theory, biplane theory, compressible aerodynamics, supersonic aerodynamics, compressible slender body theory.

E0445 Advanced Dynamics (2/0): Topics include: kinematics of motion, particle dynamics, Lagrange's equations; rigid body dynamics, including Euler's equations, the Poinsot construction, spin stabilization, and the rotation matrix; vibrations of coupled systems, orthogonality relationships, generalized coordinates and generalized system parameters; Hamilton's equations, canonical transformations, and Hamilton-Jacobi theory. Also covered are their applications to orbital problems.

E0569 Optimum Engineering Design (2/0): Topics include: Classical tools in structure optimization, classical methods for constraints problem, linear programming, the simplex method, duality in linear programming, minimization of function of several variables, specialized quasi-Newton methods, constrained optimization, the Kulm-Tucker conditions, quadratic programming problems, sensitivity of optimum solution to problem parameters, aspects of the optimization process in practice, fast analysis techniques.

E0608 Structure Dynamics (2/0): Topics include: One-degree-of-freedom motion, mass-spring-damper system, equations of motion, analytic solutions, force sense and integral, harmonic excitation, multiple-degree-of-freedom, matrix formulation and eigenvalue problem, proportional damping and forced response, state variable approach, continuous system, equations and boundary conditions, analytic solutions to continuous system, energy method B-E beam, Timoshenko beam, Galerkin methods, Rayleigh-Ritz method.

E0754 Elasticity (3/0): Topics include: an introduction to cartesian tensors, stress, strain, behavior of engineering materials, linear elastic behavior, boundary value problems, torsion of shafts.

E0764 Digital Control System (2/0): Digital control systems provide the necessary insight, knowledge, and understanding required to analyze and design computer-controlled systems, from theory to practical implementation. This course includes an introduction to sampled-data control systems, discretization of analog systems, discrete-time signals and systems, causality, time-invariance, Z-transforms, stability, asymptotic tracking, state-space models, controllability and observability, pole assignment, deadbeat control, state observers, observer-based control design, optimal control. In particular, students will learn modeling and analyzing feedback control systems in which the plant is an analogue, continuous-time system, but where the controller is a digital computer. Once students have acquired these skills, they will learn how to design digital controllers using both traditional transfer function-based approaches.

E0782 Heat Transfer (2/0): For heat transfer, whether it is in industry or engineering applications, the most important thing is to analyze the temperature distribution changes with time of heating objects. This semester, we will learn the basic heat transfer phenomenon by using thermodynamic conservation equations, how heat can be transferred via conduction, convection and radiation. We will discuss how theoretical analysis may apply in real applications, understand the meaning of derived equations and find the essence of heat transfer.

E0795 Linear System (2/0): Topics include: Linear spaces and linear operators, representations of linear system, state space equation, controllability, observability, realization, stability, state feedback and state estimator.

E0906 Combustion (0/2): Topics include: Chemical reactions, review of chemical kinetics, conservation equation for multicomponent reacting system, deformation and deflagration waves of premixed gases, premixed laminar flame, gaseous diffusion flames, turbulent flames.

E0938 Optimal Control (0/2): This course covers: ordinary minimization problem, hypersurface in RN and minimization with equality constrains, a mathematical programming problem - conditions for optimality, necessary conditions for optimality in a discrete time optimal control, dynamic programming, the Hamilton-Jacobi equation and minimal principle, precise statement of the minimum principle, application to the linear quadratic problem, a function analysis approach to linear quadratic problem with fixed end points.

E1371 Aero-Elasticity (0/2): This course introduces the following topics: uniform string dynamics, uniform beam torsional dynamics, uniform beam bending dynamics, potential flow theory, incompressible flow about airfoil, introduction to static aeroelasticity, wind tunnel models, introduction to aeroelastic flutter, lifting surface flutter, multiple D.O.F. flutter, advanced methods for solving flutter boundary, 3-D aeroelastic analysis, static aeroelastic-nonuniform lifting surface, complete aircraft analysis.

E1630 Acoustics (0/3): Topics include: introduction to acoustics, basic fluid mechanics and thermodynamics, basic properties of acoustics wave, quantitative measure of sound, reflection and transmission phenomena, sound emission.

E1631 Theory for Experimental Measurements (0/2): This course introduces basic concepts, data analysis, flow visualization, hot wire system, laser Doppler velocimetry, image processing computer graphics.

E1632 Viscous Fluid Flow (0/2): Topics include: a review of the fluid dynamics concept, fundamental concepts of viscous flow, fundamental equations of Navier-Stokes equations, laminar boundary layer equations for 2-D incompressible flow, approximate methods of 2-D boundary layer equations, flow stability, linear stability theory, introduction to turbulence, fundamentals of turbulent flow, mixing length theory, turbulent boundary layers with pressure gradient.

E1634 Mechanics of Composite Material (0/2): Course content includes: fibers, matrices and fabrications, behaviors of unidirectional composites, short fiber composites, analysis of an orthotopic lamina, analysis of laminated composites, and advanced topics of composites.

E1725 Structure Statics (0/2): Topics include: development of truss equations, development of beam equations, development of the plane stress and plane strain equations, development of the linear strain triangle equations, compression of element, axisymmetric elements, applications of axisymmetric elements, isoperimetric formulation of bar element, isoperimetric of the plane element, Gaussian quadrature, and the tetrahedral element.

E1727 Similarity Method and Perturbation Method (0/3): This course introduces: general dimensional theory, similitude and modeling, dynamic similarity derived from governing equation and boundary conditions, self-similar solution, local and far field similarity solutions, application to problems from continuum mechanics; the nature of perturbation theory, some regular and singular perturbation problems, the method of matched asymptotic expansions, the method of strained coordinates, and applications to problems from fluid mechanics and gas dynamics.

E1728 Flight Safety Analysis (0/3): This is an advanced course on the modern civil aviation safety analysis. Materials covered include an introduction of safety, aviation safety theories, human factors (both mental and physical), mechanical or maintenance factors, environmental factors, air traffic management (CNS/ATM), aviation accidents analysis, aviation prevention, etc. Besides homework and a final exam, each student is required to submit a project report at the end of the semester.

E1729 Nonlinear Control Systems (0/3): This course offers an introduction to the analysis and design of nonlinear systems. Topics include: linearization, equilibrium points, limit cycles, chaotic attractors, stability, Lyapunov's methods, describing functions, Popov and circle criteria, contraction mappings, exact linearization, variable structure, simulation.

E1939 Guidance and Navigation (2/0): The conceptual and technical foundation of the navigation is established first. Each of the following topics provides in-depth treatment of a specific navigation technology. They are ground-based radio-navigation aids; satellite-based radio-navigation systems;

integrated communication-navigation systems; inertial and stellar-inertial navigation systems; air-data sensors and algorithms that derive airspeed, angles of attack and sideslip, and barometric altitude; attitude and heading sensors and displays. Then the guidance laws of aerospace vehicle are presented.

E1940 Estimation and Control (0/2): This course presents mathematical approaches for estimation and control of dynamic systems. Fundamental state estimation theories and implementation algorithms are covered in the course. Major topics include reviews of probability and random variables, least square estimation, propagation of states and covariance, Kalman filters, extended Kalman filters, $H\infty$ filters, and some related special topics for aerospace engineering.

E2125 Convective Heat Transfer (0/2): This course is an introduction to the fundamentals of heat transfer modes of conduction, convection, and radiation. A brief introduction of the physical concepts of convection, studies of external forced convection, internal forced convection and natural convection, specific equations and correlation for finding heat-transfer coefficients for various geometries and fluid conditions, and heat exchanger analysis are also covered.

E2192 Satellite Image System (3/0): Various techniques to enhance, de-blur, segment, and describe image features will be introduced. This course will also present the fundamentals of digital image formation, color models, halftoning, and restoration, and include projects based on implementation of these techniques. Students will be encouraged to develop application-specific modules for medical, satellite, and natural images. Topics will include edge detection, morphological processing, texture analysis, feature extraction, sampling and transforms.

E2376 Numerical Methods for Engineers (0/2): This course introduces numerical methods for engineers. Topics covered include: solving large systems of linear equations, finding the roots of a nonlinear equation, curve fitting, numerical differentiation and integration, solving ordinary and partial differential equations. The objective is to make students understand theoretical backgrounds, error analysis, and computer arithmetic of numerical methods.

E2715 Advanced Astrodynamics (3/0): Topics include: two-body problem, orbit maneuver, rigid body dynamics, satellite attitude dynamics, satellite attitude control, rocket performance, space environment, reentry dynamics, the restricted three-body problem, interplanetary trajectories.

E2931 Numerical Grid Generation (0/3): Numerical grid generation arose from the need to compute solutions to fluid dynamics PDEs on physical regions with complex geometry. Course materials include structured and unstructured grids, mapping and invertibility, transfinite interpolation, algebraic methods, complex variable methods, PDE methods (elliptic, hyperbolic, and arabolic), and several unstructured grid concepts such as advancing fronts and Delaunay triangulation.

E2933 Computational Gas Dynamics (0/3): Computational Gas Dynamics is a branch of computational fluid mechanics which deals with compressible flow. The unique aspects of computational gas dynamics include two phenomena that do not appear in other branches of fluid mechanics. These phenomena are waves （normal shocks, oblique shock and expansion waves） and choking flow (isentropic, isothermal choking). A parallel to the shock seen in gas dynamics is the hydraulic jump witnessed in open-channel incompressible flow. Nevertheless, the shocks in many aspects do not appear in the hydraulic jump, e.g. oblique shock. Choking occurs when there is a disparity between the area difference of the nozzle and the throat and the pressure drop between the inlet and outlet, causing the creation of a shock wave before the outlet to make up for that difference.

E3007 Computational Heat Transfer (0/3): In the field of fluid mechanics, multiphase flow is a generalisation of the modeling used in two-phase flow to cases where the two phases are not chemically related (e.g. dusty gases) or where more than two phases are present (e.g. in modeling of propagating steam explosions).

E3257 Vibrations and Wave Motion (3/0): This course deals with the study of elastic wave propagation in solids. It reviews several fundamental principles of wave motion before covering the following topics: elementary theory of one-dimensional waves and vibrations in strings and rods; two-dimensional theory of waves in beams and plates; system modeling; finding transient and steady-state responses of continuous systems; and measurements of characteristic parameters of vibration systems. Topics

discussed are essential for both theoretical investigations and engineering applications.

E3337 Computational Microfluidic Dynamics (0/2): In fluid mechanics, multiphase flow is a generalization of the modelling used in two-phase flow to cases where the two phases are not chemically related (e.g. dusty gases) or where more than two phases are present (e.g. in modelling of propagating steam explosions).

E3366 Special Topic in Numerical Method on Compressible Flow (0/2): This is a graduate course that explores the fundamentals of Computational Fluid Dynamics (CFD). The course will present several important topics for application of Navier-Stokes equations in integral form, boundary conditions, entropy condition. Turbulence and its modeling, zero, one and two equation turbulence models. Finite Volume method, convective and diffusive fluxes, Euler backward/forward time integration, flux vector splitting methods. Shock-tube and Riemann problem, Godunov method and approximate Riemann solvers. Higher order reconstruction of flow variables.

E3673 Electromagnetics in Aerospace (2/0): This course will introduce fundamental electromagnetic theory, Maxwell's Equations, and electromagnetic waves, instruments and observations on these waves and charged particles related to space radiation, and space plasma environment of the Earth and the Solar System. The relation between space weather and space mission/air flight safety is also discussed.

E4003 Taguchi Quality Engineering (2/0): This course introduces the Taguchi method and its application on actual engineering problems. Course content includes factor and level, orthogonal array, ratio of signal to noise, the procedure of the Taguchi method, analysis of variance, confirmation experiment and prediction. Some industry cases are provided to demonstrate the application of Taguchi method.

E4004 Robust Parameter Design (3/0): This course introduces the methods and procedures of robust parameter design applying on actual engineering problems. Course content includes construction of empirical model, controllable factor and noise factor, orthogonal array, ratio of signal to noise, confidence interval, analysis of variance, quality loss, use of statistical functions in EXCEL, confirmation experiment and prediction. Some industry cases are provided to demonstrate the application of robust parameter design.

E4021 Application of MATLAB in Engineering Optimization (0/2): Use MATLAB as a tool to introduce the application of computational intelligence in engineering optimization problems, including artificial neural networks and genetic algorithms, etc., and combine with Taguchi method to achieve the optimal robust parameter design.

E4029 Design of Unmanned Aerial Vehicle (0/2): This course is to provide the students a working knowledge of the basic conceptual and preliminary design of Unmanned aerial vehicles. The topics include initial sizing and weight estimation, fuselage design, engine selection, aerodynamic analysis, stability and control, drag estimation, performance analysis, and economic analysis.

E4055 Advanced Space Flight Mechanics (2/0): Motion of aerospace vehicles in space: Keplerian orbits, Orbit determination. Orbit transfer. Relative Motion, The restricted three-body problem. Canonical equations of motion. Perturbation theory with application to the motion of artificial satellites.

T0081 Research Methodology (1/0): This is a step-by-step course which helps students review the literature, formulate a research problem, select a method of data collection, establish the validity and reliability of a research instrument, write a research proposal, collect data, process data, and complete a research report.

T0102 Seminar (I) (0/2): This course has a two-hour class every one to two weeks. The class invites senior people from industries, research institutes or universities to give presentations about the developments and future directions in their own fields. We also invite graduates from our department who have rich working experience to give talks about their own working fields and communicate with the students after the talk.

T8000 Thesis (0/0)

THE CENTER FOR INTERNET OF THINGS AND BIG DATA (CIOTBD)

Director: Chih-Yung Chang（張志勇）

IOT (Internet of thing) and Big Data are the two emerging technologies which will have a great impact on the future. The Internet of Things (IoT) is essentially a network of physical objects that is connected to and accessed through the internet. Big data is enabling organizations to collect and analyze data in new ways, helping to improve qualities of businesses, industry, government services and people's lives. IOT and Big Data have close relationship with each other. The IoT will massively increase the amount of data available for analysis. The information obtained through big data analytics can provide businesses with insights that enable them to make smarter and faster business decisions.

The Center for Internet of Things and Big Data (CIOTBD) aims to enhance collaboration at various levels with domestic or foreign universities, research institutes, and ICT related companies in the development of IoT and Big Data technologies. CIOTBD also expects to conduct forward-looking research with industrial partners through joint projects and actively investigates, develops, and promotes innovative, exploratory and pioneering IoT and Big Data technologies.

UNMANNED AERIAL VEHICLE RESEARCH CENTER

Director: Fu-Yuen Hsiao (蕭富元)

The UAV Research Center was started in 2016 and is focused on the applying the principles of systems engineering to make unmanned vehicles more reliable, safe and efficient in the growing field of civil and commercial unmanned vehicle systems markets. Traditionally, unmanned aerial vehicles are used strictly used for military benefits. In recent years, the commercial uses and demand for unmanned aerial vehicles has greatly increased. One of the main purposes of an unmanned aerial vehicle is to collect valuable information via remote sensing technologies for a variety of commercial industries. They may also be used to deliver messages, medicines, packages or products.
The mission of UAV Research Center is to help those who will develop and use the unmanned vehicle systems of the future.

ENERGY AND OPTOELECTRONIC MATERIALS RESEARCH CENTER

Director: Trong-Ming Don（董崇民）

The Energy and Optoelectronic Materials Research Center is staffed by specialists in chemical engineering and materials engineering. The scopes of the Center's research include the simulation and design of chemical and energy systems, improvement of the energy utilization for production processes, development and design of renewable energy application processes, material property/performance measuring, technology development for the synthesis and preparation of optoelectronic materials, development of production processes for optoelectronic applications.

WATER TREATMENT SCIENCE AND TECHNOLOGY RESEARCH CENTER

Director: Cheng-Lan Lin（林正嵐）

The goal of the Water Treatment Science and Technology Research Center (WTST) is to pursue scientific innovations for water treatment-related science and technologies. WTST aims to establish a

cooperation platform between colleges and enterprises to provide solutions for water treatment problems. The scope of research includes, but is not limited to, seawater desalination, water purification, industrial wastewater treatments and water recycling.

CENTER FOR INTELLIGENT MANUFACTURING

Director: Yin-Tien Wang（王銀添）

The Center for Intelligent Manufacturing (CIM) is an interdisciplinary research center within the College of Engineering at Tamkang University. The Center aims to promote collaboration between students, faculties and industrial specialists focusing on research in internet-integrated manufacturing technology, control systems and automation, database and big data analysis, manufacturing system operation and management.

RESEARCH CENTER FOR BUILDING AND INFRASTRUCTURE INFORMATION MODELING AND MANAGEMENT

Director: Fan Su-Ling (范素玲)

As technology continues its rapid advancement, there is a growing emphasis on engineering expertise and construction laws. Concurrently, there is significant integration of cutting-edge technologies such as Artificial Intelligence (AI), Big Data, Building Information Modeling (BIM), Virtual Reality (VR), Augmented Reality (AR), and Mixed Reality (MR) across various industries.

To facilitate collaboration between academia and industry, and to nurture talent specialized in BIM, VR, AR, MR, and related research applications that align with industry demands, the "Research Center for Building and Infrastructure Information Modeling and Management" (commonly referred to as the BIM Research Center) was established in 2022 within the College of Engineering at Tamkang University.

Our mission is to promote collaboration between the corporate and academic sectors, cultivating professionals skilled in BIM, VR, AR, and MR, equipped with the requisite skills, personality traits, and work attitudes that harmonize with industry prerequisites. We also endeavor to enhance their understanding of corporate culture, creating a reservoir of highly competent and steadfast talent. In addition, we are committed to advancing applied research in relevant domains, ultimately achieving mutually beneficial outcomes for both the corporate and educational realms.

ENERGY STORAGE MATERIALS INTERNATIONAL JOINT RESEARCH CENTER

Director: Hsu, Shih-Chieh (許世杰)

The Energy Storage Materials International Joint Research Center is affiliated with the College of Engineering at Tamkang University. It is an internationally joint research center that collaborates with the Department of Chemical and Materials Engineering, Department of Physics at Tamkang University, and the National Institute for Materials Science (NIMS) in Japan. The center is dedicated to various research areas in energy storage materials, including material characterization, development of new materials, fuel cells, and lithium batteries. The research team at Tamkang University consists of professors from the Department of Physics, Professor Chuang, and the Department of Chemical and Materials Engineering, Professors Lin and Hsu. On the NIMS side, there are two researchers (Dr. Rudder WU and Dr. Yen-Ju WU) from the Green Energy Group. Through this joint research center, we aim to build a cooperative bridge between Tamkang University and NIMS in Japan, facilitating resource sharing

and exchange, and jointly developing world-class research projects.

CENTER FOR ADVANCED QUANTUM COMPUTING

Director: Shih, Tzenge-Lien (施增廉)

Quantum information and computation is a rapidly growing field that is transforming the way we solve complex problems, transfer data, and process information. It has potential practical applications in diverse fields, from cryptography and artificial intelligence to materials science and pharmaceutical discoveries. It is also advancing our understanding of the fundamental principles of nature.

Facilitated with three two-qubit quantum computers, the Center for Quantum Computing was established in the Tamsui Campus of Tamkang University. It represents a collaborative hub for advanced research, innovation, and education in the field of quantum information and quantum computing. Our objective is to promote Quantum Information and Computation to a broader community, foster interdisciplinary collaboration, facilitate breakthroughs in research, and provide world-class education and training to the next generation of quantum scientists and engineers.

With our real quantum computers and other facilities, our center provides opportunities for people to improve their skills and knowledge in Quantum Information and Computation in practical applications with real quantum computing devices. We also bridge our local researchers to international teams through international consortia in photonic quantum computing to explore cutting-edge photonic quantum technology to facilitate quantum computing.

By providing an international platform for researchers, educators, and students, we endeavor to harness the transformative potential of quantum technology, transcending theoretical boundaries to pave the way for quantum computing's practical applications.

COLLEGE OF
BUSINESS AND MANAGEMENT

COLLEGE OF BUSINESS AND MANAGEMENT

Dean: Li-Ren Yang (楊立人)

Brief History

Over the past 30 years, the College of Management and the College of Business have built up a good reputation through hard working alumni in different walks of life. An amalgamation of the originally separate colleges, the College of Business and Management was established in 2012. Currently, it consists of twelve departments, four English programs and ten research centers. The twelve departments are International Business, Banking and Finance, Risk Management and Insurance, Industrial Economics, Economics, Business Administration, Accounting, Statistics, Information Management, Transportation Management, Public Administration, and Management Sciences. The four English programs are Bachelor's Program in International Business, Bachelor's program in Global Financial Management, Master's Program in Business and Management and TKU-QUT Master Degree Program in Finance. The ten research centers include the Cross-Strait Financial Research Center, Center for Information Technology Usage Behavior Research, Circular Economy and Green Finance Research Center (CEGF Center), The Strategic Value Management and ESG Sustainability Development Research Center, Research Center for Economic Ethics, Aging Society Welfare and Insurance Research Center, Center for Green Technology and Smart City, Statistical Consulting Center, Collaborative Governance Research Center (CGRC Center) and Global Business Management and Decision Making Research Center. The TKU College of Business and Management also offers a pioneering Executive EMBA program and is now the largest business college in Taiwan, with more than 8,300 students, and 198 full-time faculty members.

The main objective of the College of Business and Management is to cultivate talented, high quality business and management professionals, both at undergraduate and graduate levels, who may go on to contribute to Taiwanese society, which has experienced more than 50 years of high economic growth and diversified industrial development. The College has partnership agreements with the University of Michigan-Flint, IAE Lyon-Université Jean Moulin Lyon 3 and the University of Queensland for dual-master degree programs, which enable students to obtain master's degrees from two universities upon completion of their studies. Furthermore, the "International Journal of Information and Management Sciences," an EI indexed journal, is published by the College and is an indication of its academic excellence.

The College of Business and Management is guided by TKU's Triple Objectives of Education, which include globalization, future-oriented and information-orientation education. The college has actively held joint academic conferences and short-term overseas study programs with TKU's partner universities around the world for decades. The college is committed to establishing practical courses and special lecture programs by inviting key business executives as speakers throughout the year; hence, substantially enriching students' knowledge and experience beyond the textbooks. Computer and Internet facilities are available to students for homework and practice tasks. Academic journals are published by most of the departments to encourage faculty members to present their research results. The exchange visits and joint seminars held by the college and its cross-strait partner universities are among the most special events held by any of TKU's eight colleges.

College Mission

The College has the following mission - to provide an ideal learning environment, balancing theory and application, to elevate the competitive edge of each student, thus satisfying the growing needs of business. Implicit in this is a promise to cultivate professionals having excellent managerial skills, and who are thoroughly empowered with strong ethics, responsible attitudes, humanitarian accomplishments, and global visions.

Future Development

Going forward, the College of Business and Management seeks (1) To provide the research and teaching services of each department so as to meet future demands; (2) To recruit teachers with Ph.D.

degrees and outstanding research ability so as to promote the quality of teaching and research; (3) To facilitate an exchange of ideas on teaching methods across each department so as to integrate various disciplines; (4) To work on cooperative projects with other universities and industries in order to integrate theory with practice; (5) To promote international academic exchange, a more extensive English curriculum, and the Junior Year Abroad program to cultivate students' international perspective; (6) To sign academic cooperation agreements offering dual Master degree programs, and (7) To equip students with professional knowledge and skills by providing a practical-oriented curriculum.

Course Descriptions

Undergraduate Courses

B1912 ENVIRONMENT AND ECONOMY (3/0): To enable students to apply economic theory to analyze issues in the fields of environmental utilization, environmental policy and environmental conservation. At the same time, it introduces the current international important environmental issues, so that students can have an in-depth observation and understanding of the issues.

B1843 Futures Studies in Economics (0/3): The course introduce the concept and method of future studies. We hope students understand how to plan and forecast for economics. What's more important is, we adapt some professionals' perspectives for students to read. And we also select relative books and the latest news for students to read. We aim at developing students' vision and thinking attitude toward their life.

B1844 Theory Seminar of Business Management (0/2): The major content of this course is to invite business practitioners to give a talk to the class. Topics include: 1. The basic principles of successfully running a business 2. Organizational operation and personnel cultivating of running a business 3. Successful cases in the traditional industry 4. Successful cases in the hihg-tech industry

B1897 Economic Ethics (2/0): This course will discuss the importance of economic ethics through price mechanism and market failure. We will discuss some important issues such as food safety, regulatory economics, economic development and technology theft, international trade war, and international finance ethics.

M1846 HAPPY TO LEARN DATA SCIENCE AND IMAGE APPLICATIONS (0/2): This course focuses on developing "Sustainability Literacy", which is based on the problem-based learning method which allows students to learn data science by using digital storytelling and communication technology. Students can have fun by shooting short films using the materials of data visualization for case studies in Economics, Business, Politics, or other SDGs related areas.

B1857 SUSTAINABLE FINANCE (0/2): This course aims to cultivate undergraduate's ability of understanding finance, by introducing basic finance knowledge, according to significant financial events, and tries to raise people's concern and sensitivity on surrounding financial news and information.

B1848 Urban Economy And Sustainable Development (0/2): Urban economics is defined as the intersection of geography and economics. It analyzes the location choice and spatial distribution of urban activities as well as the causes of urban problems from an economic perspective. The purpose of the course is to familiarize students with the basic concepts and analytic techniques of urban economics. Students will acquire relevant knowledge through lectures, exercises, quizzes, and exams. In addition, the over-focus on economic growth leads to environmental pollution and social injustice in cities. Therefore sustainable development will be discussed.

B1899 COMMERCIAL CERTIFICATION GUIDANCE (3/0): This course guides students to obtain a total of four business licenses.

B1856 ENTERPRISE SUSTAINABLE DEVELOPMENT AND RISK MANAGEMENT (0/2): Understand the sustainable development. Acknowledge risk, understand risk, and manage risk.

M1904 Social Service (I) (1/0): This course cooperates with WT Microelectronics Education Foundation to provide our students the opportunity to enhance the reading ability of primary school students in Penghu area.

M1854 Social Service (II) (0/1): This course cooperate with WT Microelectronics Education Foundation to provide our students the opportunity to enhance the reading ability of primary school students who are the underprivileged.

B1898 Innovative Marketing and Brand Sustainability (2/0): 1. Understand the differences between new ventures and new brands 2. Evolution and innovation of marketing tools 3. Analysis of business brand and marketing cost 4. Discussion on sustainable brand management and case studies

B1911 Smart Finance (2/0): This course is presented from both aspects of digital finance and financial technology. It introduces the five technologies currently used by financial institutions through cloud computing, big data analysis, artificial intelligence, biometrics and blockchain, and is applied in automated payments, social communities and e-commerce. At the same time, there are also innovations in the operation and services of the insurance industry. However, how to use legal compliance and supervision against various risks will be a necessary way for sustainable operations.

M1903 Intelligent Transportation System (3/0): The purpose of this course is to introduce key technologies and their applications to Intelligent Transportation Systems (ITS). In the first half-semester, the front-end data collection, integrated platform and the rear-end applications technologies are surveyed. In the second half-semester undergoing applications for Taiwan's ITS such as cooperative traffic management, connected autonomous vehicles, smart tourism, MaaS, and smart corridor emerging with AI, cloud computing, big data, mobile communication and Internet of Things technologies are also explored.

M1906 Sustainable Innovation Management (3/0): This course allows students to understand the purpose and practice of ESG management, including sustainable development trends, product carbon footprints, greenhouse gas inventory, corporate social responsibility, social
impact assessment, etc. This will provide students with a comprehensive understanding of sustainable management and enhance their employment competitiveness.

B1907 Sustainable Economic Development and Business Opportunity (2/0): This course explores the core concepts of sustainable economic development and green finance, with a particular focus on entrepreneurship and green investment. Students will learn how to leverage innovative technologies to drive green finance and enhance corporate performance in environmental protection and social responsibility. The curriculum includes green financial instruments, ESG assessment methods, and how to integrate sustainable development strategies into the entrepreneurial process, providing practical guidance for achieving economic and environmental success in the future.

B1909 Global Economic Development and Asset Allocation (2/0): All investment tools in Taiwan are basically affected by the economic trends in the United States. The performance of important listed companies is affected by the operations of U.S. upstream manufacturers; the basic settings of funds and insurance are also linked to U.S. interest rates, prices and other indicators. If you want to master your own financial management and investment.

B1901 Sustainable Finance and Carbon Pricing (2/0): This course is designed to teach students to learn the basic abilities of sustainable finance and carbon pricing, and encourages students to participate in the "Sustainable Development Basic Ability Test" certification examination organized by the Financial Supervisory Commission. The basic abilities of carbon pricing include familiarity with carbon trading systems, carbon credit, carbon fees, and carbon trading. Students are encouraged to continue to learn AI, and to invest carbon pricing in the financial industry and various industries in the future.

M1908 Business Transformation and Sustainability (3/0): This course aims to familiarize students with the concepts of business transformation and sustainability. By teaching business ethics, ESG (Environmental, Social, and Governance), SDGs (Sustainable Development Goals), carbon inventory, and digitalization, students will acquire concrete and applicable knowledge to meet future development needs.

M1902 Introduction to Artificial Intelligence (3/0): This course will introduce the basic AI techniques such as neural network, image recognition, video recognition, voice recognition, natural language processing, generative AI, and reinforcement learning.

M1910 Innovation and Entrepreneurship Practice (2/0): The aim is to cultivate students with innovative thinking and practical entrepreneurial skills. This course integrates Inspiring Innovative Thinking Cultivating Entrepreneurial Spirit and Industry Development Trends. It encourages students to think innovatively and solve problems. Students are encouraged to combine their professional knowledge with innovative and entrepreneurial spirit.

M1852 The Introduction to Distance Learning (0/2): This course provides an overview of e-learning and the relevant practices. Students will gain knowledge of e-learning and develop skills in planning and making e-learning activities through the introductions of e-learning topics.

M1850 Sustainable Environment and Net Zero Carbon Emissions (0/3): The global greenhouse effect is intensifying, and the impact of extreme and abnormal climate on countries around the world is gradually deepening. In 2012, the Ministry of Environment enshrined the 2050 net-zero target. We hope is course planning will pay attention to affect energy of net-zero environment, green living and the pulse of sustainable development. The educational goal is to improve students' environmental cognition, attitude, and behavior.

B1851 Sustainability Marketing Strategy of Fashion Brand (0/2): Understand the challenges and problems faced by fashion brands as they begin to globalize. Analyze the comprehensive impact of ESG on the environment, society, and enterprises. How to integrate ESG sustainable marketing when operating a fashion brand. The implement of ESG cost and benefit for enterprises. How to cope with the rapid development of new media and new technology for sustainable marketing of fashion products.

M1849 Financial Technology and Digital Transformation Practice (0/3): This course aims to explore the evolving trends in international financial technology and analyze the current state and responses of the financial technology industry in Taiwan. The curriculum covers theoretical foundations, featuring lectures by industry leaders and professionals who engage in interactive discussions with students. Practical exercises are also incorporated to deepen learning.

Master's Program

B8244 Retirement Planning and Financial Management (3/0): This course introduces how to do the retirement life plan and retirement financial plan. Students can learn retirement plans and financial management from this course.

B8245 Green Consumption and Operation (3/0): This course will provide an overview of the broad field of consumer behavior. We will strive to develop both a detailed theoretical understanding of consumer behavior and an appreciation of methodological perspectives that are foundational to this field.

M8246 Business Ethics (1/0): This course aims to present a comprehensive framework from the perspective of stakeholders to explain and illustrate how businesses make ethical decisions and handle ethical disputes. Through the discussions in this course, it is hoped that business ethics can be concretely implemented in daily operations and personal decision-making within enterprises.

M8247 Business Ethics (1/0): The current course introduces the ethical relationships between the business and the society and helps students understand the multi ethical obligations of businesses toward stakeholders inclusive of employees, stockholders, competitors, community, and the environment.

M8261 M8262 Business Ethics (0/1): The purpose of this course for students aims at learning and understanding the conceptual context of business ethics, social responsibilities and corporate governance. The main contents include morality philosophy, moral cognition development process, occupational spirituality, moral leadership, moral judgment, and moral culture and so on. By all these abundant content, students are expected to develop the sense of morality, professionally ethical conducts, and the judging criteria in the practical cases judgments.

M8263 Business Ethics (0/1): Understand topics related to corporate ethics, including ESG

(environmental issues, corporate social responsibility, corporate governance), misconduct, responsible investment, etc.

M8265 Big Data Mining (0/2): This course guides students into data analytics professional from the basics to advanced topics. The contents include: basic statistics, data processing, data visualization, machine learning, social network analytics, opinion mining, and Docker container and ELK. This course particularly emphasizes the concepts and techniques of data analytics.

B8248 Asset Management by Big Data and Algorithms (2/0): This course aims to develop students' understanding of programming applications, algorithms, and big data in the practical application of asset management. The Securities and Futures Institute (SFI) is in charge of arranging course contents and inviting lectures with rich practical experience as our course instructors to provide students with the latest asset management know-how.

B8266 Practice of Sustainable Development in Asset Management (0/2): This course focuses on training the students to be an experts and will invite the financial practitioners. We believe that the course could make students know the operation of realized market and apply their ability in future working career.

M8249 TRIZ Application (3/0): Module TRIZ offers an introduction to some of the most cutting-edge inventive problem solving techniques. TRIZ provides you with the technical system evolution understanding and different of 40 principles to solve contradictions in technical system. The main goals are the creative thinking elaboration, inventive problem solving competence acquisition.

EMBA Master's Program

M8236 Business Ethics (3/0) (0/3): The purpose of this course for students aims at learning and understanding the conceptual context of business ethics, social responsibilities and corporate governance. The main contents include morality philosophy, moral cognition development process, occupational spirituality, moral leadership, moral judgment, and moral culture and so on. By all these abundant content, students are expected to develop the sense of morality, professionally ethical conducts, and the judging criteria in the practical cases judgments.

M2840 Leadership and Teamwork (3/0) (0/3): 1. Familiarize participants with leadership theories and practices through case analysis; 2. Expose participants to various leadership perspectives via group studies and discussions;3. Enhance participants' sensibility to current management environments from discussions of contemporary leadership literature and issues.

M8242 Athletic and Health Management (3/0): The Exercise and Health Management program is designed to provide students with comprehensive theoretical knowledge and practical skills to effectively manage and enhance the health status of individuals and others. This course will provide an in-depth look at various aspects of exercise science, including exercise physiology, exercise psychology, and exercise nutrition, and how this knowledge can be applied to health promotion and disease prevention.

M8256 Happiness Economics and Health Management (0/3): Exercise is the best way to prevent disease, through regular and appropriate exercise, can improve and control all diseases and symptoms without any side effects, and improve the quality of life. Because of this, how to borrow by movement and improve the health, and management is an important issue, sports health management, covering a variety of topics in the field of special ethnic sports fitness and health management and evaluation, to adapt to the sports and combined with practice, using the method of fitness training and muscle strength training method.

T8243 Research Methodology (3/0) (0/3): Research methodology is a course which integrates the problem domain, theories, and approaches into a system. By doing so, students can investigate a research subject, study relevant theories, and implement approaches on a research issue.

Ph.D. Program

M9057 Business Ethics (1/0): The purpose of this course for students aims at learning and understanding the conceptual context of business ethics, social responsibilities and corporate governance. The main contents include morality philosophy, moral cognition development process, occupational spirituality, moral leadership, moral judgment, and moral culture and so on. By all these abundant content, students are expected to develop the sense of morality, professionally ethical conducts, and the judging criteria in the practical cases judgments.

DEPARTMENT OF INTERNATIONAL BUSINESS

Degrees Offered: B.B., M.B.A. E.M.B.A

Chairman: Chiang-Feng Lin(林江峰)

The Department

The Department of International Business was established in 1963 to adapt to the nation's economic development and cultivate students with specialized knowledge in commercial affairs in general and in international commercial affairs. In the early stage, classes were only taught in the evenings. In 1965, the Department was restructured and it started to offer classes in both daytime and evening divisions. In 1982, the Department was expanded and three classes were added to both its daytime and evening divisions. Courses offered at the time covered theories, policies, and practices related to economics, marketing, finance, and foreign trade.

In the 1990s, due to the economic changes experienced worldwide, domestic enterprises were becoming more and more globally involved and seeking foreign subsidiaries and branches. To cope with the need at the time, the Department began to add courses related to international business management and international investment to its undergraduate curriculum.

The graduate program of international business was established in 1992. It offers a Master of Business Administration (MBA) degree aimed at training middle to high-level managers of multinational enterprises. It provides intensive and specialized education and research facilities in the following four areas: international business management, international marketing, international financial management and planning, and international investment decision making. These and other relevant courses are designed to correlate with the current trend of internationalization.

In the 1997-1998 academic year, the graduate program was divided into two subprograms, namely, the International Business Program, and the International Economics, Investment, and Trade Law Program. In the same academic year, the undergraduate program changed. It no longer accepted students into the evening division, and instead, the program enrolled four classes of regular daytime students.

In the 2000-2001 academic year, the undergraduate program established an extension program that took enrollment from one class of high-school graduates who had left school for at least one year. Therefore, the four classes of regular students were reduced to the current three. In the meantime, the graduate program began to accept enrollment from a class of college graduates who had already been in the workforce for more than three years.

In the 2002-2003 academic year, with an aim to carry out the Ministry of Education's policy of lifelong study in higher education, the Department set up a new graduate program offering the degree of Executive Master of Business Administration in International Commercial Sciences (IMBA). The IMBA program trains high-level managers for positions in multinational enterprises, and provides education and research in international marketing, international financial management, international insurance, and international economics. Required courses are lectured mainly in English, while optional ones are taken abroad in an intensive course fashion. Thanks to the joint efforts of high-ranking managers and the faculty of the College of Business, this program strives to make business decisions, grasp the current multinational investment environment, and explore and solve problems related to multinational business.

In the 2003-2004 academic year, to promote the internationalization policy of the university and highlight the special features of its development, the Department set up the Undergraduate English Instruction Program. All the courses of the program are instructed in English, except for the general courses. The major courses of the first two years of study focus on the fundamental theories related to international business. The Junior Year Abroad Program emphasizes international marketing, international business management, international financial management, and international economics. The fourth-year curriculum highlights the features of the development of the Department in the nation. In accordance with local trends and changes to the global business world, in 2010 the department changed its name to the Department of International Business.

In the 2012-2013 academic year, the IMBA program was changed to Executive Master's Program of Business Administration (EMBA) in International Marketing due to the expansion need for professional experts in International Marketing.

Faculty

Professors
Yi-Nan Lin (林宜男) ; Jyh-Horng Lin (林志鴻) ; Jeng-Yan Tsai (蔡政言) ; Chu-Mei Liu (劉菊梅) ; Chia-Chi Sun (孫嘉祈)

Associate Professors
Chun-Hui Chang (張俊惠) ; Chin-Chang Lai (賴錦璋) ; Chiang-Feng Lin (林江峰) ; Yi-Ming Tseng (曾義明) ; Chih-Jou Hsieh (謝志柔) ; Yi-Cheng Liu (劉一成) ; Mei-Rong Lin (林美榕) ; Chun-Hui Tseng (曾忠蕙) ; Sheng-Hsiung Chang (張勝雄)

Assistant Professors
Fang Ho (何怡芳) ; Jia-Huey Hsu (許佳惠) ; An-Chi Wu (吳安琪) ; Yung-Hsin Lee (李永新) ; Sheng-Pin Hsueh (薛勝斌); Yi-Ting Tsai (蔡依瑩); Pei-Chun Chen (陳姵君)

Degree Requirements

This department offers two programs at the undergraduate level (Bachelor in Business) and three programs at the graduate level (Master's in Business). The different degree requirements are as follows:

1. Requirements for the degree Bachelor in International Business:
   Completion of 128 credits, including 84 credits of required courses and 22 credits of elective courses offered by the department and 22 credits by others.

2. Requirements for the degree English Instructed Bachelor in International Business:
   Completion of 128 credits, including 78 credits of required courses and 27 credits of elective courses offered by the department and 23 credits by others. (All the courses are lectured in English.)

3. Requirements for a Master's degree in Business Administration (MBA):
   Completion of 39 credits, including 10 credits of required courses and 29 credits of elective courses offered by the institute. Students are also required to submit a written thesis completed under the supervision of a faculty member and to pass an oral examination.

4. Requirements for an Executive Master's degree of Business Administration in international business and innovation management (EMBA):
   Completion of 36 credits, including 9 credits of required courses and 27 credits of elective courses offered by the institute. Students are also required to submit a written thesis completed under the supervision of a faculty member and pass an oral examination.

5. Requirements for an Executive Master's degree of Business Administration in International Marketing (EMBA):
   Completion of 36 credits, including 9 credits of required courses and 27 credits of elective courses offered by the institute. Students are also required to submit a written thesis completed under the supervision of a faculty member and pass an oral examination.

Course Descriptions

Undergraduate Courses

A0529 English Conversation (2/2): This course is designed to improve students' ability to speak English in real-life situations. Subjects will be wide-ranging and topical to ensure that students develop the ability and confidence to engage in true discussion.

A0582 Business English Conversation (2/0): This course is designed to develop students' skills of

English listening, speaking, reading and writing in a variety of business situations. It focuses on day-to-day communication needs such as conversing by phone, socializing, and negotiating.

A0945 Japanese Conversation (0/2): This course aims to improve students' skills in listening, speaking, reading and writing Japanese. The topics taught include general lifestyle, culture, business activities, etiquette, etc.

B0033 Essentials of Civil Law (2/0): This course focuses on the basic legal structure of civil affairs. Topics include, but are not limited to, laws governing contracts, lease agreements, mortgages, marriages, and family.

M0142 Marketing Management (3/0): This is an introductory course, teaching the roles of marketing, marketing ethics, consumer behavior, selection of market, and strategies on product, pricing, distribution, and promotion.

B0071 Investments (2/0): This course provides students with a general understanding of investments. The course covers topics as fundamentals of investments, equity securities, bonds, derivatives.

B0109 Insurance (0/3): This course summarizes the pervasive nature of pure risk on the individual and illustrates the way in which insurance can be used to deal with the problems posed by such risk.

B0130 Microeconomics (3/0): This course focuses on analytical skills for microeconomic problems. Topics include consumer theory, theory of the firm, market structure, and elementary welfare economics.

B0173 Commercial Law (2/0): This course presents a survey of laws governing various forms of corporate organizations, and laws governing commercial papers, including promissory notes, bills of exchange, and checks.

B0191 International Business Management (0/3): This is a two-semester course teaching introductory material in general management, including marketing, financial management, production, and human resources in the first semester, and focusing on relevant topics in the context of international business in the second.

B0198 International Marketing (3/0): This course focuses on the international aspects of marketing. Topics include analysis of environment, analysis of competitions, strategies of pricing, product development, and promotion.

B0202 International Finance (2/2): This course focuses on the international aspects of the financial world. Topics include the foreign exchange market, historical evaluations of international financial systems, mechanics of hedging exchange rate risks, theory of balance of payments, theory of exchange rate determination, and open economy macroeconomics.

B0206 International Financial Management (0/3): This course introduces financial management and international aspects of financial management with special emphasis on risk hedging.

B0213 Laws on International Trade (3/0): This course offers an introduction to the making of trade laws in Taiwan, international customized rules of trade, and trade laws of major trading partners.

B0219 International Trade Theory and Policy (2/2): This course teaches basic concepts of comparative advantages, theory of tariffs and non-tariff trade obstacles, economic integrations, and recent developments in international economic environments.

B0221 International Trade Affairs (2/2): This course covers practical matters relevant to international trade, including materials concerning communication, pricing, contracting, shipping, commodity and exporting insurance, payment processes, and various laws and/or customized rules governing international trade.

B0236 International Economics (3/0): This course consists of two equally important topics: international trade theory and international finance. International trade theory aims at exploring the principle of international specialization and policies involved with it. The international finance part leads

to the understanding of the operations of international monetary system.

S0325 Calculus (2/2): Mathematics is unquestionably the single most important tool of the modern economist. In this course, we will pay more attention to the development of the ideas of limits and continuity, moving then to the calculus of functions of one variable, multivariate calculus, and finally dynamics. We believe an understanding of the mathematical concepts is required if a student is to develop the ability and confidence to tackle problems in economic analysis.

B0302 Economics (2/2): This is an introductory course that teaches basic knowledge in various areas of economics and provides a broad understanding of economic affairs.

B0310 Data Analysis (3/0): In this course, we provide a simple explanation of basic statistics. We then help students collate financial data and introduce the financial model using excel software.

B0373 Macroeconomics (2/0): This course focuses on macroeconomic structure and interactive behavior among agents. Topics include the basic structure of macroeconomics, expectation formations, effectiveness of government policy, and fundamental growth theory.

B0395 Business English (2/2): This course teaches techniques related to business letter writing. Topics include inquiries, replies and quotations, import and export procedure, sales contracts, orders, complaints and adjustments, and letters of credit in foreign trade.

B0489 International Business Policy (3/0): This course provides an integration of materials taught in the courses General Management, Marketing, Financial Management, and Investment Decision Making in International Business.

B0741 Financial English (3/0): This course guides students step by step through the world of finance, giving students the essential language and terminology needed to succeed. Six main topics are covered: financial markets and instruments, accounting basics, money and banking, trade and commerce, corporate finance, and economic issues.

B0743 Business Report Writing (2/0): This course is designed for students who need to be able to read, interpret and write everything from short memos to longer reports in English. It also encourages students to become progressively more aware of what makes an effective piece of written communication in English. Throughout the course, guided writing tasks and language focus topics are integrated, with an aim to building students' confidence in expressing themselves with grammatical accuracy in logically constructed reports.

M0800 Business Ethics (3/0): This course provides students with essential knowledge on ethical behavior in today's business world. To build students' sense of responsibility and deter corporate fraud, this course covers several major topics such as: stakeholder relationships, corporate governance, and corporate social responsibility.

M0518 Accounting (2/2): This course introduces the basics of accounting, including financial statements and the related items in them. Student are expected to read and explain the items and numbers in the financial statements as the bases for decision making.

B0807 Introduction of International Financial Instruments (2/0): This course will introduce the basic theory of investment and some international financial instrumentals, including stock, foreign exchange, mutual funds, futures contract and exchange traded funds (ETF).

B0838 Economics of Money, Banking, and Financial Markets (2/0): This course will develop an integrative economic framework to organize students' thinking about financial markets and institutions so that students can have a better understanding of our financial system and learn to apply it to current developments.

B0841 Taiwanese Investment in Mainland China (2/0): The main purpose of this course is to develop a Cross-Strait economic competition paradigm which is one of the important issues for politicians and businessmen in Taiwan. How to adjust the investment and management strategies to gain vantage from the "competition-cooperation" model for Taiwan's corporations is a crucial and urgent mission. This

course comprises three sections: the history of China's economic reform, an enterprise case study, and globalization and Cross-Strait economic relations.

B0927 International Business Communication in English (0/2): This course aims to build students' confidence in expressing themselves correctly and fluently in English, and enable them to become effective communicators in their future business careers. It focuses on business communication needs in the workplace such as entertaining visitors, meetings and discussions, presenting facts and figures, and job interviews.

B0994 World Trade Organization (0/2): The WTO is an organization for liberalizing trade, and provides the following three main functions: (1) a forum for governments to negotiate trade agreements, (2) a place for them to settle trade disputes, and (3) an organization to operate a system of trade rules. At its heart are the WTO agreements, negotiated and signed by the bulk of the world's trading nations. These documents provide the legal ground-rules for international commerce. They are essentially contracts, binding governments to keep their trade policies within agreed limits.

B1002 Financial Markets, Institutions, and Investments (2/0): This course is suitable for undergraduate students. It enhances students' comprehension level in international financial markets and institutions, provides a conceptual framework that can be used to understand why different financial markets exist and what types of services financial institutions offer. Each type of financial market is described, with a focus on the securities that are traded in that market and the participation by financial institutions.

B1158 Applied Economics Analysis (3/0): This course provides a simple review of statistics and economics. It introduces how to collect macro and micro economic data, and through this process of data collection, how to make optimal investment decisions.

B1253 Service Marketing & Management (3/0): Service marketing is a form of marketing which focuses on selling services. Services can be difficult to sell and approaches for marketing services are therefore vastly different from that of traditional products. Some companies approach service marketing with a combination of both products and services. For example, a store which sells computers also tends to offer services such as helping people select computers and providing computer repair. Such a store must market both its products and supporting services to truly appeal to customers.

B1255 Global Advertising Management (0/2): Global advertising management is a senior undergraduate course that focuses on how to identify global advertising issues, how to conduct an advertising campaign, when to create the right media exposure, and how to examine advertising effectiveness. In fact, advertising is part inspiration and part hard work. It requires not only a knowledge of how successful global advertising strategies are formulated, but also practical participation in this process of formulation.

B1391 International Business Management Practice (3/0): The course introduces famous MNE cases and practices, and discusses the practical applications of business knowledge.

B1397 Money and the Financial Systems (3/0): Economists study how people make decisions and interact with one another, but they also analyze forces and trends that affect the economy.

B1456 Analysis of Current Trends in International Politics (0/2): This course provides knowledge, including history, current issues and political development, on the world's primary nations, geographic areas and international organizations, and introduces analytical theories to better understand the nature of international politics.

B1457 International Journalistic English (0/2): The articles covered in this course relate to issues in the fields of politics, economics, society, culture, entertainment, and environment. Students will learn frequently-used vocabulary and important techniques in the thematic development of an English news article, thus enabling students to read on their own.

M0086 Business Essentials (3/0): This course helps beginning business students to understand how business, government, and citizens together influence the way that business is conducted in different societies and the types of environment in which business prospers.

M0090 Management (3/0): This course aims to introduce basic concepts on management, including environmental analysis, planning, organization, and controlling, and so on. In addition, several integrated topics are introduced, including international management and entrepreneurship.

M0142 Marketing Management (3/0): This course was designed to introduce basic concepts of marketing management, including "product, price, place, promotion, and planning" of international marketing activities. Students should also learn and apply the basic concepts above with practical case studies from this course.

M0271 Financial Management (3/0): Financial Management is a building block to students in the field of finance. The topics taught expose students to fundamental concepts such as financial markets and institutions, risk and rates of return, interest rates, and analysis of financial statements.

M0394 Management Accounting (0/3): This course deals with the provisions and use of accounting information to managers within organizations and to provide them with the basis to make informed business decisions that will allow them to become better equipped in their management and control functions.

M0517 Statistics (2/2): The purpose of this course is to give students a conceptual introduction to the field of business statistics and its many applications; therefore, applications of data analysis and statistical methodology are an integral part of the course. That is, the emphasis of the course is on helping students understand the wide range of statistical applications in business and finance.

M1104 Supply Chain Management (2/0): This course provides a comprehensive overview of supply management and global logistics. The course addresses global dimensions of supply chains, supply chain performance measurement and financial analysis, supply chain technology, transportation management, inventory decision making, warehousing decisions, network design and facility location, procurement and operations. Cases selected from various industries are also introduced in class.

M1775 Innovation Management (2/0): This course aims to equip students with an understanding of the main issues in innovation management, an awareness of the key features of success, and an appreciation of the relevant skills needed to manage innovation at both strategic and operational levels. It provides evidence of different approaches based on real-world examples and experiences of leading international firms.

T0086 Technology Management (3/0): This course focuses on the strategic management of technology and innovation in the business environment in both new and long-established firms. The conceptual framework of this course is an evolutionary process perspective on technology strategy and innovation. It draws on strategic management, economics, and organization theory as tools for addressing important challenges faced by managers in firms where technology is changing. This technology may take the form of information, products, processes and/or administrative procedures.

B0825 Market Survey and Applied Statistics (2/0): This course communicates the essence of marketing research to undergraduate-level students. The aim is to help them to know when marketing research can and should be used, what research alternatives exist, how to recognize effective and ineffective research, and how to interpret and apply the results.

B1550 Trade Show and Event Marketing (0/2): This course is to introduce the content and strategies of event marketing, including three Es and five Ps. Event marketing is about marketing management of conventions, expositions, seminars, celebrations, anniversaries, receptions, political rallies, training programs, etc. Three Es of event marketing are entertainment, excitement, and enterprise. Five Ps of event marketing are product, price, place, public relations, and positioning. This course will also arrange several practical assignments to help students experience and learn the skill of event marketing more.

Master's Program

B0196 International Marketing Management (3/0): Course topics include international market environment, the effect of culture on marketing strategy, the segmentation of international markets and competitive analysis, marketing mix decision—product, price, place, promotion—and the planning and

control of international marketing activities.

B0814 International Strategy Management (0/3): This course focuses on how to design and implement an effective firm strategy. The foundations of theories we introduce in this course are drawn from two distinct bodies of research: the resource-based view of the firm, and organizational economics. In addition, the view of strategies presented here is analytical. If strategic management is all about managing to achieve outstanding success, then the essential tasks of strategy are to identify the sources of superior business performance and to formulate and implement a strategy that exploits these sources of superior performance**.**

B1392 International Supply Chain Management (2/0): This course presents the basic concepts and principles of Global Supply Chain Management. Students will learn the dimensions of global supply chain management, including product and material flows, information flows, and financial flows.

T0081 Research Methodology (3/0): The purpose of this course is to teach students how to write a master thesis or a research paper with correct formatting, including the methodology used, data collected, and thesis structured.

M0144 Seminar in Marketing Management (3/0): The Primary objective is to enable students to understand how to make important marketing decisions which they will face in middle-management positions. In addition, this course will put an emphasis on the application of marketing concepts, tools, and decision-making processes.

M0272 Seminar in Financial Management (0/3): This course introduces the concepts and tools used in finance and international finance. Case studies and papers are used to realize the application of these financial concepts and tools.

M2074 Leadership and Teamwork (0/3): This course introduces the theories and practice of leadership and team building to help students apply what they learned from the course for work or future studies.

B1444 International Negotiation (3/0): The goal of this course will give student a fundamental understanding of concept and framework in international commercial negotiations.

B0518 Marketing Planning and Strategy (3/0): The course presents theory in the context of real, data-driven examples, and then develops intuition to solve Problems. Students gain a practical perspective, seeing how models connect to real-world decisions being made in today 's firms and policy debates.

B1526 Promotion Strategy (3/0): The course is about promotion strategies. Through this course, students can learn theories about promotion as well as many approaches to design promotion campaigns. Case studies are also arranged in this class, and students need to have group discussions in class to help them share and improve their practical experiences and skills.

B0824 Enterprise in Global Economy (3/0): The international economic situation has changed dramatically in the past few years, it is more important for the young generation to understand the main issues with respect to exchange rate. the emphasis in this subject will be on conveying at an intuitive level the main propositions in the literature. as the result, the student with little economics background will be able to grasp the propositions and apply the theoretic concept in the real world.

B1741 Economic Trend and Strategic Management (2/0): To understanding the possible trends of the International Economics and their applications in the decision-making are the major purposes. Introducing the possible future of the international economic trend incorporated into the decision-making process is also crucial in this course.

B1743 Transnational Enterprise Management and Marketing (3/0): The purpose of this course is to enable students to have a deeper understanding of the internationalization of enterprises, and to integrate the professional knowledge of business management with internationalization, and to incorporate some of the strategic concepts of marketing to be used in conjunction with business management.

B1253 Service Marketing & Management (3/0): This course explores the dimensions of successful service firms. Studying "breakthrough" services to understand the operations of successful service firms that can be helpful for future management practice. Developing a service management thinking and awareness of the opportunities that information technology can have for enhancing service firm's competitiveness. Exploring the organizational significance of managing the service encounter to achieve internal and external customer satisfaction.

B1676 Analysis of Market Competition Strategy (0/3): The purpose of competition law is to maintain a fair competitive market, and handles various activities impeding competition, such as monopolies, mergers, concerted actions, and other restraints on competition or unfair trade practices on enterprises. Therefore, this course is introduced how the authority of competition law investigates and disposes the cases involving competition law.

International Business and Innovation Management EMBA Master's Program

T0081 Research Methodology (3/0): The purpose of this course is to teach students how to write a master thesis or a research paper with correct formatting, including the methodology used, data collected, and thesis structured.

B0206 International Financial Management (3/0): Topics of this course include the multinational aspects of financial management, the balance of payments and international economic linkages, parity conditions in international finance and exchange rate forecasting, short-term financing, asset management, international portfolio investment, corporate strategy and foreign direct investment, capital budgeting for the multinational corporation, the cost of capital for foreign investment, and the measurement and management of political risks.

B1741 Economic Trend and Strategic Management (3/0): To understanding the possible trends of the International Economics and their applications in the decision-making are the major purposes. Introducing the possible future of the international economic trend incorporated into the decision-making process is also crucial in this course.

B1578 International Logistics (3/0): The course is going to provide student the concept of Logistics and SCM and an understanding of Logistics and SCM operation practice and management in business through lectures and cases study.

B1679 Consumer Behavior and Online Community (3/0): The main purpose is to analyze the behavior of the market and consumers, using classroom lectures and case analysis discussions to enable students to use case examples. Content topics include basic consumer behavior theory, decision-making process theory, consumer knowledge, and related, reference groups, family, social class, and personal factors. Others include cultural and creative industries, art consumer markets, consumer behavior of new technological products, and tourism trends.

B1039 Corporate Governance (0/3): Corporate governance has been emerging since the early 1970's in response to the perceived lack of effective oversight that contributed to the poor performance problems in many corporations. Inadequate corporate governance has been identified as a major reason resulting in the Asian financial crises. The impact arising from Enron and Corporate America has now put the issue under a spotlight. The issue of corporate governance is currently creating widespread discussion in Taiwan.

M2074 Leadership and Teamwork (0/3): This course introduces the theories and practice of leadership and team building to help students apply what they learned from the course for work or future studies.

B0693 Seminar on Marketing (0/3): This course will help students understand how to make important marketing decisions which they will face in middle-management positions. We are going to invite many speakers from various background to talk about how they make those crucial decisions.

B1494 Organizational Behavior of International Business (0/3): The course discusses how "human's" psychological side influences his/her behavior in an organization. We classify behavior into three parts, including individual, group and network behavior. We also introduce academic theory and practical cases.

B1620 Game Theory for Managers (0/3): Our objective is to give students a working knowledge of the analytical tools that bear most directly on the economic decisions' firms must regularly make. This course examines the choices that we make which affect others and the choices others make that affect us. Such situations are known as "games" and game-playing, while sounding whimsical, is serious business.

International Marketing EMBA Master's Program

M0800 Business Ethics (2/0): The goal of this course is to discuss and help students understand how an enterprise can be regarded as a corporate citizenship.

M2074 Leadership and Teamwork (0/3): This course introduces the theories and practice of leadership and team building to help students apply what they learned from the course for work or future studies.

B1526 Promotion Strategy (3/0): The course is about promotion strategies. Through this course, students can learn theories about promotion as well as many approaches to design promotion campaigns. Case studies are also arranged in this class, and students need to have group discussions in class to help them share and improve their practical experiences and skills.

B1444 International Negotiation (3/0): The goal of this course will give student a fundamental understanding of concept and framework in international commercial negotiations.

B1676 Analysis of Market Competition Strategy (3/0): The purpose of competition law is to maintain a fair competitive market, and handles various activities impeding competition, such as monopolies, mergers, concerted actions, and other restraints on competition or unfair trade practices on enterprises. Therefore, this course is introduced how the authority of competition law investigates and disposes the cases involving competition law.

B1573 Competitive Advantages and Innovation Strategies (3/0): This course is designed to expend participants' understanding of innovation management combining with modern competitive analysis and their use in decision-making and management in a global vision. From integrating technological, market and organizational change, this course provides a semester-long opportunity to test students' global visions, strategic skills, and managing innovation.

B1700 Consumer Behavior Seminar (3/0): For a marketing strategy to be successful marketer should try their best to understand why their customer behave in certain ways. The important concepts and knowledge related to consumer behavior will be illustrated in the course, and how does those concepts and knowledge impact the marketing strategies will be also emphasized in the course.

B1253 Service Marketing & Management (0/3): This course explores the dimensions of successful service firms. Studying "breakthrough" services to understand the operations of successful service firms that can be helpful for future management practice. Developing an service management thinking and awareness of the opportunities that information technology can have for enhancing service firms competitiveness. Exploring the organizational significance of managing the service encounter to achieve internal and external customer satisfaction.

B1720 International Marketing Channel and Brand Management (0/3): This course discusses the strategy and management of marketing channels and branding, including consumer analysis, channel designing and management, and the application of brand management and strategy.

B1760 Franchising Management (0/3): This course aims to discuss franchising management and retailing management. Specific details about the course will be announced in the first week's class.

B1769 Strategic Innovation and Business Model (0/3): This course mainly allows students to have strategic innovation and business model innovation concepts and methods. Focus on industrial innovation, green innovation, network relationship construction, and business model innovation methods. Let students understand the future management and strategy and the method and structure of the business model, which will be of practical help to the management and international operations.

DEPARTMENT OF BANKING AND FINANCE

Degrees Offered: B.B.A. E.M.B.A., M.B., Ph.D.

Chairman: Yun-Yung Lin (林允永)

The Department

The Department of Banking and Finance was established in 1965 as a section of the Department of Banking and Insurance. In 1974, the Department of Banking and Insurance was divided into two departments, the Department of Banking Management and the Department of Insurance. In 1988, the name of the Department was changed to the present one.

The Department of Banking and Finance offers a Bachelor of Business degree. Students are required to take 96 required credits and 42 elective credits to qualify for graduation. The objective of the program is to improve students' decision-making ability as bank managers, portfolio managers and financial managers.

In the academic year 2021, the Department of Banking and Finance redesigned its undergraduate program and created a brand new program－Department of Banking and Finance Division of Global Financial Management (English-taught program), formerly known as Bachelor's Program in Global Financial Management (English-Taught Program). This was done with an aim to push forward the internationalization policy the university and highlight the special features of its development. Moreover, all the courses of the program are fully instructed in English with no exception.

The major courses of the first two years of study will focus on the fundamental theories related to international financial management. The Junior Year will emphasize scopes of internationalization, IT based information, and futuristic education to foster financial talents. The senior year curriculum will focus on both financial theories and real-world practices, which will enable students to evenly cultivate their stills in diverse fields.

With an aim to emphasizes the development of globalization and to position two different existing programs in harmony, the department has restructured its curriculum. One of the divisions of Banking and Finance emphasizes traditional financial content and the other English-taught Division of Global Financial Management, concentrates on global financial management activities. Furthermore, the latter takes international differences into considerations and thus global resources are incorporated which consider such differences.

The department has been designed to cultivate Banking and Finance as well as Global Financial Management elites. Every graduate from our department will without a doubt, become a key play in every professional area as they will be equipped with the skills to do so.

Master of Business Administration in Banking and Finance (English Taught Program) is a master program of Finance fully taught in English. Aligning with our university's educational goal of internationalization, the aim of this division is to cultivate local and international students to attain a true world-view of banking and finance, taking many different international perspectives into account. Beside the require courses, there are three selective fields for students to take, international investment field, financial engineering field and digital finance field. The aim of the master program is to cultivate the students to a practical international financial professional.

Faculty

Professors

Jong-Rong Chiou (邱忠榮) ; Chien-Liang Chiu (邱建良); Chien-Chung Nieh (聶建中) ;
Ming-Chih Lee (李命志) ; Wo-Chiang Lee (李沃牆) ; Kuang-Ping Ku (顧廣平) ;
Chien-Chih Lin (林建志)

Associate Professors

Yu-Lung Chen (陳玉瓏) ; Chang-Wen Duan (段昌文) ; Wan-Hsiu Cheng (鄭婉秀) ;
Yun-Yung Lin (林允永)；Sue-Chin Yang (楊斯琴) ; Chien-Ming Huang (黃健銘) ;
Ching-Hsiang Chao (趙慶祥)

Assistant Professors
Cheung-Sum Lu (路祥琛) ; Ren-He Wang (王仁和) ; I-Ting Lu (呂伊婷) ;
Hsuan-Ling Chang (張瑄凌) ; Tricia Karen Vernessa Mangal (孟雅璿) ; Shih-Chang Hung (洪世昌) ;
Jr-Jung Chiou (邱志忠) ; CHANG, LI-HAN(張琍韓)； HSIAO, I-FAN(蕭奕凡)

Degree Requirements

The Department of Banking and Finance offers one program at the undergraduate level (Bachelor of Business) and three programs at the graduate level (Master's and Ph.D.). The degree requirements for the programs are as follows:

1. Requirements for a Bachelor's degree in Banking and Finance:
   Completion of 128 credits of courses, including 86 credits of required courses and 20 credits of elective business and finance courses.

2. Requirements for Department of Banking and Finance Division of Global Financial Management (English-taught program): Completion of 128 credits, including 81 credits of required courses and 22 credits of elective courses offered by the department and 25 credits by others. (All the courses are lectured in English.)

3. Requirements for an Executive Master's degree in Business Administration (EMBA):
   Completion of 36 credits of courses, including 9 credits of required courses and 27 credits of elective courses offered by the department. Students are also required to submit a written master's thesis completed under the supervision of a faculty member and pass an oral examination.

4. Requirements for a Master's degree in Banking and Finance:
   Completion of 39 credits of courses, including 10 credits of required courses and 29 credits of elective courses offered by the department. Students are also required to submit a written master's thesis completed under the supervision of a faculty member and pass an oral examination.

5. Requirements for a Ph.D. degree in Banking and Finance:
   Completion of 36 credits of courses, including 22 credits of required courses and 14 credits of elective courses offered by the department. Publication requirements before graduation: Students are advised to refer to the department for the requirements. Students are also required to submit a written doctoral dissertation completed under the supervision of a faculty member and pass an oral examination.

6. Requirements for a Master's degree in Master of Business Administration in Banking and Finance (English Taught Program):
   Completion of 36 credits of courses, including 11 credits of required courses and 25 credits of elective courses offered by the department. Students are also required to submit a written master's thesis completed under the supervision of a faculty member and pass an oral examination.

Course Descriptions

Undergraduate Courses

B0071 Investments (2/2): Covering mainly investment in marketable securities, this course focuses on the investment environment and process. It includes the types of existing marketable securities and where and how they are bought and sold. It is also concerned with how an investor should proceed in making decisions about what marketable securities to invest in and when the investments should be made.

B0124 Econometrics (3/0): This course is designed to familiarize students with the importance of econometrics and to train them in using basic econometric tools.

B0130 Intermediate Microeconomics (3/0): This course covers economic models, Short-run and Long-run distinction, tax incidence analysis, strategic equilibrium input demand, capital and the rate of return, and optimal resource allocation overtime.

B0205 International Financial Management (0/3): This course deals with the international flow of funds and international financial markets, government influence on the exchange rate, international arbitrage and interest rate parity, measurement exposure to exchange rate fluctuations and long-term financing, etc.

B0263 Money and Banking (2/2): This course covers the nature and functions of money and finance, commercial banking, central banking, monetary theory, and international monetary relations.

B0302 Economics (2/2): This course covers the art and science of economic analysis, some tools of economic analysis, market systems, economic decision makers, elasticity of demand and supply, labor markets and labor unions, etc.

B0373 Intermediate Macroeconomics (3/0): This course covers the self-adjusting economy, classical macroeconomic theory, business cycles and short-run macroeconomics, the essentials of the Keynesian system, and market failures versus perfect markets, etc.

B0718 Futures and Options (3/0): The main purpose of this course is to introduce the basic concept of the derivatives markets and the financial instruments used in this market. These instruments include the forwards, Futures, swaps and options. How to use these tools for arbitrage, speculation, and hedging is also an important object of this course? This course provides a solid basis for students to study financial engineering and new financial products.

B0736 Financial Quantitative Methods (2/2): This course focuses on optimization: a special equilibrium analysis, optimum values and extreme values, extreme values of a function of optimization conditions, solving a first-order difference equation, and the Cobweb model.

B0759 Financial Institution Management (0/3): This course covers basic finance, calculus, statistics, and microeconomic theory as a prerequisite.

B1093 Financial Innovation (0/3): This course provides a basic overview of mathematical statistics and mathematical finance. It is designed as a required preparatory course for financial engineering.

M0271 Financial Management (3/0): This course helps to bridge the gap between theory and techniques of the traditional financial management course and the application of those materials in the actual cases.

M0517 Statistics (2/2): This course emphasizes applications and fundamental concepts of statistics as well as providing a practical orientation that teaches students how to identify the correct method, calculate the statistics, and properly interpret the results in the context of the question or decision at hand. Students will learn not only the algorithms and techniques used to solve related problems, but also the real-world applications that adopt these methods. Students are encouraged to utilize computers in every stage of this course.

M0518 Accounting (2/2): This course offers an introduction to financial accounting, including a study of financial statements of business entities and the measurement and reporting of assets, liabilities, equity, revenues, expenses, and cash flows. Students will be exposed to the procedures and practices involved in recording and processing economic transactions in an accounting information system.

S0325 Calculus (2/2): This course offers an introduction to financial accounting, including a study of financial statements of business entities and the measurement and reporting of assets, liabilities, equity, revenues, expenses, and cash flows. Students will be exposed to the procedures and practices involved in recording and processing economic transactions in an accounting information system.

B0173 Commercial Law (0/2): This course presents a survey of laws governing various forms of corporate organizations, and laws governing commercial papers, including promissory notes, bills of exchange, and checks.

M0142 Marketing Management (0/3): This is an introductory course, teaching the roles of marketing, marketing ethics, consumer behavior, selection of market, and strategies on product, pricing, distribution, and promotion.

M0800 Business Ethics (0/2): This course provides students with essential knowledge on ethical behavior in today's business world. To build students' sense of responsibility and deter corporate fraud, this course covers several major topics such as: stakeholder relationships, corporate governance, and corporate social responsibility.

Courses of Department of Banking and Finance Division of Global Financial Management (English-taught program)

B0302 Economics (2/2): This course covers the art and science of economic analysis, some tools of economic analysis, market systems, economic decision makers, elasticity of demand and supply, labor markets and labor unions, etc.

M0405 Management (0/3): This course consists of two sections: one covers general management theories, and the other covers modern management trends. It covers many topics, including planning, organization, and leadership.

M0517 Statistics (2/2): This course emphasizes applications and fundamental concepts of statistics as well as providing a practical orientation that teaches students how to identify the correct method, calculate the statistics, and properly interpret the results in the context of the question or decision at hand. Students will learn not only the algorithms and techniques used to solve related problems, but also the real-world applications that adopt these methods. Students are encouraged to utilize computers in every stage of this course.

M0518 Accounting (2/2): This course offers an introduction to financial accounting, including a study of financial statements of business entities and the measurement and reporting of assets, liabilities, equity, revenues, expenses, and cash flows. Students will be exposed to the procedures and practices involved in recording and processing economic transactions in an accounting information system.

S0325 Calculus (2/2): This course offers an introduction to financial accounting, including a study of financial statements of business entities and the measurement and reporting of assets, liabilities, equity, revenues, expenses, and cash flows. Students will be exposed to the procedures and practices involved in recording and processing economic transactions in an accounting information system.

E4346 Digital Technology and AI Application (2/2): This course is designed for freshmen to learn basic computer knowledge, including computer architecture and peripheral, communications and networks, Internet and WWW, cloud computing, multimedia formats, office software (word processors, spreadsheet, and presentation tools), and programming languages, etc. Issues of e-commerce and information security are also covered. The goals of the course are to cultivate students with knowledge and skills for further investigating and learning in advanced computer techniques, and are able to apply these knowledge and skills in their daily work and life.

T3174 Exploring Sustainability (1/0): This course will introduce the global SDGs and the connection to bank development and the industry chain.

B0130 Intermediate Microeconomics (3/0): This course covers economic models, Short-run and Long-run distinction, tax incidence analysis, strategic equilibrium input demand, capital and the rate of return, and optimal resource allocation overtime.

B0263 Money and Banking (2/2): This course covers the nature and functions of money and finance, commercial banking, central banking, monetary theory, and international monetary relations.

B0373 Intermediate Macroeconomics (0/3): This course covers the self-adjusting economy, classical macroeconomic theory, business cycles and short-run macroeconomics, the essentials of the Keynesian system, and market failures versus perfect markets, etc.

M0271 Financial Management (3/0): This course analyzes the underlying theory, principles and techniques used in financial management to maximize the value of the firm. Topics explored include discounted cash flow analysis, risk and return measurement, capital budgeting, the cost of capital, capital structure theory and leverage policy, dividend policy, long-term financing policy, working capital management, financial statement analysis, mergers, holding companies, and multinational financial management.

M0800 Business Ethics (0/2): This course introduces the ethical relationships between business and society, and helps students understand the multi-ethical obligations that businesses have to stakeholders, employees, stockholders, competitors, the wider community, and the environment.

M0142 Marketing Management (0/3): This is an analytical, managerial-oriented course emphasizing decision-making in the functional area of marketing. Course content includes analyzing marketing opportunities, researching and selecting target markets, developing marketing strategies, planning marketing programs and organizing, implementing and managing marketing initiatives.

B0154 Financial Statement Analysis (3/0): This course introduces how to examine the business performance in the past, how to examine the current state of enterprise performance and how to forecast the future of business through the evaluation of financial statements including balance sheet, income statement, statement of changes in owner's equity and statement of cash flows.

B0688 The Statistical Analysis of Financial Markets (3/0): This course focus on the analytical tool of financial and economic data. Students will learn how to collect data from database and how to analyze these data for practice usage.

S0467 Applied Statistics (2/0): This course provides students with statistical models (mainly focus on linear models), as well as techniques for empirical analyses and usage of statistical software. After finishing this course, students are expected to clearly understand the statistical models and be able apply these models to empirical analyses of real-world problems.

B1652 Guide to Professional Financial Reading (0/2): This course is designed to guide the student in reading professional financial reading such as Wall Street Journal and Financial Analyst's Journal.

B0109 Insurance (0/3): The purpose of this course is to provide basic knowledge of insurance. The content includes principle of insurance, risk evaluation, life insurance and property-liability insurance, etc. The students would have the ability to arrange their insurance policies after this course.

B0015 Corporate Finance (0/3): Introduce the basic concepts of corporate finance, analysis and evaluate of firm value, capital budgeting, capital structure, financial planning, investment banking and listing, risk management, corporate finance and behavioral finance and corporate governance and other important issues. In addition to traditional financial decision-making, I also teaching behavioral finance, corporate finance LGD, business valuation and other important issues related to corporate governance.

B0071 Investments (3/0): Covering mainly investment in marketable securities, this course focuses on the investment environment and process. It includes the types of existing marketable securities and where and how they are bought and sold. It is also concerned with how an investor should proceed in making decisions about what marketable securities to invest in and when the investments should be made.

B0670 Investment Banking (2/0): This course is designed to familiarize students with why investment banking is necessary, and to train them in using basic analysis tools.

B1004 Fixed Income Securities (2/0): The objective of this course is to provide coverage of the products, analytical techniques for valuing bonds and quantifying their exposure to changes in interest rates, and portfolio strategies for satisfying a client's needs.

B0718 Futures and Options (0/3): The main purpose of this course is introduced the basic concept of the derivatives markets and the financial instruments used in this market. These instruments include the forwards, Futures, swaps and options. How to use these tools for arbitrage, speculative, and hedge is also an important object of this course? This course provides a solid basis for student to study financial engineering and new financial products.

B0696 Financial Institution Management (0/3): This course introduces the following three topics: (1) The connotation of the financial industry; (2) to measure the risk; (3) risk management of the financial industry.

B0173 Commercial Law (0/2): This course aims to acquaint students with the concepts of laws dealing with related industry and business. Emphasis will be placed on Company Law and the law of bills and notes.

B0206 International Financial Management (0/3): This course introduces financial management and international aspects of financial management with special emphasis on risk hedging.

B0672 International Financial Market (0/3): This course is designed to analyze key international financial markets that facilitate trade and investment activity on a global scale. We discuss the economic determinants of price, price changes, and price relationships in the major international financial markets.

B1366 Wealth Management (3/0): The course provides related knowledge and information about security investment and financial planning. The contents include essentials of financial planning, the preparation and analysis of family financial statements, cash flows management, time value of money, housing planning, child raising and education planning, retirement planning, investment planning, tax planning, and multi financial planning.

B1443 Financial Analysis and Investment (3/0): This course is designed to prepare you to interpret and analyze financial statements effectively. This course explores in greater depth financial reporting topics introduced in the core course in financial accounting and examines additional topics not covered in that course. The viewpoint is that of the user of financial statements. This course is designed primarily for students who expect to be intensive users of financial statements as part of their professional responsibilities.

B1653 Financial Professional Certificate Introduction (1/0): This course will introduce the professional certificate examination that is required by financial industries and how to prepare to pass the test.

B0876 Industry Analysis (0/3): The purpose of this course enables the students to make appropriate investment decision. Lectures will cover theories and analytical approaches of industrial development and investment. The students are required to write a report on investment portfolio.

B0990 Applied Econometrics for Finance (0/3): This course focuses on the synthesis of financial (economic) theories and empirical applications. We first distinguish alternative data patterns (cross section, time-series and panel data). Then, we introduce the linear regression (simple or multiple) and show how to estimate parameters of interest as well as test relevant hypothesis. The meaning and application of dummy variable is also discussed. Finally, we further demonstrate how to deal with the problems of heteroscedasticity.

B0124 Econometrics (3/0): This course is designed to familiarize students with the importance of econometrics and to train them in using basic econometric tools.

B0939 Financial Risk Management (3/0): This course provides an overview of the concepts and the mechanics of risk management, including detailed discussions of the Basel Accords.

B1738 Practice of Financial Product (3/0): This course introduces financial commodities such as Mutual Fund, Exchange Traded Fund (ETF), Hedge Fund, Green Bond, High yield Bond, Cryptocurrency, and Non-Fungible token (NFT). In addition, students understand financial commodities trading through related speeches.

B1739 Practice of International Financial Trading (0/3): This course is introducing the trading tools and practices of international financial markets.

B1651 International Professional Financial Certificate (2/2): This course is designed to help students to prepare the test of CFA and FRM.

B1773 Fundamental Practices of Financial Products (9/0): The students who major in this course must take practical training for required hours in the financial organizations including banks, investment and broker agent companies. The students may select office work or field work unit for their practice. The items of practice are subject to the arrangements by the units of practice. The semester chaotic records of the students are grade by both the practical unit manager and the teacher giving lessons on a fifty-fifty basis.

B0434 Securities Investment Practices (3/0): Let the students can understand the efficiency market, fundamental analysis, Industries analysis and Technique analysis, improve his investment analysis and the chance of profit.

B0508 Financial Engineering (0/3): This course introduces various tools in financial engineering and trains students in how to apply them in risk management and in financial problem solving.

B1093 Financial Innovation (0/3): This course provides a basic overview of mathematical statistics and mathematical finance. It is designed as a required preparatory course for financial engineering.

B1774 Advanced Practices of Financial Products (0/9): The students who major in this course must take practical training in the financial organizations including investment and broker agent companies or the financial department of general industrial company. The items of practice are subject to the arrangements by the units of practice. The semester scholastic records of the students are graded by both the practical unit manager and the teacher giving lessons on a fifty-fifty basis.

B1699 FINANCE AND TECHNOLOGY (2/0): This course introduces the rapidly evolving field of Financial Technology (FinTech). It explores the intersection of finance and technology, examining how innovative solutions are reshaping the traditional financial landscape. Participants will gain insights into key technologies, emerging trends, and the impact of FinTech on various sectors.

B1829 FINANCIAL ENGLISH (2/0): This course is designed to explain the fundamental concepts of various areas of finance and expand your financial vocabulary through reading, listening, and discussion. You'll enhance your understanding of financial texts and have numerous opportunities to improve your speaking skills through discussions, engaging activities, games, and role plays.

Master of Business Administration in Banking and Finance (English Taught Program)

T0081 Research Method (3/0): This course covers management theories and applications of quantitative skills in managerial decision-making and its impact on corporate goals and policies.

M0272 Seminar in Financial Management (3/0): This course presents an introduction to the six seminal theories upon which modern finance is founded: utility theory, state-preference theory, mean-variance theory and the CAPM, APT, option pricing theory, and the M-M theorems.

B0196 International Marketing Management (0/3): This course emphasizing decision-making in the functional area of international marketing. Course content includes analyzing international marketing opportunities, researching and selecting international target markets, developing international marketing strategies, planning marketing programs and organizing, implementing and managing marketing initiatives.

M0800 Business Ethics (0/2): This course introduces the ethical relationships between business and society, and helps students understand the multi-ethical obligations that businesses have to stakeholders, employees, stockholders, competitors, the wider community, and the environment.

B1085 Seminar in Financial Engineering (0/3): This course introduces various tools in financial engineering and trains students in how to apply them in risk management and in financial problem solving.

TBC Digital Finance (3/0): This course covers the theory and practice of modern digital financial theory and practice.

B0286 Economic Analysis (3/0): This course presents various theories of Economic to analyze the challenge of today's economic problems.

B0206 International Financial Management (0/2): This course introduces financial management and international aspects of financial management with special emphasis on risk hedging for multinational companies.

B0760 Financial Data Analysis (0/2): This course offers an introduction to econometric theory, parameter estimation for single and multiple equation systems, inference and hypothesis testing, and Monte Carlo studies.

B0833 Fixed-Income Security (2/0): This course offers a comprehensive study of modern investment theory. Special topics of interest rate, especially those related to recent advances in academics and practices, will be introduced and discussed.

M0997 Financial Derivatives (2/0): The main purpose of this course is introduced the concept of the derivatives markets and the financial instruments used in this market. These instruments include the forwards, Futures, swaps and options. How to use these tools for arbitrage, speculative, and hedge is also an important object of this course. This course provides a general basis for student to study financial engineering and new financial products.

TBC ESG and Financial Investment (0/2): This course covers conceptual and analytical frameworks for E, S, G. and formulating investment policies, analyzing securities and constructing portfolio strategies for individuals and institutions.

B1093 Financial Innovation (0/2): This course provides a overview of mathematical statistics and mathematical finance. In this course, we will focus the new development of derivative products. .

B0672 International Financial Markets (2/0): This course is designed to analyze key international financial markets that facilitate trade and investment activity on a global scale. We discuss the economic determinants of price, price changes, and price relationships in the major international financial markets.

TBC Financial Risk Management (0/2): This course aims to enhance students' understanding of the wide range of instruments that are available in today's financial markets for financing, investing, and controlling risks.

M2397 Application for Python Program Design (2/0): This course aims to introduce the application of Python program design in financial area.

TBC Practice of Digital Financial Investment (0/2): The main focus of this course is how to apply the digital financial investment in real world.

Master's Program

B0066 Investment Policy and Analysis (0/3): This course covers conceptual and analytical frameworks for formulating investment policies, analyzing securities and constructing portfolio strategies for individuals and institutions.

B0086 Financial Markets (0/3): This course aims to enhance students' understanding of the wide range of instruments that are available in today's financial markets for financing, investing, and controlling risks.

B0124 Econometrics (3/0): This course offers an introduction to econometric theory, parameter estimation for single and multiple equation systems, inference and hypothesis testing, and Monte Carlo studies.

B0128 Microeconomics Analysis (0/3): This course aims to apply the tools of microeconomic theory to problems in industrial organization, decision-making by the rim, input-output analysis, estimations of economic relationships, evaluation of public projects and the welfare economy.

B0206 International Financial Theory (0/3): This course offers an examination of the theories of international monetary systems, balance of payments, adjustment of the theories of determinant of international coordination of macro policies, dynamic adjustments, and other special topics.

B0262 Monetary Theory and Policy (0/3): This course covers the theory and practice of monetary control, supply and demand functions for money, instruments of monetary control, and channels through which money exerts influence on the economy.

B0340 Banking Theory (0/3): This course presents various theories of bank behavior from a firm's microeconomic perspective.

B0371 Macroeconomics Analysis (0/3): This course covers money and general equilibrium, consumption function, theoretical and empirical studies, investment function, liquidity preference and portfolio balance, and the theory of growth and economic fluctuation.

B0377 Managerial Policy Analysis (0/2): This course covers management theories and applications of quantitative skills in managerial decision-making and its impact on corporate goals and policies.

B0460 The Theory of Investment (3/0): This course offers a comprehensive study of modern investment theory. Special topics of interest, especially those related to recent advances in academics and practices, will be introduced and discussed.

B0461 The Theory of Finance (3/0): This course presents an introduction to the six seminal theories upon which modern finance is founded: utility theory, state-preference theory, mean-variance theory and the CAPM, APT, option pricing theory, and the M-M theorems.

B0508 Financial Engineering (0/3): This course introduces various tools in financial engineering and trains students in how to apply them in risk management and in financial problem solving.

B0611 Applied Econometrics (0/3): This course is designed to help students understand the Autoregressive Integrated Moving Average Models, Vector Autoregression, Unit Roots, Cointegration and Error Correction Model, Generalized Method of Moments Estimator, Autoregressive Conditional Heteroscedasticity Models, Simulation Models, and Monte Carlo Studies.

B0696 Financial Institution Management (0/3): This course covers the following four sections: an introduction to the financial services industry, sources of risk and return, how to measure risk and return, and how to manage risk and return.

B0697 Corporate Financial Policy (3/0): This course is designed to help students understand investment, financing, and dividend decisions in both perfect and imperfect capital markets.

B0699 Interest Rate Derivatives (3/0): Topics of this course include: interest rates and duration, stock price behavior models, the Black-Scholes Model, numerical procedures, extent ions of the theoretical framework for pricing derivatives, interest rate derivatives, and interest rate derivation.

B0710 Macroeconomic Theory (3/0): This course covers the following: The Solow Growth Model, the Ramsey-Cass-Koopmans Model, New Growth Theory, and the Overlapping Generations Model and Money.

B1009 Financial Research Method (3/0): This is a course in introductory financial research methods. The aims of this course are: (1) to introduce empirical topics relevant to financial academics and practitioners; (2) to train students in implementing research ideas via econometric modeling.

M0483 Bank Management (0/3): This course covers policies and decisions of commercial bank managers in the areas of organization, personnel, credit, asset, liability and capital management within the legal, competitive and economic environment.

S0425 Quantitative Methods (3/0): Topics of this course include linear algebra, calculus, difference and differential equations, and linear and non-linear programming and operations research.

Ph.D. Program

B0411 Risk Management (3/0): This course is designed to overview cutting-edge quantitative techniques for quantitative risk management or financial econometrics, e.g. multivariate value-at-risk estimation, credit risk modelling, and stochastic variance modelling.

B0711 Seminar on Macroeconomics (0/3): Topics of this course include: The Real Exchange Rate and the Terms of Trade, Uncertainty and the International Financial Markets, Imperfections in International Capital Markets, Global Linkages and Economic Growth, Nominal Price Rigidities Empirical Facts and Basic Open-Economy Models, etc.

B0712 Advanced Econometrics (3/0): This course is designed to help students understand the Optimization and Non-linear Regression Models, Non-parametric Estimations, Models for Panel Data, Models with Discrete Dependent Variables, Limited Dependent Variable and Duration Models, State Space Models, and the Kalman Filter Method.

B0714 Seminar on Investment Theory (3/0): This course is designed to expose students to empirical investments in different topics. In most of the meetings, the instructor will lead a discussion of the materials, while the papers will be assigned to specific students who are responsible for presenting and leading discussions of the paper.

B0715 Seminar on Microeconomic Theory (3/0): This course focuses on special topics of microeconomics, with attention paid to cost and profit, consumer behavior, uncertainty, game theories, and market structure.

B0705 Advanced Mathematic Finance (3/0): This is a course about advanced financial economics and financial modelling, which enables the students to apply the methods to research and analysis.

DEPARTMENT OF RISK MANAGEMENT AND INSURANCE

Degrees Offered: B.A., M.B.A. EMBA

Chairman: Chia-Ling Ho (何佳玲)

The Department

To promote economic development, the Department of Insurance and Banking was established in 1965. In 1969, the department was divided into two divisions: Division of Banking and Division of Insurance. In 1973, the Division of Insurance became the Department of Insurance, the first department of insurance in Taiwan. Two years later, the evening program of the department was established. In 1991, one more class was added to the evening program to meet the growing demands of the insurance market. In 1997, the evening program became part of the regular program to meet new college regulations. The master's program in insurance management and Executive MBA were established in 2000 and 2002, respectively. The goal of the department is to develop professionals in insurance and risk management with international perspectives. To meet development tendencies in financial market, the department was renamed the department of Risk Management and Insurance in 2018.

Our courses focus on both theoretical and practical issues from local and international outlooks and we modify courses timely in accordance with changing financial environment. Teaching activities include business visits, enterprise internships, and special topic lectures to complement course content. Part- and full-time faculty members have solid theoretical foundations of insurance and extensive experience in the insurance industry so that students will gain deep and extensive understanding of insurance. We emphasize certificate acquirement and offer a certificate program to guide students to obtain certificates of insurance. Besides, we offer a scholarship to encourage students to join the program and to students who pass the examination to strengthen students' professional skill and increase students' job competitiveness. Students will gain a comprehensive understanding of practical operations and get used to workplace environment earlier through enterprise internships. The graduates are over every field of insurance industry including life and property insurance companies, insurance brokers, insurance agents and surveyors. Some are supervisors in government supervision agencies and the department of risk management of insurance companies. Each makes contributions to society in his or her own way.

To meet international trends, we will strengthen academic exchanges with cross-strait and international related departments. We will increase courses of insurance company governance and risk management in accordance with the trend of financial supervision. Besides, we will focus on industry-university cooperation to increase the research level in the department and students' practical skills. Moreover, we will strengthen the certificate program to increase job competitiveness for students.

Faculty

Professor Emeritus
Yi-Jen Hu (胡宜仁)

Professors
Jerry C. Y. Miao (繆震宇); Chi-Ling Wang (汪琪玲); Hui-Wen Tang (湯惠雯);
Chia-Ling Ho (何佳玲); Jyun-Ji Tien (田峻吉)

Associate Professors
Chung-Jen Hao (郝充仁) ; Miao-Huei Tsen (曾妙慧) ; Ching-Yuan Hsiao (蕭景元)

Assistant Professors
Ying-Erh Chen (陳映而) ; Tzu-Ying Chen (陳姿穎) ; Wei Hsuan (宣葳) ; Hsiang-Chun Hsu (徐祥峻)

Degree Requirements

The Department of Risk Management and Insurance offers one program at the undergraduate level (Bachelor of Business) and two programs at the graduate level (Master's). The degree requirements for

the programs are as follows:

1. Requirements for a Bachelor's degree in Risk Management and Insurance:
   Completion of 128 credits of courses, including 83 credits of required courses and 23 credits of elective courses offered by the department.

2. Requirements for an Executive Master's degree in Business Administration (EMBA):
   Completion of 36 credits, including 9 credits of required courses and 27 credits of elective courses offered in the program. Students are also required to submit a written thesis completed under the supervision of a faculty member and pass an oral examination.

3. Requirements for a Master's degree in Insurance:
   Completion of 39 credits of courses, including 10 credits of required courses and 29 credits of elective courses offered in the department. Students are also required to submit a written master's thesis completed under the supervision of a faculty member and pass an oral examination.

Course Descriptions

Undergraduate Courses

B0001 Life Insurance (3/0): The course will help students with better understanding of the basic concept of life insurance (including life insurance foundation, life insurance market analysis, life insurance premium rates and reserves, life insurance types, life insurance contracts and life insurance marketing).

B0017 Fire Insurance (0/2): The main insured properties discussed in this course are commercial properties. The course materials include commercial property insurance, contractor's all risk (CAR) insurance, erection all risk (EAR) insurance, and several contemporary issues, which include the application of insurance technology, climate risk, hydrogen industry and the associated insurance solutions.

B0033 Essentials of the Civil Law (3/0): This course addresses the basic concept of the Civil Law. The instructor will particularly focus on the general principles of the Civil Law, family law and the law of inheritance.

B0037 Reinsurance (2/0): To learn the theory and principles of reinsurance, operation of reinsurance, including programming, pricing, retention making, treaty wordings, and accounting.

B0071 Investments (3/0): This course provides students fundamental knowledge about investment. Stock, bond, mutual fund, and portfolio management are included in the topics. Students are expected to have the ability to do primary investment.

B0072 Motor Insurance (2/0): This course is based on establishing the basic concepts of automobile insurance. Furthermore, we introduce the general situation, innovation and development of the automobile insurance market, and strengthens students' understanding and learning in the practice of auto insurance claims.

B0075 Social Insurance (0/3): For the purpose of giving students a better understanding of the difference between social insurance and commercial insurance, the course mainly introduce various social insurance operated by government, such as Soldiers Insurance, Government Employees Insurance, Farmers Insurance, Employment Insurance and Pension, etc.

B0086 Financial Markets (0/3): Understanding financial markets and instruments.

B0109 Insurance (0/3): The purpose of current course is to introduce risk management and insurance issues including concepts of risk management principles of insurance, pricing and rating of policy, reinsurance, coinsurance, reserves, and others related topics of insurance.

B0154 Financial Statement Analysis (2/0): The aim of this course is to give a general understanding of the financial statements. Students will learn how to analyze financial statements.

B0167 Health Insurance (0/2): To learn about the principles, coverages, the policy design and underwriting of health insurance. In addition to the commercial insurance, we also discuss the social health insurance issues.

B0173 Commercial Law (0/2): This course is set to make the students know about the concepts of laws dealing with related industry and business. The instructor will focus on the Company Law and the law of bills and notes.

B0261 Liability Insurance (0/2): This course is set to help the students to know the general principles of liability insurance. I will introduce the "liability" in Civil Law to realize more about "liability" insurance. Furthermore, I will guide the students to study various liability insurance policies and their judicial issues.

B0302 Economics (2/2): Students are expected to be familiar with basic economic principles, benefits of trade and basic welfare economics. Students should understand gains from trade, supply, demand, elasticity, consumers and producers, efficiency of markets and costs of taxation, firm behavior and industry organization, costs of production, competitive markets, monopolies, and national income.

B0411 Risk Management (2/0): This course will focus on the principles of risk management including the tools and process of designing and implementing a risk management program such as identification of risks and associated potential costs, analysis of the causes of risk of financial loss, determination of the selected strategies and life insurance.

B0575 Property Insurance Company Operations (2/0): The course introduces the fundamental principles of property insurance operation including market analysis, product design and rate calculation, underwriting and claims of property and liability insurance. The course further introduces fund management, profit analysis, operating performance evaluation, capital adequacy ratio and solvency of property and liability insurance. Finally, it introduces the corporate governance and future trends and development of the property insurance industry.

B0576 Personal Insurance Company Operations (0/2): This course is designed to provide a comprehensive understanding of the organizational management, marketing, financial management, reinsurance, supervision, and the future development trends within the life insurance industry. In addition to theoretical discussions, the course will also incorporate some relevant current issues.

B0630 Casualty Actuarial Science (3/0): The purpose of this course is to introduce a series of Non-Life insurance actuarial sciences, including basic principles and methods of rate-making, pricing of insurance, theory of legal reserves, and other related topics to do with non-life insurance actuarial science.

B0692 International Insurance Market (0/2): Introduce international insurance market, and analyze international risk management trend.

B0749 Insurance English (0/2): This course will introduce insurance terms, guide students to analyze insurance contracts and clauses of English, and to read the articles of insurance. We will explain important grammar, vocabularies to enable them to grasp important insurance issues.

B0759 Financial Institution Management (2/0): Financial institutions play an intermediate role for demand and supply of capital in financial market. How to give investors comprehensive, efficiency, and safety products and instruments, the government is a key supervisory unit. The function of the financial market, and the key operation point of the financial institution will be the focus of this course.

B0839 Insurance Finance (2/0): The aim of this course is to give a general understanding of the principles of asset and liability management, risk management, and portfolio management. Students are expected to be able to collect data, analyze data, and construct a portfolio with Matlab.

B1157 The Guidance of Insurance Professional License (2/0): This course is to introduce the theory and practices of risk management and insurance, including definition of risk, types of risk, techniques for managing risk, legal principles in insurance, and types of insurance. This course is also to help the students to pass the examination of personal property risk management.

B1362 The Analysis of Insurance Economics (0/2): This course introduces the related economic theories on the insurance topic. The content includes: risk measurement, expected utility theory, insurance demand, optimal contract of insurance, insurance pricing, the structure of insurance market, and the asymmetric information problems.

B1402 Insurance Law (3/0): This course is set to illustrate Insurance Contract Law. There are some topics and issues in the course, such as principle of good faith, and principle of loss indemnification, duty of disclosure, and the coverage disputes. Furthermore, the instructor will collect the related judicial decisions for case studying.

B1403 Annuity Insurance (2/0): Students will understand the definition of annuity, and the course will introduce the category of annuity, analyze personal annuity, and analyze corporate annuity.

B1404 Life Insurance Mathematics (3/0): The purpose of this course is to introduce a series of topics on life insurance actuarial science. Life insurance actuarial science includes basic population theory, life table construction, pricing of life annuity and life insurance methods, and other related topics on life insurance actuarial science. The syllabus is subject to change based on the needs of the course.

B1464 Insurance Marketing (0/2): This course provides an introduction to the study of marketing management in the insurance business. It will focus on the four instruments of marketing including product management, pricing strategies, channel management, and promotion skills. Active participation in the class and group discussions is highly encouraged.

B1467 Applied Statistics for Insurance (0/2): The primary objective of this course is to introduce students with little or no mathematical and statistical background to a variety of statistical techniques with applications in general insurance, and we hope that the students will be stimulated to pursue some of the topics in greater depth.

B1468 Personal Financial Planning (0/3): This course aims to develop students' personal financing perception and abilities. Topics cover a broad range of financial planning areas, including adaptive testing, family financial statements and budgeting preparation, cash-flow management, insurance planning, investment strategies, and tax planning etc. It also includes searching related financing information, developing a comprehensive financial planning, and using these concepts to achieve ones' financial goals.

B1470 Integrated Risk Management (2/0): In recent years, labor-inspection and labor anonymous accusation have grown rapidly. It forces many enterprises to face the administrative sanction and civil claims of labors. On the other hand, the environment of the labor standards has changed a lot at present, many enterprises were unfamiliar with the law but they don't know that they have already become the main examination targets of the government. Human Resources and Labor Standards actually have a great influence with each other, also is the most important link in enterprise risk management. It will be the major point of this lesson.

B1471 Practicum in Insurance Industry (0/2): This course cooperates with renowned life insurance companies and property/casualty insurance companies to provide internships for students. The purpose of this course is for students to apply their insurance knowledge they have learned in school to their internships. Furthermore, another purpose of this course is for students to combine their knowledge of theories and practices to enhance their professionalism and competitiveness of the insurance industry.

B1501 Practice on Asset & Liability Management for Insurance Co. (3/0): The purpose of this course is to provide students the concepts about how insurance companies manage their assets and liabilities (ALM). This course includes several important topics of ALM, such as insurance law, RBC, IFRS, reserve, etc. Students will understand more details in operating asset and liability of an insurance business.

B1502 Investment-Oriented Insurance Products (3/0): The course introduces categories, devices and regulation of investment-linked insurance policies. Besides, the course brings in practices and financial instruments enabling students to learn investment-based insurance planning and product links.

B1581 Operation and Management of Property Liability Insurance (2/0): Combine company and

campus resources to improve Property Liability Insurance class.

B1582 The Operation and Management of Life Insurance Seminar (2/0): This course is a lecture-style course; we invite well-known insurance company managers to school to give lectures, bring students a new perspective of life insurance practice. At the same time, lectures provide Q & A, offering students practical and research consulting.

B1698 The Guidance of Insurance Professional License (2/0): The Institutes' Chartered Property Casualty Underwriter (CPCU)® designation program is built on a foundation of broad technical knowledge, high ethical standards, and demonstrated industry experience. The Institutes are recognized around the world as the premier provider of Insurance Knowledge Solutions. The Institutes have been supporting insurance industry education needs for over 100 years, in over 50 countries.

B1699 Finance and Technology (0/2): This course aims to provide a basic introduction of Fintech, to explain how to not only recognize the kinds of Fintech services, but also to develop the imagination and creativity of financial innovations, and to give examples using easy-to-understand categorization as well as context. Through the analysis and discussion of the reports, students will have a better understanding of the changes and trends brought by financial technology.

B1719 Property Insurance (3/0): This course introduces the features and main clauses in property liability insurance policies, and the principles behind the clauses. The lines of business covered in this course include fire insurance, auto insurance, marine insurance, transportation insurance, liability insurance.

B1764 Casualty Insurance (0/2): Covering all other property insurance except fire insurance, transport insurance, liability insurance and automobile insurance.

B1768 Employee Benefits and Business Risk Management (2/0): (A)learning theory and development of employee benefits, employee welfare system design and contents and related to and related employee benefits law. (B) Organizing different welfare system and corresponding instructions will understand existing employee benefits and insurance product contents and structure.
(C)Through insurance provided advisory services, can explore the insurance needs of employees, and compared the gap between welfare and employee needs.

B1775 Financial Service Analysis And Marketing Strategy (2/0): 1. Introduction of the domestic and foreign financial environments. 2. Principles of the financial products marketing. 3. Discussion on the examples of financial marketing customer service. 4. The practices of the stock and bond investment. 5. Analysis of the enterprise's financial statements. 6.Introduction and application of financial instruments

B1786 Insurance New Product Planning (3/0): This course examines the complete development process of products issued by life insurers under the framework of current legislation and guidelines; introduces product specifications, design rationale, and the sales and management of such products.

B1792 Data Analysis and Application (0/3): This course aims to teach students to use SASEG, use SASEG to organize data and perform basic statistical analysis.

E1034 Introduction to Computers (2/0): The course is not only trains students in computer knowledge, including computer hardware, software applications and computer networks, but also encourages students to understand spreadsheets, databases, multimedia applications, systems analysis and design and programming languages. Besides, e-commerce, cloud services, information security and IT ethics and law, are introduced such that students can have enough skills for further investigating and learning more advanced techniques or applications. Students can apply information abilities and skills to their daily life.

M0003 Human Resources Management (2/0): People are the most important asset for any organization, so all students in management fields and practitioners must have enough knowledge of HRM. Because HRM consists of all people related activities from entering to exiting an organization, this course will introduce and explore these issues deeply. The HRM contents include the following issues: knowledge of labor market, HRP, job analysis, recruitment & selection, training & development, performance appraisal, salary & benefits, retirement & pensions, and labor relations.

M0142 Marketing Management (0/3): This course provides an introduction to the study of marketing management. It will focus on the four instruments of marketing including product management, pricing strategies, channel management, and promotion skills. Students are expected to develop an understanding of how to implement marketing strategies in practice. Active participation in the class and group discussions is highly encouraged.

M0271 Financial Management (3/0): The main purpose of this course is to illustrate the major decisions of corporations including investment decisions, finance decisions and dividend policies. Students will understand how the modern corporates deal with their business decisions under the economic system.

M0405 Management (3/0): This course is an introduction to the management function. It will focus on the theoretical and fundamental concepts of management including planning, organization, leadership, and control. Active participation in the class and group discussions is highly encouraged.

M0517 Statistics (2/2): This course emphasizes applications and fundamental concepts of statistics as well as providing a practical orientation that teaches students how to identify the correct method, calculate statistics, and properly interpret the results in the context of the question or decision at hand. Students will learn not only the algorithms and techniques used to solve related problems, but also the real-world applications that adopt these methods. Students are encouraged to utilize computers in every respect of this class.

M0518 Accounting (2/2): This course offers an introduction to financial accounting, including a study of financial statements of business entities and the measurement and reporting of assets, liabilities, equity, revenues, expenses, and cash flows. Students will be exposed to the procedures and practices involved in recording and processing economic transactions in an accounting information system.

M0800 Business Ethics (2/0): This course focuses on the issues relevant to ESG and sustainable investing. The instructor will explain how corporation’s performance on environment, social, and governance aspects influences its financial performance and risk. Moreover, how institutional investors manage their portfolio's exposure to the risk associated with sustainability issues will be introduced. The course materials include the reports issued by Sustainability Accounting Standards Board (SASB) and Principles for Responsible Investment (PRI).

S0325 Calculus (2/2): This course offers an introduction to financial accounting, including a study of financial statements of business entities and the measurement and reporting of assets, liabilities, equity, revenues, expenses, and cash flows. Students will be exposed to the procedures and practices involved in recording and processing economic transactions in an accounting information system.

Master’s Program

B0244 Research on ESG and Sustainable Development in the Insurance Industry (3/0): In 2026, the insurance industry will align with IFRS 17 and ICS, significantly impacting its operations and finances. This course will start from the essence of insurance business operations, exploring its asset and liability management, financial statements, and policies related to Environmental, Social, and Governance (ESG) issues, including green finance and green insurance. This course aims to help students understand the insurance industry's responsibilities to policyholders and shareholders and achieve sustainable development objectives.

B0575 Property Insurance Company Operations (0/3): This course will introduce several topics related to property insurance operations, which include ESG issues, corporate governance, reinsurance, reserves management, solvency, and several contemporary issues. Students are required to read the reports on insurance practices issued by Swiss Re Sigma, and several papers from insurance journals.

B0576 Personal Insurance Company Operations (0/3): This course introduces the important topics of life insurance management from finance theories. We will follow recent academic papers and regulation of the life industry in the class. Students are required to learn the relevant theories, and their application to life insurance management.

B0925 Advanced Study on Personal Insurance (0/3): This course will provide students to have a better understanding of life insurance practice and the details of the latest development of the topic in discussion.

B1725 Advanced Study on Risk Management and Insurance (3/0): This course will introduce the principles of risk management and insurance for master students. We will analyze several current important topics in risk management and insurance. Meanwhile, students will have a better understanding about how risk management and insurance work in the real world.

B1726 Employee Benefit and Group Insurance (2/0): To understand employee benefits and analyze group insurance.

B1727 Insurance Data Analysis (0/3): This course introduces essential acknowledgement of statistics analysis for insurance research and is coped with the instruction of databases and the application of statistics package to enhance students' ability in independent study and analysis. The course focuses on quantitative research and includes the introduction of insurance and financial databases, the applications and practices of statistics package, data collection and transformation, descriptive analysis, primary methodologies, the analysis of empirical results, and the instruction of academic research.

B1728 Property Insurance Practices and Issues (3/0): This is a collaborative course which is in cooperation with Fubon insurance company. In this course, we are substantially involved in and deeply investigate the practical issues which are confronted and raised by FB insurance company.

B1753 Advanced Study on Insurance Marketing (2/0): The course introduces business model of insurance industry and analyzes insurance product and promotion model.

B1763 Advanced Study on Act Insurance (0/3): This course focuses on in-depth discussion and analysis of act insurance established by the government to achieve certain policy objectives. First, it focuses on the general principles and characteristics of act insurance, and secondly, it discusses individual act insurance systems, including Compulsory Automobile Liability Insurance, Deposit Insurance, Public Accident Liability Insurance, Basic Residential Earthquake Insurance, Export Insurance, etc.

B1777 Sustainable Energy Development And Risk Management (2/0): The United Nations has set 17 Sustainable Development Goals and hopes to solve problems including water pollution, climate change, and urban sustainability by 2030. Countries around the world are also actively investing in energy transformation and developing sustainable energy. The goal of the Taiwanese government in 2025 is that renewable energy will reach 20% of power generation. This course will provide students with knowledge about the current state of the renewable energy industry, policy for energy transition, and guide students to think about possible risks and corresponding solutions.

B1844 Insurance Internship Program (0/3): Apply risk management and insurance knowledge to practical aspects, allowing students to better understand the operations of insurance companies through internships.

M0800 Business Ethics (1): The current course introduces the ethical relationships between the business and the society, and helps students understand the multi ethical obligations of businesses toward stakeholders' inclusive employees, stockholders, competitors, community, and environment.

M0144 Seminar in Marketing Management (3/0): This course provides an introduction to the study of marketing management. It will focus on the four instruments of marketing including product management, pricing strategies, channel management, and promotion skills. Students are expected to develop an understanding of how to implement marketing strategies in practice. Active participation in the class and group discussions is highly encouraged.

M0272 Seminar in Financial Management (3/0): The course introduces the fundamental principles of financial management, financial statements of non-insurance companies and insurance companies, and the techniques of financial analysis so that students can learn how to interpret financial figures and disclose the financial status of the firms. Next, the course introduces International Financial Reporting Standards (IFRSs) and their influence on the insurance industry, fund management, supervision & regulation, and solvency.

T0081 Research Methodology (0/3): This course is designed to train the research ability of the graduate

student. It contains exploring the topic of a dissertation, organizing the structure of a dissertation, introducing the main methodologies, and the dissertation proposal presentation for each student.

EMBA Master's Program

B0576 Personal Insurance Company Operations (3/0): This course introduces the important topics of life insurance management from finance theories. We will follow recent academic papers and regulation of the life industry in the class. Students are required to learn the relevant theories, and their application to life insurance management.

B0796 Insurance Theory (3/0): The aims of this course are to discuss the principles of utmost good faith, the principles of insurable interest, the principles of indemnity, and the principles of proximate causes. Insurance-related issues will be further explored through various lectures. In addition, the possible influences of laws and social changes on the whole insurance system will be also discussed in the class.

B0925 Advanced Study in Personal Insurance (0/2): This course will provide students with a better understanding of life insurance practice and the details of the latest development of the topic in discussion.

B1161 Selected Topics In Insurance Asset Liability Management (0/3): This course discusses insurance asset and liability management from the following perspectives -- interest rate risk, exchange rate risk, and investment and hedging strategies.

B1730 Advanced Study on the Laws and Regulations of Insurance (0/3): Study on insurance law (including contract and regulation).

B1763 Advanced Study On Act Insurance (3/0) This course focuses on in-depth discussion and analysis of act insurance established by the government to achieve certain policy objectives. First, it focuses on the general principles and characteristics of act insurance, and secondly, it discusses individual act insurance systems, including Compulsory Automobile Liability Insurance, Deposit Insurance, Public Accident Liability Insurance, Basic Residential Earthquake Insurance, Export Insurance, etc.

B1776 Retirement Planning And Financial Management (0/3): This course introduces how to do the retirement life plan and retirement financial plan. Students can learn retirement plans and financial management from this course.

B1855 Sustainable Finance & Insurance (0/3): The use of the power of financial markets to promote corporate sustainable development has become a core value in international financial development policies. This course focus on empowering students' sustainable financial and insurance capabilities.

M0800 Business Ethics (3): The current course introduces the ethical relationships between the business and the society, and helps students understand the multi ethical obligations of businesses toward stakeholders inclusive of employees, stockholders, competitors, community, and environment.

M2074 Leadership and Teamwork (3): The current course introduces the theories and practices of leadership and team building to help students apply what they learned from the course for work or future studies.

T0081 Research Methodology (3): This course is designed to train the research ability of the graduate student. It contains exploring the topic of a dissertation, organizing the structure of a dissertation, introducing the main methodologies, and the dissertation proposal presentation for each student.

DEPARTMENT OF INDUSTRIAL ECONOMICS

Degrees Offered: B.A., M.A., Ph.D.

Chairman: Pei-Chien Lin (林佩蒨)

The Department

The Department of Industrial Economics was formed from the previous Department of Cooperative Economics in 1992. Our teaching objective is to provide students with a basic knowledge of the field of Industrial Economics and to prepare them for both further studies and future employment. We also encourage students' enthusiasm and enhance their ability in conducting research. Our goal is to make this department one of Taiwan's premier industrial economics research centers.

Our graduate program of Industrial Economics was established in 1993. Its teaching objectives are to equip students with professional knowledge in Industrial Economics, to provide students with the skills required for further research and to give students a competitive edge in the workforce.

Faculty

Professors
Chun-Hung Lin (林俊宏) ; Pei-Chien Lin (林佩蒨) ; Ming-Feng Hung (洪鳴丰) ; Bin-Tzong Chie (池秉聰) ; Kuo-Feng Kao (高國峯)

Associate Professors
Teng-Yuan Hu (胡登淵) ; Hsiao-Wen Hung (洪小文) ; Shun-Fa Lee (李順發) ; Chia-Hua Liu (劉家樺)

Assistant Professors
Po-Chieh Yang (楊博傑) ; I-Ching Chen (陳逸青)

Degree Requirements

The Department of Industrial Economics offers one program at the undergraduate level (Bachelor of Business) and two programs at the graduate level (Master's and Ph.D.). The degree requirements for the programs are as follows:

1. Requirements for a Bachelor's degree in Industrial Economics:
   Completion of 128 credits of courses, including 87 credits of required courses and 19 credits of elective industrial economics courses.

2. Requirements for a Master's degree in Industrial Economics:
   Completion of 34 credits of courses, including 11 credits of required courses and 23 credits of elective courses offered in the department. Students are also required to submit a written master's thesis completed under the supervision of a faculty member and pass an oral examination.

3. Requirements for a degree of Ph.D. in Industrial Economics:
   Completion of 35 credits of courses, including 19 credits of required courses and 16 credits of elective courses offered in the department. Publication requirements for graduation: students are advised to refer to the department for related requirements. Students are also required to submit a written doctoral dissertation completed under the supervision of a faculty member and pass an oral examination.

Course Descriptions

Undergraduate Courses

B0302 Economics (2/2): This course of principles of economics covers the basic economic theories and relevant issues in the fields of microeconomics and macroeconomics. The topics discussed in the

sequence of microeconomics include demand and supply, consumption theory, production cost and the structures of various markets. On the other hand, the topics discussed in the sequence of macroeconomics include national income, general prices, unemployment, macroeconomic modeling, macroeconomic policies, money, financial intermediaries, economic growth and so on.

B0130 Intermediate Microeconomics (3/3): The goal of this course is to present a treatment of the methods of microeconomics that would allow students to apply these tools on their own and not just passively absorb the predigested cases described in the text. We emphasize the fundamental conceptual foundations of microeconomics and provide concrete examples of their application rather than attempt to provide an encyclopedia of terminology and anecdote.

B0263 Money & Banking (2/2): This course uses a basic economic principle to organize student's thinking about the financial market. The related topics include understanding interest rates, the behavior of interest rates, banking and the management of financial institutions, the foreign exchange markets, central banking and the conduct of monetary policy, and the transmission mechanisms of monetary policy.

B0373 Intermediate Macroeconomics (3/3): Macroeconomics is the study of long-run and short-run performances of an economy as a whole, concerning the issues about long-run economic growth and short-run fluctuation of national income, general prices, unemployment, interest rate, and so on. As such, this course will first introduce the development of various macroeconomic theories, then demonstrate the application of these theories to analyze the movements of the economic variables mentioned above, and finally illustrate the macroeconomic policies that can affect the performance of the whole economy.

S0325 Calculus (2/2): This introductory calculus courses covers differentiation and integration with applications in business, economics, and the social and life sciences. Topics to be discussed in this semester include concepts of functions; limits and continuity; differentiation rules; curve sketching; related rates; optimization problems; exponential and logarithmic functions and their derivatives.

M0405 Management (3/0): Management is a course that will introduce functions of management, including planning, organizing, leading, and controlling. This course begins with a discussion of the current issues and case method in management. The course is designed to integrate the theories in the area with real world applications to help students to learn these concepts. Students will understand the needs of modern organizations, including emerging national and international trends.

M0517 Statistics (2/2): Statistics is the collection of procedures and principles for gathering data and analyzing information to help people make decisions when faced with uncertainty. This one-semester course is an introduction to inferential statistics. Topics covered in this course include hypothesis testing, chi-square tests, regression analysis, and analysis of variance.

M0518 Accounting (2/2): The essential purposes of accounting are to report a company's financial conditions, operating results, and changes of financial status. This course aims to instruct students in the logic behind accounting, accounting processes, the preparation of financial statements, and key concepts of financial analysis.

B0146 Public Finance (2/2): Public policy is not the product of policy experts but rather is the result of democratic decision making. A complete understanding of the public sector must incorporate an understanding of those political institutions that produces public policy. This course attempts to integrate the study of the various aspects of public sector economics by viewing all the government's activities as a product of the democratic decision-making process.

B0125 Introduction to Econometrics (2/0): This course is designed to introduce the theory and application of simple regression analysis. It intends to provide students a working knowledge of basic econometric tools so that they can apply these tools to modeling, estimation and inference in the context of simplified real-world economic problems by using simple regression.

B0124 Econometrics (0/2): This course is designed to introduce the theory and application of simple and multiple regression analysis. It intends to provide students a working knowledge of basic econometric tools so that they can apply these tools to modeling, estimation and inference in the context of real-world economic problems by using multiple regression.

B1400 Introduction to Industrial Economics (3/0): The Basic Issues in Industrial Economics covers issues about the Introduction of Industrial Economics, Taiwan's market structure, the empirical evidence and the Anti-trust.

B1401 Advanced Industrial Economics (0/3): Advanced Industrial Economics summarizes concepts covered from firm collusion, dominance, product differentiation, price discrimination, R&D, etc.

B1591 Applications in Economics (I) (1/0): This course of principles of economics covers the basic economic theories and relevant issues in the fields of microeconomics and macroeconomics. The topics discussed in the sequence of microeconomics include demand and supply, consumption theory, production cost and the structures of various markets. On the other hand, the topics discussed in the sequence of macroeconomics include national income, general prices, unemployment, macroeconomic modeling, macroeconomic policies, money, financial intermediaries, economic growth and so on.

B1592 Applications in Economics (II) (0/1): This course of principles of economics covers the basic economic theories and relevant issues in the fields of microeconomics and macroeconomics. The topics discussed in the sequence of microeconomics include demand and supply, consumption theory, production cost and the structures of various markets. On the other hand, the topics discussed in the sequence of macroeconomics include national income, general prices, unemployment, macroeconomic modeling, macroeconomic policies, money, financial intermediaries, economic growth and so on.

B0202 International Finance (3/0): This course studies the theory and practice of international finance. We will focus on the issues regarding the evolution of international finance institutions, the determining factors of exchange rate, the influence of exchange rate, the basic concepts of hedging, arbitraging, and speculating, and the basic operation of options and futures.

B0219 International Trade Theory and Policy (0/3): This course aims to introduce students to some basic international trade theories, including Ricardian Model, Heckscher-Ohlin Model, New Trade Theory, and so on. Moreover, we will also introduce some trade policies, such as tariff, quota, and FTA.

B0475 Regulatory Economics (3/0): This course introduces antitrust law, economic regulation and social regulation. We will start from a perfect competition market. Keeping a market without entry barrier becomes the center of antitrust law. However, when the production cost can be lower with only one firm in the market, government needs another kind of regulation to ensure the economy has both the cost advantage and low price. Finally, for the problems of externality, product safety, and worker safety, the social regulation should be applied to maintain a cleaner and safer environment.

B1718 Industry Analysis by the Case Study (3/0): Based on the structure-conduct-performance paradigm of industrial organization theory, this course discusses economic efficiency and social welfare from a perfect and imperfect competition market, demonstrating the necessity of government intervention and the importance of fair competition. Topics include, but are not limited to, the case studies of general industries, labor markets, product safety, information issues, intellectual property rights, environmental protection and public infrastructure. The topics include the economic efficiency and social welfare impacts of economic regulation.

Master's Program

B0130 Intermediate Microeconomics (3/0): This course aims at providing first-year graduate students with comprehensive economic theories of firm and consumer. The related mathematical tools are provided in detail as well. It also provides a brief introduction to game theory, welfare economics, public economics, labor economics, and health economics.

B0124 Econometrics (2/0): Econometrics is based on the development of statistical method for estimating economic relationships, testing economic theories, and evaluating government policies and business decisions. This course introduces the structures (or types) of economic data first and then outline the appropriate methodologies used to analyze them. Topics covered include multiple regression on cross-sectional data, regression on time series data, panel data models, instrumental variables estimation, simultaneous equation models, and limited dependent variable models.

B1667 Price Theory and Practice (0/3): This course introduces the development of behavioral and experimental economics. Rational economic decision makers and perfect information are enough conditions for the deployment of price mechanism. However, how will the market react if the decision makers have judgmental bias, the market information is in asymmetry, or there is externality?

B1670 Macroeconomic Policies Analysis (3/0): This course explores the policy effects, including fiscal and monetary policies, on employment, outputs, prices, and economic growth, by a dynamic approach. Three topics are contained in this lesson. Part 1 is the corresponding principle and rational expectation. Part 2 studies the issue about economic growth, first presenting the Solow model with exogenous technical progress, and then extending to the endogenous growth model based on the idea of productive externalities. Part 3 focuses on the analysis of unemployment.

B1671 Data Analysis and Empirical Research (0/3): This course introduces advanced econometric concepts and empirical analyses, including multiple regression, dummy variables, heteroskedasticity, panel data, 2SLS, and simultaneous equations. Limited dependent variable models are also discussed in this course.

B1805 Practicum in Industrial Economy (II) (2/0): Students are required to intern in enterprises to apply the knowledge they have learned in this class to practical matters.

B1682 Economic Performance between Countries (2/0): This class introduces students to the field of economic growth, which explores the question of why certain countries are rich and others are poor, and why some countries grow quickly and others slowly from an economist’s point of view. From the accumulation of capital to the role of geography, the class will explore the various determinants of the ‘success’ or ‘failure’ of a country today and over time. Both an empirical and theoretical approach will be used to answer these questions, supplemented by the most current literature in the field.

B1705 Special Topics in Industry (1/0): This course includes discussion of research papers written by researchers from Tamkang and other universities. It also provides the discussion on the progress of students' theses.

B0770 Topics on the Health Care Industry (0/2): This course introduces features of the healthcare industry, related theory and empirical studies of health economics. The health care sector continues to grow in size, both in absolute dollars and as a portion of the overall economic activity of Taiwan. This alone makes the study of health care a topic of potential importance. Health care represents a collection of services, products, institutions, regulations, and people. The theories and empirical studies of health economics can help students explore novel aspects of health care and ways to approach the issues.

T0140 Seminar (0/1): The objective of this course is to extend graduate students’ knowledge on various research issues related to industrial economics. We invite professional scholars in the field of economics to present papers. Associated with discussion and comments from attendees, we expect that graduate students can learn the latest research methodology, knowledge, and interesting topics.

B0253 Industrial Economics (3/0): This course introduces the general concepts of industrial economics and the basic analysis of a firm's merger behavior**.**

B0399 Health Economics (0/2): This course is designed to introduce theory and empirical studies of health economics. The health care sector continues to grow in size, both in absolute dollars and as a portion of the overall economic activity of Taiwan. This alone makes the study of health care a topic of potential importance. Health care represents a collection of services, products, institutions, regulations, and people. The theories and empirical studies of health economics can help students explore novel aspects of health care and ways to approach the issues.

B1697 Environmental Economics and Policy Analysis (0/2): This course will first introduce various environmental problems (such as water pollution, air pollution, and global warming, etc.) and environmental economic theories. It will then apply the theories to explain and analyze those environmental problems mentioned above. By learning environmental economics and the creative thoughts inspired in the class, the course aims to contribute to the sustainable development of environment and economics.

M0355 Resource Economics & Management (0/2): This course will first introduce various resources and their specific characteristics. Then it will apply the economic theories to explore the optimal allocation of resources and to discuss the justification of related resource policies. By learning the resource economics and the creative thoughts inspired in the class, this course aims to contribute to the sustainable development of resources, environment, and economics.

B1731 Theory of the Firm and Market Strategy (0/2): This course aims to introduce the theoretical foundation of Industrial economics and provide some basic tools for you to develop a formal treatment of these subjects and apply them to relevant issues. We will first introduce some basic firm theory, then we will review some classical IO papers.

B1732 Macroeconomic Data Analysis (0/3): This course will introduce macroeconomic issues, data and the appropriate empirical models to analyze them. There are four focuses of this class: (1) empirical analysis of long-run economic growth; (2) empirical investigation of short-run economic fluctuations; (3) time series models for macroeconomic data; (4) the assessment of the effect of macroeconomic policies.

B1804 Network Economics Analysis (2/0): This course examines how characteristics of network goods in individual industries affect the adoption of a technology, strategic interactions among firms and consumers' choices of products and services they buy. These industries include the telephone, computer hardware, computer software, two-sided markets, and many more. We will also discuss the regulatory practices that arise in network industries such as access policies, regulatory reforms and antitrust.

B1860 Seminar on International Economic and Trade Law (2/0): The World Trade Organization is a crucial pillar supporting the international economic and trading system, providing a rules-based framework that governs trade relationships among its 166 Member States. As a WTO member, Taiwan's domestic industrial and economic development is significantly influenced by the organization. A foundational understanding of WTO rules and principles is essential to comprehend the structure of the industry. This course will offer an overview of the WTO's substantive rules and delve into key issues in WTO law and the challenges the organization currently faces.

Ph.D. Program

B0712 Advanced Econometrics (3/0): This course aims at providing the first-year Ph.D. student with a comprehensive coverage of modern econometric methods.

B0981 Advanced Microeconomics (I) (3/0): In this course, we will explore the developing frontier of microeconomics. Participants will select two or more topics they are interested in and present the related materials. Any cross-fertilization ideas are welcome in class. Participants are encouraged to develop their own thinking and perspective on economic issues. Our topics of interest include but are not limited to: Game Theory, Behavior Economics, Experimental Economics, Neuroeconomics, Learning, Agent-Based Computational Economics.

B0982 Advanced Microeconomics (II) (0/3): This course aims to introduce the theoretical foundation of Microeconomics and provide some basic tools for the student to develop a formal treatment of these subjects and apply them to relevant issues. This course mainly covers some fundamental theories on firms' behavior and game theory. We will also include consumer theory if possible.

B0983 Advanced Industrial Economics (I) (3/0): This course aims to teach the students industrial economics, and to develop students' ability to do research. This course includes the following contents: Theoretical Background, Market Structure and Organization, Technology Innovation, and so on.

B0984 Advanced Industrial Economics (II) (0/3): The course will first discuss competitive industry and its relationships to general equilibrium theory and its application to (traditional) trade theory in detail. The course then introduces theory and empirical evidence of price discrimination in monopolistic industries. In addition, with the equilibrium concepts in game theory the course examines oligopoly models and related empirical papers. Finally, the course plans to introduce the identification strategies of econometric methods frequently used in empirical paper.

B0985 Advanced Intermediate Macroeconomics (0/3): This lecture discusses the main mathematical

methods of optimization and dynamics in the macroeconomics and the modern growth theory. We will begin with a very thorough introduction of mathematics and discussion of the consumption/saving problem of households, investment behavior of firms and small open economy. We move next to a discussion of endogenous growth models.

M1513 Methods for Economic Analysis (3/0): This course covers mathematical economics and econometrics. First, this course introduces the basic economic theories with mathematical analysis that include comparative static analysis, optimization problems, and dynamic analysis. Next, we learn the theory and application of simple regression analysis in the fields of econometrics, and then we introduce some basic and popular econometric models and tools about time series analysis, panel data models, productivity analysis, and spatial econometric models by using econometric software.

B1488 Topic Studies on Regional Economics (I) (0/3): Economic integration (such as through the WTO, EU, NAFTA, RCEP, and TPP, etc.) plays an important role in the global economy for many reasons. The purpose of this course is to help students understand the WTO, regional integration, and industrial agglomeration through the combination of location theory, international trade, and industrial organization, and by considering specialized WTO and FTA experts.

B1192 Applied Micro-Econometrics (I) (0/3): This course introduces micro-econometrics, the analysis of individual-level data on the economic behavior of individuals or firms using regression methods applied to cross-sectional and paneled data. It will discuss core methods of micro-econometrics, including maximum likelihood method, quantile regression, GMM, and nonparametric and semiparametric methods, and it is not only oriented to theorists but also to the practitioner.

B1518 Agent-Based Computational Economics (0/3): This course will discuss the decision behavior of artificial agents. Based on the assumptions of a behavioral model, we will be able to build a dynamically interactive environment. Free from the assumption of homogeneity and perfect rationality, we will be able to analyze market phenomena based on designed artificially intelligent agents.

B1137 Applied Micro-Econometrics (II) (0/3): This course is designed to introduce microeconometrics, the analysis of individual-level data on the economic behavior of individuals or firms using regression methods applied to cross-section and panel data. It will discuss core methods of microeconometrics, including maximum likelihood method, quantile regression, GMM, and nonparametric and semiparametric methods, and it is not only oriented to theorist but also to
the practitioner.

B1489 Topic Studies on Regional Economics (II) (0/3): Besides WTO, “Economic Integration” (such as EU, NAFTA, RCEP, TPP and etc.) plays an important role in real world for many reasons. The purpose of this course is, combining location theory, international trade and industrial organization, to help students understanding the concepts of WTO, regional integration and industrial agglomeration and producing some specialized WTO and FTA experts.

DEPARTMENT OF ECONOMICS

Degrees Offered: B.A., M.A.

Chairman: Chao Liang Chen (陳炤良)

The Department

The Department of Economics began as a program offering classes in the University's evening division in 1980, and was established as a department in 1986. Currently, the department has 15 full-time professors. The department offers a four-year program leading to the Bachelor of Arts in Economics.

The department offers theoretical core courses including intermediate microeconomics and macroeconomics, as well as specialized courses in econometrics, money and banking, economic development, financial economics, and labor economics. Students are required to take a minimum of 84 credits of required courses, along with 44 elective credits, in order to graduate. From 2007 on, we have also provided a credit course program by designing a series of economics, finance and law related courses. Students can earn a certificate from the school if they fulfil the requirements of this credit course program.

The department strongly emphasizes research and has a significant number of faculty members conducting projects funded by the National Science and Technology Council of the R.O.C. The department also holds conferences regularly dealing with the economic problems of Taiwan.

The M.A. program in Economics was established in 2001. Its teaching objectives are to train students to acquire a professional knowledge of Economics and a strong ability for further study and employment. Furthermore, we stimulate students' enthusiasm and ability for advanced research.

To be consistent with our reform in graduate course structure, the M.A. program in Economics is renamed as The M.A. program in Economics and Finance, Department of Economics beginning in 2017.

Faculty

Professors
Shi-Feng Chuang (莊希豐) ; Huei-Chu Liao (廖惠珠) ; Jhy-Hwa Chen (陳智華) ;
Jer-Fuh Wan (萬哲鈺) ; Yi-Chen Lin (林亦珍) ; Chao-Liang Chen (陳炤良); Yen-Ling Lin (林彥伶) ;
Chung-tsun Shieh, (謝忠村)

Associate Professors
Biing-Shiun Yang (楊秉訓) ; Yi-Yi Chen (陳怡宜) ; Ronald A. Edwards (艾德榮) ;
Jyh-Shyang Wu(伍志祥)

Assistant Professors
Shih-Chuan Lin (林士全) ; Chen-Sheng Lin (林朕陞)

Degree Requirements

The Department of Economics offers one program at the undergraduate level (Bachelor of Business) and one program at the graduate level (Master's). The degree requirements for the programs are as follows:

1. Requirements for a Bachelor in Economics:
   Completion of 128 credits of courses, including 84 credits of required courses and 22 credits of elective economics courses.

2. Requirements for a Master in Economics and Finance:
   Completion of 34 credits of courses, including 12 credits of required courses and 22 credits of elective economics courses offered in the department. Students are also required to submit a written master's thesis completed under the supervision of a faculty member and pass an oral examination.

Course Descriptions

Undergraduate Courses

B0071 Investment (3/0) (0/3): This course focuses primarily on investing in marketable securities. It focuses on the investment environment and process.

B0109 Insurance (0/3): This course introduces underlying concepts and principles of insurance, insurance products and contacts, the insurance market, and insurance-finance. To assist students to gain a better understanding of insurance products and market dynamics, and to bring together insurance theories with practices, case studies and current affairs regarding to insurance are reviewed.

B0130 Intermediate Microeconomics (3/3): This course offers an in-depth investigation of the theories of consumers and firms. Special topics in information economics, uncertainty, overlapping models, externalities, and basic game theory are also touched on.

B0202 International Finance (3/0): This course examines the theory of exchange rate determination and international monetary economics. The first semester emphasizes exchange rate theory, while the second semester analyzes monetary union and exchange rate policy.

B0218 Theory of International Trade (3/0): International trade policies are a living discipline, changing and evolving in response to the development of the world's economies. This course provides a study of international trade and finance and identifies important implications for economic policy.

B0263 Money and Banking (2/2): This course introduces interest rates and foreign exchange rates in the financial market, financial institutions, money supply and demand, and the monetary policy. Students in this course will acquire basic concepts in economics.

B0301 Introduction to Mathematical Economics (2/2): This course presents an introduction to basic mathematical tools for major types of economic analysis such as statics, cooperative static, dynamics, and mathematical programming.

B0302 Economics (2/2): This course covers basic topics of economics: market demand and supply, production and costs, market structure, national income, unemployment and inflation, etc.

B1593 Advanced Economics (1/1): This course provides more advanced concepts and theories of economics: how the market equilibrium works, how consumers and producers make decisions, and how government policies affect economy, fluctuation and growth, etc.

B0370 Environmental Economics (0/3): This course will introduce a variety of approaches to environmental problems. The goals of this course are to structure students' abilities in economic analysis and to strengthen their applications for current environmental events.

B0373 Intermediate Macroeconomics (3/3): This course approaches the aggregate economics theory with an emphasis on recent developments.

B0453 Financial Economics (2/2): This course provides students with an ability to understand and apply the theories and techniques used in corporate finance.

B0547 Public Economics (2/2): This course provides students with a solid grounding in theory and teaches students to understand how the public sector interacts with the rest of the economy and why governments act the way they do, enabling them to evaluate policies and their alternatives.

B0556 Applied Econometrics (0/2): This course is a sequence of the principle of econometrics. We will learn how to estimate the model when the fundamental CLRM assumptions are violated. The course also emphasizes the use of econometric software (gretl) to analyze real data.

B0727 Principle of Econometrics (3/0): Econometrics literally means "economic measurement". It consists of the application of mathematical statistics to economic data to lend empirical support to the

models constructed by mathematical economics and to obtain numerical results. It is concerned with the empirical determination of economic laws, which will be discussed in this course.

B0730 Financial Regulation and Law (3/0): This course examines legal approaches to dealing with entrepreneurs' raising of capital and provides an understanding of the essential elements of financial law. Through this course, it is expected that students will grasp the fundamental legal principles and market practices of securities and exchange law.

B0933 Economic Decisions Under Uncertainty (2/2): This course emphasizes the basic economic theory of uncertainty and information. The first semester considers simplified decision theory, expected utility function, attitudes toward risk, and the state-preference approach. The second semester focuses on issues surrounding portfolio theory, the value of information, asymmetric information, signaling theory, and game theory.

B0936 Introduction to Decision Models (2/0): This course focuses on decision models and their application. Topics include AHP, decision criterion, decision trees; risk analysis, sensitivity analysis; utility and decision making. The course also introduces basic Markov chains.

B1247 The Case of Intellectual Property Rights (2/0): The current course is based on IPR related cases. The course will focus on issues related to IPR law, and will involve in-depth discussions of basic legal concepts covered in IPR law.

M0517 Statistics (2/2): Statistics is the collection of procedures and principles for gathering data and analyzing information to help people make decisions when faced with uncertainty. This one-semester course is an introduction to inferential statistics. Topics covered in this course include hypothesis testing, chi-square tests, regression analysis and analysis of variance.

M0518 Accounting (2/2): The essential purposes of accounting are to report a company's financial conditions, operating results, and changes of financial status. This course aims to instruct students in the logic behind accounting, accounting processes, the preparation of financial statements, and key concepts of financial analysis.

M1194 Law of Consumer Protection (0/2): This course begins with real cases related to consumers' rights. It discusses topics closely followed by the public, such as the purchase of real estate, mailing transactions, credit card contracts, transaction-based conflicts, and fixed-payment loans.

S0325 Calculus (2/2): This course examines integration and its applications.

B1078 Derivatives (0/2): It covers the fundamentals of the futures and options markets: (1) The major types of futures and options orders; (2) the principles and practices of futures clearing and margining; (3) a survey of technical and fundamental analysis; (4) an in-depth treatment of hedging; (5) coverage of specific group's commodity and financial futures and options.

B0154 Financial Statement Analysis (0/2): This course introduces how to examine the business performance in the past, how to examine the current state of enterprise performance and how to forecast the future of business through the evaluation of financial statements including balance sheet, income statement, statement of changes in owner's equity and statement of cash flows.

B1635 Meiji—Early Showa Japanese Political Economic History (0/2): This course covers the political and economic aspects of the Japanese Meji - early Showa period.

B1640 Practicum in Corporate Practice (2/0): This course will help in improving the employability of students by narrowing the gap between study and practice through taking the professional certification exam. This will help students to fully understand the requirement of the enterprise.

B0817 The Application of Excel Financial Tools (0/2): This class will have several lessons about the useful Excel financial tools. The mathematics, operating ways, and practical examples will be taught through the computer screen. Students will have opportunities to practice themselves in the lab.

B0818 The Application of Excel Statistical Tools (0/2): This class will have several lessons concerning the useful Excel statistics tools. The mathematics, operating ways, and practical examples will be taught through the computer screen. Students will have opportunities to practice themselves in the lab.

B1472 Energy Economics (0/3): Beginning from the energy policy in Taiwan, this course introduces many concepts, definitions in the area of energy. Then we focus the demand, supply and related economic theorems of every individual energy such as oil, coal, gas, thermal electricity, nuclear electricity and new & renewable energy (i.e. wind, solar, geothermal, biomass and ocean, etc.). The issues of energy, environment and new technology are also discussed in this course. Those topics include energy and climate change, ETS, CDM, JI, Smart grid and CCS.

M0405 Management (0/3): Management is a course that will introduce functions of management, including planning, organizing, leading, controlling. This course begins with a discussion of the current issues and case method in management. This course is designed to integrate the theories in the area with real world applications to help students to learn these concepts. Students will understand the needs of modern organizations, including emerging national and international trends.

M2400 Sengoku-Tokugawa Japanese Political Economic History (2/0): This course covers the political and economic aspects of the Japanese Warring States—Tokugawa transition.

B1636 Pre-1650 English Political Economic History (2/0): This course covers the political and economic aspects of the English pre-1650 period.

B1637 Post-1650 English Political Economic History (0/2): This course covers the political and economic aspects of the English post-1650 period.

B1126 The Practice in Investment (2/0): This course providing various topics combined with the current state of financial environment，allowing students to understand the characteristics of financial instruments, risk , reward, and trading strategies. Understand the wealth management field and how to use various financial tools in order to enhance professionalism and enhance financial literacy through this course.

T3174 Exploring Sustainability (1/0): The aim of this course is to cultivate students to become action-takers in exploring sustainability. Two types of literacy will be emphasized in this class, the literacy of exploring and the literacy of sustainability. The former will equip students to take action based on risk assessment with courage. The latter will require students to respond to changes and crises properly by applying their knowledge.

B1541 Panel Data Analysis (2/0): This course primarily focuses on learning how to build models using longitudinal cross-sectional data. Based on different data types, the course is divided into the analysis of mixed data and the analysis of panel data. Additionally, students will also learn how to utilize this type of data for policy analysis.

B1541 Panel Data Analysis (2/0): This course primarily focuses on learning how to build models using longitudinal cross-sectional data. Based on different data types, the course is divided into the analysis of mixed data and the analysis of panel data. Additionally, students will also learn how to utilize this type of data for policy analysis.

B1183 Financial Markets And Sustainable Investments (0/2): Introduce the structue of financail markets. Understand the financail intermediation process and the risk faced bt financial institution. Explain the major determinants of interest rates and understand the relationship between time to maturity of a security and its interest rate. Understand the economic role of various financial markets.

M2625 Intelligent Applications In Economics (0/2): This course introduces machine learning, focusing on supervised learning and covering the fundamentals and programs. Students can practice skills for machine learning using Python. To enhance students' learning interest, this course will use interesting and practical data to carry out thematic exercises. Through this course, they can not only acquire new skills in the field of business and finance but also prepare for the certification exams, and even participate in the Kaggle annual competition to practice what they have learnt. This will systematically foster students' cross-field knowledge.

Master's Program

B0118 Applied Macroeconomics (0/2): Following up on the lectures in Macroeconomics Theory, this course further explores more applied subjects, such as open economy issues and economic growth issues through the method of paper readings. It requires students to hand in a term project of empirical research related to macroeconomic policies.

B0129 Microeconomic Theory (3/0): This course focuses on the fundamental tools of microeconomics, such as utility maximization, labor supply, revealed preferences, profit and cost functions, uncertainty, and general equilibrium.

B0268 Labor Economics (2/0): The aim of this course is to acquaint students with traditional labor economics such as labor supply and demand theories, search models, human capital models, contracts, models of reallocation and cleansing, job creation and downsizing.

B0696 Financial Institution Management (0/3): This course introduces the following three issues: (1) the history of the financial industry; (2) how to measure risks; (3) risk management in the financial industry.

B0710 Macroeconomic Theory (3/0): This course uses the market-clearing approach as a general method for analyzing macroeconomic problems. It starts from a simple Ramsey Model before moving to discuss some important issues by adding capital to the model.

B0890 Econometrics (I) (3/0): This course introduces the basic tools for studying econometrics and the regression model in cross-sectional data.

B0892 Econometrics (II) (0/3): This course emphasizes the econometric analysis in time-series and panel data.

B0932 Energy Policy and Management (3/0): Focusing on the new trends in international energy development, this course analyzes the problem of each traditional energy: oil, coal, gas, electricity and renewable energy. Several important issues of energy policy, energy and environment, and the climate change resulting from fossil energy use are also arranged in the final part.

B1203 Security Analysis (3/0): This course is designed to examine the characteristics of individual securities, as well as the theory and practice of optimally combining securities into portfolios.

B1430 Introduction to Behavioral Economics (2/0): Behavioral economics is probably the most important counteraction to orthodox, standard economics of the last two decades. In contrast to standard economics, behavioral economics highlights bounded rationality and the psychological procedure of human decision making. There are significant differences in terms of basic assumptions, methods of inquiry, and consequent results between behavioral economics and standard economics. This course intends to provide a basic overview of this fast-developing, controversial approach.

B1681 The Theory and Practice of Financial Derivatives (0/2): This course aims to introduce the investment management process to help students understand theory and practice. It includes the following topics: trading strategies, pricing and arbitrage of futures and options commodities, and the role of derivatives.

M0905 Thesis Writing (1/0): This course intends to deconstruct the writing process and teach the fundamentals of thesis writing. Instruction will concentrate primarily on the process of writing scientific manuscripts. The course teaches students how to write effectively, concisely, and clearly.

M0800 Business Ethics (0/1): The current course introduces the ethical relationships between the business and the society, and helps students understand the multiple ethical obligations of businesses toward stakeholders inclusive of employees, stockholders, competitors, community, and environment.

B1702 Fintech: Practices and Management (0/2): Fintech case study, including six topics: Payment, Insurance, Deposit & Lending, Capital Raising, Investment Management, Market Provisioning.

M2489 Lecture on Technology Application (1/0): The purpose of this course is to combine humanities and technology for cross-domain learning and development, through lectures, visits, implementations, and discussions.

DEPARTMENT OF BUSINESS ADMINISTRATION

Degrees Offered: B.B.A., M.B.A., EMBA

Chairman: Yong-Sheng Chang (張雍昇)

The Department

The Department of Business Administration currently has three programs, including a bachelor program, an MBA program, and an EMBA program. The bachelor program requires at least 128 credit hours. Undergraduate students must achieve at least a 2.0 grade point average in each course. The MBA program requires at least 39 credit hours. The EMBA program requires at least 36 credit hours. Graduate students must achieve at least a 3.0 grade point average in graduate courses. The bachelor program started in 1966, the MBA program started in 2001, and the EMBA program started in 2003.

The purpose of the bachelor program is to provide students with a broad background in general business and management and to offer them adequate preparation for pursuing graduate study, entering the job markets including banking, management, marketing, human resources, sales, purchasing, and information management, manufacturing, and working in government or nonprofit institutions. Based on the undergraduate courses, many advanced and contemporary courses have been provided to graduate students, such as Organization Theory, Research Methodology, Strategic Management, Knowledge Management, Seminars in Business Functions, and Seminars in Industries. A close relationship between the department and the business community generates a mutually beneficial understanding of the needs of business and development. Many educational facets including field trips, experiential learning, case studies, and contact with business executives provide students the opportunity to improve their skills for greater contributions to the industry.

Faculty

Professors
Li-Ren Yang (楊立人) ; Chu-Ching Wang (王居卿) ; Kun-Shan Wu (吳坤山) ; Mei-Ling Wang (汪美伶) ;
Chih-Te Yang(楊志德) ; Yue-Cune Chang(張玉坤)

Associate Professors
Di-Ching Pai (白滌清) ; Ying-Cheng Hung (洪英正) ; Yueh-Hua Lee (李月華) ;
Hui-Chiung Lo (羅惠瓊) ; Mu-Fen Zhao (趙慕芬) ; Ya-Ting Lee (李雅婷) ; Ching-Fen Lee (李青芬) ;
Yun-Huei Lee (李芸蕙) ; Yong-Sheng Chang (張雍昇) ; Chi-Hsiang Chen (陳基祥) ;
Min-Fen Tu (涂敏芬)

Assistant Professors
Kuei-Hui Hsiao(蕭貴徽) ; Hsiu-Hui Chuang(莊琇惠); Wei-Jen Chen (陳任);
Yu-Yueh Chang (張妤玥)

Lecturer
Yen-Wei Hu(胡延薇)

Degree Requirements

The Department of Business Administration right now offers three programs:

1. Requirements for a Bachelor in Business Administration:
   Completion of 128 credits of courses, including 87 credits of required courses and 19 credits of management courses is required.

2. Requirements for a Master’s degree in Business Administration:

Completion of 39 credits of courses, including 10 credits of required courses, is required. Meanwhile there are 4 credits of thesis writing that are not included in graduation credits. Students are also required to submit a written master's thesis completed under the supervision of a faculty member and pass an oral examination.

3. Requirements for an Executive Master's degree in Business Administration:
Completion of 36 credits of courses, including 9 credits of required courses, is required. Note that there are 4 credits of thesis writing that are not counted toward overall program credits. Students are also required to submit a written master's thesis completed under the supervision of a faculty member and to pass an oral examination.

Course Descriptions

Undergraduate Courses

A0764 Introduction to Advertising (3/0): This course introduces the functions, categorical consumer psychology, media and creative planning of advertising as well as the practical operation of Taiwan's ad field.

B0065 Operation Management (3/0): The purpose of this course is to introduce Operation Management techniques in a variety of management contexts, such as those of manufacturing and service industries. It aims to provide students with an analytical approach to economic problems of planning and controlling employees, materials, and machines.

B0071 Investments (0/3): The aim of this course is to help future investors sort out the various investments that are available and to develop the ability to identify the types of securities and assets most appropriate for a given portfolio.

B0109 Insurance (3/0): The purpose of this course is to provide basic knowledge of insurance. The content includes principle of insurance, risk evaluation, life insurance and property-liability insurance, etc. The students would have the ability to arrange their insurance policies after this course.

B0136 Consumer Behavior (0/3): This course analyzes the nature of consumer behavior, dynamics and patterns, environmental influences, individual differences, psychological processes, consumer and decision-making processes and behavior, and consumer analysis and marketing strategy.

B0154 Financial Statement Analysis (0/3): This course provides students with important analytical skills for evaluating and interpreting the financial position of a firm and assessing its future trends. Course content includes analyses of balance sheets, income statements, fund flows, and return on investment. Attention is also given to integrating modern financial concepts such as efficient capital markets, and statistical projection of earning using theories of financial statement analysis.

B0173 Commercial Law (0/2): This course examines company laws, check laws and related business laws.

B0260 Organization Behavior (3/0): This course analyzes current concepts of human behavior as applied to the organization. Topics include anthropological, psychological, and sociological approaches to identifying and solving human aspects of business decisions. Class presentations involve using OB concepts for developing and improving interpersonal skills.

B0302 Economics (2/2): This course covers two main topics: (A) The microeconomic economy, including the price and theory of supply and demand, analysis of consumer acts, theory of production, structure of cost, market structure, and the supply and demand of production factors; and (B) Macroeconomics as the study of national income and the determination of rules for greater income equality.

B0558 International Human Resource Management (0/2): This course focuses on the connection between corporate strategies and the effective management of human resources, which may require differing policies across countries. The course is based on the notion that competitive companies and

economies require appropriate structures, policies, and strategies for managing their employees. Students will learn about the field of international human resource management and understand its relevance in work organizations.

B1366 Wealth Management (0/2): The course provides related knowledge and information about security investment and financial planning. The contents include essentials of financial planning, the preparation and analysis of family financial statements, cash flows management, time value of money, housing planning, child raising and education planning, retirement planning, investment planning, tax planning, and multi financial planning.

M0001 Retail Management (3/0): The purposes of this course are to let students understand various issues related to Retailing Management and the current status of Retailing Industry.

M0003 Human Resource Management (0/3): This course provides a comprehensive overview of HRM from an upper management perspective. Topics covered include strategic human resource planning, development of human resources, staffing for long-range performance, appraisal, compensation, and labor relations.

M0015 Human Relations (3/0): The purpose of this course is to show how you can become more effective in your work and personal life through knowledge of and skills in human relations.

M0086 Introduction to Business (3/0): This is an introductory course designed for both business and non-business majors. By taking this course, students will learn key concepts and disciplines of business and its environment, management and organization, people and production, marketing, finance, risk management, and multinational business.

M0142 Marketing Management (3/0): This is an analytical, managerial-oriented course emphasizing decision-making in the functional area of marketing. Course content includes analyzing marketing opportunities, researching and selecting target markets, developing marketing strategies, planning marketing programs and organizing, implementing and managing marketing initiatives.

M0271 Financial Management (3/0): This course analyzes the underlying theory, principles and techniques used in financial management to maximize the value of the firm. Topics explored include discounted cash flow analysis, risk and return measurement, capital budgeting, the cost of capital, capital structure theory and leverage policy, dividend policy, long-term financing policy, working capital management, financial statement analysis, mergers, holding companies, and multinational financial management.

M0286 Project Management (0/3): This course introduces the fundamental concepts and elements of project management. The course also exposes students to various control aspects of project, such as requirement management, request for proposal, project proposal, scheduling, project-based organization, cost control, and resource management. Students are expected to gain the knowledge and skills in managing projects that are necessary for seeking employment opportunities.

M0344 Data Processing (2/2): This course is designed to introduce concepts, software, and applications related to data processing.

M0348 Management Information System (0/3): This course teaches students about the emerging role of information systems in business. It covers people, organizations and management, information technology concepts, MIS in practice, building management information systems, and MIS management.

M0375 Management Psychology (3/0): This course is the first in a series of human-oriented courses that introduce students to the principles of managing people. In this course, learners will learn basic organizational theories, group dynamics, motivation, leadership, individual differences and so on. All students need to be aware of how people behave to be able to provide the best working environment. This course will teach students the basics of human organizational behavior, as well as establishing a framework for further managerial studies.

M0382 Management Science (0/3): This course provides quantitative methods of management science with applications to economic, industrial and managerial problems. Topics covered include linear algebra,

mathematical programming, decision-making under risk, inventory control, queuing theory, game theory, and simulation.

M0405 Management (0/3): The course offers students not only theories that guide managerial activities but also illustrations and examples of how and when those theories do and do not work in both small and large businesses as well as in nonprofit organizations.

M0477 Quality Management (0/3): This course provides comprehensive coverage of quality management concepts. Topics covered include quality-improvement techniques, control chart sampling plan systems, quality costs, and total quality management.

M0495 Sales Promotion Marketing (0/3): This course explores promotion management, which is one of the four Ps (marketing mix) that deal with integrated marketing communication (IMC), promotion tactics, advertising effects, and pricing management.

M0496 Service Marketing (0/2): This course focuses on the service sector to introduce means of marketing services effectively. Course content consists of understanding services, tools for service marketers, challenges for management, and formulation of strategies.

M0517 Statistics (2/2): This course teaches basic concepts of statistical methods including the probabilistic model, statistical inferences, hypothesis testing, linear regression model, time series, analysis of variance, and so on.

M0518 Accounting (2/2): This course offers an introduction to financial accounting, including a study of financial statements of business entities and the measurement and reporting of assets, liabilities, equity, revenues, expenses, and cash flows. Students will be exposed to the procedures and practices involved in recording and processing economic transactions in an accounting information system.

M0560 Small and Medium Size Enterprise Management (3/0): This course is designed for facilitating each student to develop his/her managerial capabilities in both theoretical and practical aspects. Accordingly, in addition to a mid-term exam, a team term-project integrating industrial analysis and executive interview is also required.

M0747 Strategic Management (3/0): This course teaches students skills on how to deal with complex problems confronting managers in a rapidly changing environment. Topics covered include strategic management processes, corporate level strategic decisions, business level strategic decisions, functional level strategic decisions, and strategy implementation and control.

M0800 Business Ethics (2/0): This course introduces the ethical relationships between business and society, and helps students understand the multi-ethical obligations that businesses have to stakeholders, employees, stockholders, competitors, the wider community, and the environment.

M0853 Electronic Commerce (e-Business & m-Business) (0/3): This course will cover the concepts, tools, and strategies for understanding and exploiting opportunities associated with e-Business (m-Commerce). The focus will be on applications and marketing aspects of business.

M1104 Supply Chain Management (3/0): In this course, students will learn concepts related to the design, evaluation, and performance of supply chain systems developed through an exploration of contemporary practice and research, focusing on current modeling approaches, analytical frameworks, and case studies.

M1856 Market Survey and Forecasting (3/0): The purpose of this course is to nurture students' basic understanding of market surveys and to develop students' abilities in decision making and data analysis.

M1859 Seminar on Technology and Service Management (0/2): This seminar integrates theories with practical skills. In this subject, we hope to help senior students gain an awareness of the latest knowledge and practices in business through speeches delivered by managers in different industries to provide students with preparation for their future careers.

M1868 Cost Analysis and Management (0/3): This course intends to enhance students' ability to understand and analyze cost/expense to make related managerial decisions.

M1930 Human Resource Training & Development (0/2): It's important for manager to learn the training and development knowledge. The students should realize both theory and practice of training and development management operational capability.

M1931 Seminar in Management Information (0/2) This course will explore information management related issues in the form of special discussions, including information management strategies, information systems, enterprise resource planning systems, database management, customer relationship management systems, supply chain management systems, business intelligence systems and information security and so on. In addition to reviewing information management theory, students will also be allowed to develop information management-related knowledge and apply information technology capabilities through special projects.

M2000 Performance Management (2/0): This course introduces theories and practices of performance management, including performance management theories, performance management information, performance management tools, and performance management practices.

M2018 Customer Relationship Management (2/0): Customer relationship management is an important issue for enterprises nowadays. According to the 80/20 rule, 80% of profit is created by 20% of key persons of firms. Therefore, retaining significant customers is extremely crucial for companies. This course aims to investigate management and technology concepts. Meanwhile, several cases will be used to link related theories. The goal of this course is to help students obtain an overall view of CRM.

M2021 Theory and Practice of Life Insurance (0/2): This course introduces types of life insurance, clauses, pricing, underwriting, claims, and marketing and operation. It also helps students not only understand the theory of life insurance, but also its operation.

M2024 Service Science And Management (2/0): Service Science, Management and Engineering (SSME) is an integrated interdisciplinary science, which included many fields－information technology, operation research, business strategy, management science, social and cognition science, and etc. This course will be conducted in workshop format. The learners have to open the mind, design a service project, and think the linkage and balance between business model and placemaking. Micro-entrepreneurship will be a core spirit in this course.

M2205 Asia-Pacific Industrial Competitiveness Analysis (3/0): This course includes economic and trade issues covered from the Asia-Pacific region, and a general description of individual countries on an in-depth analysis, and using the easy way to introduce the complicate issues. This course also analyzes the Asia-Pacific regional economic and trade information, furthermore, gathers the latest case of Taiwanese businessman and companies in the Asia-Pacific region, by using text and graphics in conveying the message of the regional economic and trade information to readers, and these cases will deepen student learning.

S0325 Calculus (2/2): This course covers basic concepts of limits, differentiation, integration, integration of functions of one variable, infinite series, functions of several variables, partial derivatives, and multiple integrals.

Master's Program

B1036 Consumer Behavior (3/0): The purpose of this course is to introduce consumer behavior theory and practice. Major contents include the following are describing consumer decision process model, understanding what major psychological processes to the marketing program, understanding how consumers make purchasing decisions, and learning how marketers analyze consumer decision making.

B0260 Organizational Behavior (3/0): This subject "Organizational Behavior" (OB) is the study and application of knowledge about how individuals and groups act in organizations. It does this by taking a systematic approach. That is, it interprets people-organization-environment relationships in terms of the whole person, group, organization, and the social system. Its purpose is to build up better relationships and excellent performance to achieve human objectives, organizational objectives, and social objectives.

M0115 Multivariate Analysis (0/2): Be able to understand and explain the importance of Multivariate Statistics Analyses techniques impacting on business management research. Can apply the related statistical software for the analysis on management issues.

M0144 Seminar in Marketing Management (3/0): This course expects students to develop a high threshold for ambiguity—an essential trait for all successful general managers. Students will learn that there are no right or wrong answers to marketing problems; just some that are better than others. Students will learn to approach complex and unstructured marketing problems in a creative and measured way.

M0272 Seminar in Financial Management (3/0): This course includes an introduction to the financial environment, value and risk, capital budgeting, capital structure, and working capital management.

M0747 Strategic Management (0/3): Strategic management is an integrated discipline, and is also a major course for MBA students. This course emphasizes both top down and micro / macro perspectives; that is, it will analyze the impact of external environments and internal capabilities, which will help the formulation of corporate and business strategies. Some contemporary issues will also be explored such as innovation, M&A, strategic alliance and integration strategies.

M0800 Business Ethics (1/0): The purpose of this course for students aims at learning and understanding the conceptual context of business ethics, social responsibilities and corporate governance. The main contents include morality philosophy, moral cognition development process, occupational spirituality, moral leadership, moral judgment, and moral culture and so on. By all these abundant contents, students are expected to develop the sense of morality, professionally ethical conducts, and the judging criteria in the practical cases judgments.

M0801 Human Resource Management (0/3): This course discusses typical functions in human resource management from a strategic perspective, such as recruitment, selection, performance appraisal, training, rewarding, and so on. Specifically, it explores how these functions integrate with the overall strategy of the firm for the firm to become more competitive.

M0905 Thesis Writing (0/3): This course introduces the fundamental concepts and elements of thesis writing, dissertation and long essays. The course also exposes students to various aspects of research and provides a comprehensive guide to manage research projects. Students are expected to gain knowledge and skills in conducting research and writing research papers.

M1280 Static Application and Data Analysis (2/0): This course introduces the fundamental concepts and application of statistics. The course also exposes students to various aspects of research and provides a comprehensive guide to manage research projects. Students are expected to gain the knowledge and skills in conducting research.

M1356 Study to Services Management (3/0): Service management is a field of study that embraces all service industries. This course examines service management from the perspectives of operations, strategy, and information technology. Course topics includes service quality, service strategy, service development, service location, service encounter, internet service, service supply chain management, and service project management.

M1722 Event Planning and Project Management Practice (0/2) This course introduces the fundamental concepts and elements of event planning and project management. The course also help students understand how to apply management theory to practice.

M1805 Seminar in Operation Management (3/0): This course is designed to develop a substantial understanding of Operations Management for EMBA students. Generally, the purpose of this course is applied and fundamentals of the Operations Management. This is an applied course in which students will obtain experience by solving problems involving real world cases.

M2060 Innovation and Entrepreneurship Management (0/2): The purpose of the course is to introduce the concept of innovation and entrepreneurship via literature, interactive discussion and business visiting to inspire students' concern for innovation and entrepreneurship and enhance students' ability to start a new business with innovation.

M2565 Brand Management and Digital Marketing (0/3): This course deals with brands, why they are important, what they represent to consumers, what firms should do to manage them properly, and how to create and nurturing a strong brand over time. Attendances will learn a comprehensive and up-to-date treatment of the subjects of brands－ the design and implementation of marketing programs and activities to build, measure, and manage brand equity. The subject also uses digital marketing solution to help brand to attract clients worldwide.

T0081 Research Methodology (3/0): This course introduces the fundamental concepts and elements of research methodology. The course also exposes students to various aspects of research and provides a comprehensive guide to manage research projects. Students are expected to gain the knowledge and skills in conducting research.

EMBA Master's Program

B0136 Consumer Behavior (0/3): The purpose of this course is to introduce consumer behavior theory and practice. Major contents include the following: describing consumer decision process model, understanding the major psychological processes of the marketing program, understanding how consumers make purchasing decisions, and learning how marketers analyze consumer decision making.

B1707 Service Marketing Management (3/0): This course will explore the framework of service marketing-mix (7P), which is used as the main framework to think logically and learn rationally in this course. Besides the traditional marketing theories, this course will introduce some advanced service marketing concepts. To reinforce the effective application of related theories, besides the lecture of related theories, this course will also emphasize the presentation, analysis, comment, and discussion for some practical cases.

M0375 Management Psychology (0/3): This subject "Management Psychology" is the study and application of knowledge about how individuals and groups act in organizations and commerce environment. It does this by taking a systematic approach. That is, it interprets people-organization-environment relationships in terms of the whole person, group, organization, and the industry system. Its purpose is to build up effective individual, better relationships and excellent performance by achieving human objectives, organizational objectives, and social objectives.

M0610 Seminar in Strategic Management (0/3): Based on 30-years of corporate working experiences, the instructor will guide students and lead discussions for many case studies from the "Strategic Management" perspectives.

M0800 Business Ethics (3/0): The purpose of this course for students aims at learning and understanding the conceptual context of business ethics, social responsibilities and corporate governance. The main contents include morality philosophy, moral cognition development process, occupational spirituality, moral leadership, moral judgment, and moral culture and so on. By all these abundant contents, students are expected to develop the sense of morality, professionally ethical conducts, and the judging criteria in the practical cases judgments.

M0905 Writing Research Paper (0/3): This course introduces the fundamental concepts and elements of writing thesis, dissertation and long essays. The course also exposes students to various aspects of research and provides a comprehensive guide to manage research projects. Students are expected to gain the knowledge and skills in conducting research and writing research papers.

M0990 Information Management Seminar (3/0): Understanding how to create the competitive advantages through information technology, and sharing the practices and experiences with each other via community platform (such as Facebook).

M1366 Study of Service Management (3/0): This subject "Study of Service Management" is the study and application of knowledge about how to manage in the service industry and service system. We hope to increase the ability of EMBA students for reading papers and analyzing concepts. We do this by taking a systematic approach with case study, business visiting and agenda speech to make the integration of learning and application.

M1611 Special Topics on Management (3/0): The contents of this course are mainly based on the management function--planning, organizing, motivating, leading and controlling. This course may be regarded as the most important basic course, which not only can test the usefulness and value for the experienced students (particularly for the students who do not have a business and management background), but be used as the common management and thinking logic in the class. Multiple methods will be used in this course including lecture, presentation, discussion, and written report.

M1722 Event Planning and Project Managment Practice (3/0) This course introduces the fundamental concepts and elements of event planning and project management. The course also help students understand how to apply management theory to practice.

M2074 Leadership and Teamwork (3/0): The current course introduces the theories and practices of leadership and team building to help students apply what they learned from the course for work or future studies.

M2377 Seminar in Investment Management (0/3): As a result of the economical fast development, the national income also largely increases along with it, the traditional deposit idea is substituted for gradually by the investment activity, the national manages finances the investment already luxuriantly is an atmosphere, then stimulates schoolmate to invest interest of the managing finances.

M2563 Marketing Management and Digital Marketing (3/0): Marketing-oriented thinking is a necessity in today's competitive world. This course is aim to enhance students' knowledge about how to carefully analyze needs, identify opportunities, and create value-laden offers for target customer groups that competitors can't match.

M2705 Seminar on Sustainable Operations and digital innovation (3/0) This course introduces the fundamental concepts of sustainable operation management, and how to use smart technology to innovate or improve operation models. Furthermore, the course will arrange activities such as case studies, agenda speeches, and business visits to enable EMBA students to understand the development and trends of smart operations in various industries.

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T0081 Research Methodology (0/3): This course introduces the fundamental concepts and elements of research methodology. The course also exposes students to various aspects of research and provides a comprehensive guide to manage research projects. Students are expected to gain the knowledge and skills in conducting research.

DEPARTMENT OF ACCOUNTING

Degrees Offered: B.S., M.A., EMBA

Chairman: Yu-Hui Fang (方郁惠)

The Department

The day school of the Department of Accounting was inaugurated in 1973 and the evening school in 1975. The department aims to train students to be accounting specialists both in theory and practice. The scholarship each year amounts to NT$ 2,000,000 and is awarded to students with special achievements in six categories: academic achievement, financial need, service, morality, and major courses.

The MA and EMBA programs of the department were established in 1994 and 2000 respectively. Their objectives and directions are as follows: (1) to cultivate senior accounting specialists, emphasizing the combination of theory and practice; (2) to study the accounting system of Mainland China as a social requirement in facing communication across the Taiwan Strait; and (3) to train international accounting specialists for national needs in foreign investment policy.

The department provides research and development funds to encourage students to attend conferences, present research papers, go abroad for short periods of research, invite outstanding scholars and specialists, and improve department facilities.

Faculty

Professors
Sin-Hui Yen (顏信輝) ; Lo-Pin Kuo (郭樂平) ; Ku-Jun Lin (林谷峻) ; Yu-Hui Fang (方郁惠) ;
Yu-Shan Chang (張瑀珊) ; Fan-Hua Kung (孔繁華)

Associate Professors
Chen-Chin Wang (王貞靜) ; Wei-Ju Chen (陳薇如) ; Yi-Hua Hsieh (謝宜樺) ;
Chih-Shun Hsu (徐志順) ; Chia-Wen Chang (張嘉文) ; Ya-Chi Chang (張雅淇) ;
Kuei-Shu Huang (黃貴樹) ; Ya-Nan Shih (史雅男)

Assistant Professors
Po-Wen Kuo (郭博文) ; Hui-Ling Chen(陳慧玲); Hung-Yin Chen(陳虹吟) ;
Tien-Wei Hwang (黃天偉); Hung-An Hua(華泓安)

Degree Requirements

The Department of Accounting offers one programs at the undergraduate level and two programs at postgraduate level.

1. Requirements for a B.A. degree in Accounting:
   Completion of 128 credits of courses, including 87 credits of required courses and 19 credits of elective accounting courses.

2. Requirements for an M.A. degree in Accounting:
   Completion of 39 credits of courses, including 10 credits of required courses. Students are also required to submit a written master's thesis completed under the supervision of a faculty member and pass an oral examination.

3. Requirements for an EMBA degree in Accounting:
   Completion of 36 credits of courses, including 9 credits of required courses. Students are also required to submit a written master's thesis completed under the supervision of a faculty member and pass an oral examination.

Course Descriptions

Undergraduate Program

B0033 Essentials of Civil Law (2/2): This course discusses basic principles of civil law. Civil law aims to settle disputes between private parties. In first semester, the course will cover some general principles including Application Rules, Persons, Things and Juridical Acts. In second semester, the course will be focus on two topics: Family Law and Succession Law. Family Law includes Marriage, Parents and Children, Guardianship and Maintenance. Succession Law includes Heirs to Property, Succession to Property and Wills.

B0071 Investments (0/3): The objective of this course is to provide students a basic understanding of modern investment theory and practice.

B0146 Public Finance (0/3): This course is designed to study the economics of government: how public choices are made, basics of taxation and government spending. The course discusses theoretical aspects of expenditure and budget economics, and investigates the tools of tax analysis including tax equity, tax incidence, different taxes, economic effects of taxes, and tax-structure and its reforms.

B0153 Financial Statements Analysis (2/0): This course is designed to help students to utilize the theoretical concepts of accounting and financial tools to analyze the value of business through financial statements. The course covers business analysis, valuation tools, and valuation application.

B0173 Commercial Law (2/0): Company Act mainly discusses the class and organization of companies; the right and liability of the board of directors, the managerial officer, and supervisor; the right of shareholders and shareholders' meeting; and company governance. Negotiable Instruments Act illustrates a bill of exchange, a promissory note and a check, as well as the liability of the drawer and the endorser. Business Entity Act discusses about the legal problem confronted by a certified accountant.

B0260 Organizational Behavior (0/2): The main topics covered in this course are organizational behavior, the behavior of individuals, the behavior of groups, and organization systems.

B0263 Money and Banking (2/0): This course covers the nature and functions of money and finance, commercial banking, central banking, monetary theory, and international monetary relations.

B0302 Economics (2/2): This course of principles of economics covers the basic economic theories and relevant issues in the fields of microeconomics and macroeconomics. The topics discussed in the sequence of microeconomics include demand and supply, consumption theory, production cost, the structures of various markets, welfare and efficiency. On the other hand, the topics discussed in the sequence of macroeconomics include national income, general prices, unemployment, macroeconomic modeling, macroeconomic policies, money, financial intermediaries, economic growth, and so on.

B0648 Intermediate Accounting (4/4): This is the further expanding course to a student who has completed Accounting I. The course, in compliance with IFRS, aims at intermediate topics on IFRS Standard-setting environment and the Conceptual Framework for Financial Accounting, Revenue from Customer Contract, Presentation of Financial Statements, Accounting for Inventories, Property, Plant and Equipment. It is designed to extend a student's knowledge of accounting measurement, recognition and reporting, and to improve his or her ability in analyzing the accounting issues concerned.

B0779 Tax Planning (2/0): The aim of this course is to understand the basic concept and main principles of taxation law. Also, the subjects discussed in this course include Individual Income Tax, Alternative Minimum Tax, Estate and Gift Tax, Property Tax, etc.

B1039 Corporate Governance (2/0): To learn how to integrate ESG perspectives in order to develop governance solutions to major and complex environmental sustainability challenges such as climate change. In addition, to earn a variety of skills required to cope with complex sustainability problems and to develop oneself into a future talent in a governance context.

E4346 Digital Technology and AI Application (2/2): This course will introduce the development of information technology such as the trending of information technology, basic concept of computer, encoding system, computer hardware, operating system, computer software, communication network, internet application, internet of things and smart city, e-commerce, information security and ethics, database and big data, and artificial intelligence

M0032 Tax Accounting (2/0): The essence of the tax accounting course is how to handle profit-seeking enterprise Income Tax returns. The curriculum uses financial accounting reports as the foundation. Students will understand finance accounting and tax accounting. When handling profit-seeking enterprise Income Tax returns, they can make legitimate and correct account adjustments. This specialized knowledge will be indispensable to students.

M0142 Marketing Management (3/0): This course introduces the fundamental concepts of marketing management. In addition, this course introduces and analyzes the application of marketing strategies. Students will improve their ability to develop effective marketing strategies.

M0204 Government Accounting (0/3): Introduces the theory and practice of Governmental Accounting, lets students have a better link with studying for civil servant's testing, and working in government.

M0271 Financial Management (3/0): The essential purpose of this course is to lead students to understand major concepts of corporate finance: how to engage long-term investments, how to raise necessary investment funds from possible sources, and how to manage daily operating financial activities. Students are required to search for possible financial practice issues and solutions through designated assignments.

M0321 Taxation Law (3/0): This course discusses the basic concepts and main principles of tax law. Also, the subjects discussed in this course include Tax Administration, Income Tax (Individual Income Tax and Profit-Seeking Enterprise Income Tax), Estate and Gift Tax, Business Tax (Value-Added and Non-Value-Added Business Tax), International Taxation and Tax Planning, etc.

M0335 Accounting Information Systems (3/0): This course introduces the theories, applications and controls of an accounting information system to help students understand 5 transaction cycles.

M0337 Seminar in Accounting Practices (0/2): This course will invite CEO, CFO and governmental officers to give a speech to students every week. The speakers will share the important practical issues about management and accounting, as well as their valuable knowledge and experience about accountants' career to students.

M0338 Accounting Law and Regulation (2/0): Governmental Accounting & Auditing Laws and Regulations (Governmental Budgeting Laws and Regulations; Governmental Accounting Laws and Regulations; Governmental Final Report Laws and Regulations; Governmental Auditing Laws and Regulations).

M0400 Management Information Systems (3/0): To understand the role and issues of information and information technology in business and society, and how information technology can be exploited in organizations to achieve competitiveness or effectiveness with a managerial and organizational focus.

M0405 Management (0/3): This course consists of two sections: one covers general management theories, and the other covers modern management trends. It covers many topics, including planning, organization, and leadership.

M0414 Auditing (0/3): This course introduces the basic theories and methods of auditing in a systematic way. The goals of this course include understanding the conceptual framework of auditing standards, developing the basic capacity of practical operations, and strengthening the ability to evaluate auditing evidence.

M0517 Statistics (2/2): The course includes the inference of the fundamental statistics and the analysis of data. The fundamental inference of statistics and application of statistics will be described in the spring semester. In addition, the application and analysis of large samples, two treatments, regression analysis, analysis of categorical data, and analysis variance (ANOVA) will be elaborated in the spring semester.

M0518 Accounting (4/0): The main purpose of this course is to introduce the basic framework and practice of Financial Accounting. We will introduce the primary forms of business organization, accounting cycle, merchandising operation, internal control, and accounts receivable. Further, students can prepare and understand financial statement reports, then analyze a company's financial structure.

M0853 Electronic Commerce (2/0): This course introduces the concept of electronic commerce, including business model, strategy, marketing, branding, CRM, and mobile commerce issues. The practice cases also need to read by students to deeply understand the effects of e-commerce on business consumers.

M0997 Introduction to Derivatives (2/0): This course will introduce many derivatives including forward, future, option, and swap. We will help students to understand the characteristics of various derivatives, and the empirical practice.

M1078 Research on Statements of Financial Accounting Standards (0/3): This course will give lectures to students on International Financial Reporting Standard.

M1087 Enterprise Resource Planning (2/0): This course uses an accounting commercial application to help students to understand bookkeeping practices.

M1148 Cost and Management Accounting (1/1): Cost and management accounting includes cost determination, cost control and planning, and how to help managers to make decisions. The discussions of this course involve multiple dimensions, information and international environment, and focus on corporate ethics and managers' behavior.

M1159 Special Topics on Accounting (2/0): Through the reading and discussion of special articles (e.g. financial accounting, management accounting, auditing and accounting information), understand the integration of accounting issues and enterprises and society, and have a preliminary ability in the conception and writing of accounting research.

M1276 Application of Computer Auditing Package Software (0/3): This course teaches students a famous general auditing computer tool, ACL, to help students to understand the various tests used in the auditing practices and auditing procedures. We welcome students who are planning to work in the big CPA firms, the internal audit department of big companies, or the National Audit Office to participate in this course.

M1448 International Tax Planning (0/2): The aim of this course is to understand the basic concept of international taxation, the framework offshore income, the issues of international tax avoidance, and the basic principles and skills of international tax planning. Since the study and practice of international taxation is more complex than domestic laws, the subjects discussed in the course will be simplified to facilitate better understanding and thinking.

M1686 Application of Accounting Software (0/2): The aim of this course is to help students enhance their employment competitiveness after graduation by integrating Accounting Standards and practice.

M1850 Case Study in Management (1/0): The course through the cases to let the students knows the management fraud. This course also allows students to understand the actual cases of fraud occur through a case report.

M1853 Auditing Practices (2/0): This course provides internship opportunities for students to obtain professional expertise in an accounting firm during the summer break.

M1957 Financial Practices (2/0): This course will try to let students understand how the financial market works, and news or stories relating to the markets. This course also tries to help students connect with the world and be good at personal financial management.

M1958 Seminar in Auditing Practices (2/0): This course provides the knowledge of CPA firms' and governmental auditing practice, including the big 4 and non-big 4 CPA firms. We will invite the excellent CPAs as the speakers to explain the auditing practice to our students.

M1969 Consultation Service for Filing Income Taxes (0/1): The aim of this course is through participation in personal income tax service and consulting processes to strengthen the actual ability of tax application for the students. Also, students could be experts in consulting for personal income tax. Through participation in the process of filing service, students can learn the correct and positive working attitude. At the same time, they, by service-learning, could enhance their ability for interaction with others.

M2001 Accounting Ethics (0/2): The course aims for students at understanding the conceptual context of accounting ethics and social responsibility. Through the ethical dilemma study, the students are expected to develop the sense of professionally ethical conducts as an accountant and criteria in the professional judgments. The students are also expected to behave ethically in their future accounting professionals' acts, so as to help them develop a moral sense of acting as a right professional in their future career.

M2110 Advanced Accounting (3/3): We will introduce the motivations underlying business combinations, the alternative forms of business combinations, and the accounting for consolidated financial statements.

M2158 Accounting Certification Exam Preparation (I) (3/0): The main purpose of this course is to assist students in acquiring an accounting license. We will introduce concepts and exercises of accounting and taxes.

M2159 Accounting Certification Exam Preparation (II) (0/3): The purpose of this review course is to acquaint students with the skills and knowledge necessary for passing the CPA examination and civil services examination. This review course mainly covers Auditing and Attestation and Advance Accounting courses. It helps students pass the qualifications needed to have a successful accounting career.

M2180 Accounting for Nonprofit Organizations (0/3): Taiwanese non-profit organizations are increasing, many accountants are lacking understanding for non-profit organizations accounting transactions, regulations and tax practices. This course aims to help students understanding the accounting system of non-profit organizations and the points of financial reports.

M2245 Accounting and Auditing Internship (0/2): This course will invite CEO, CFO and governmental officers to have speech to students every week. The speakers will share the important practical issues about management and accounting, as well as their valuable knowledge and experience about accountants' career to students.

M2363 Business Entity Accounting Act & Securities and Exchange Act (0/2): The purpose of this course is to understand the content of Business Entity Accounting Act & Securities and Exchange Act. The side benefits of this course are that the students may participate in CPA examination and discipline of future workplace needs.

M2366 Advanced in Accounting (I) (0/2): The main purpose of this course is to introduce basic framework and practice of Financial Accounting. We will introduce long-lived assets, liabilities, partnerships, stockholders' equity, investment, statement of cash flows, and financial analysis. Further, students can prepare and understand financial statement reports, and then analyze a company's financial information.

M2468 Accounting Process Automation (0/2): Use Excel to learn data collation and analysis software.

M2469 Securities Analysis and Investment (2/0): This course introduces the basic theories of securities investment, market commodities and basic knowledge of investment methods. The content is divided into the impact of general economic variables on the capital market, industry analysis, corporate fundamental analysis, technical analysis, transaction volume analysis, and news analysis. In addition, it is supplemented with practical case analysis of various categories to strengthen the learning effect of students.

M2470 Cost Control and Management (0/2): In addition to systematically explaining the concepts and

principles of cost control and management, this course is especially focused on the implementation of the operation value management system with enterprise application connotation in cost control and management, which is applied to specific enterprises through professional websites and software systems We look forward to enabling students to apply their classroom knowledge to practical applications, so as to strengthen students' professional accounting skills needed in the future workplace.

M2471 Business Data Analytics (0/2): Through analyzing business data, this course aims to teach students to advance from studying accounting textbook theory and knowledge to learning the meaning and value behind business data.

M2472 Blockchain Accounting (2/0): "Blockchain Accounting" is a flexible technology application field that changes the thinking of accounting in accordance with the needs of the new era. It combines the characteristics of blockchain with the function of financial cooperation and the use of accounting and can be combined to guide other industries.

M2473 Forensic Accounting (0/2): Forensic Accounting is mainly based on the use of accounting and audit expertise and skills to assist the settlement of social and economic disputes. The skills to explore cases and absolute compliance with the procedural justice, the mentality of the accounting expert witness, the identification of the qualification criteria, On the objective, independent, honest and impartial. Therefore, the Forensic accounting services will be the future employment development of another new opportunity for accounting information students.

M2475 Communication and Presentation in Accounting (0/2): This course intends to strengthen the ability of thinking and communication through discussions, reports, or debates to master and face the evolution of various trends in the accounting workplace.

M2541 Practice of Preparing Tax Returns (0/2): Building the basic knowledge of following tax items: including land tax, estate and gift Tax, and income tax.

M2542 Internal Control and Auditing in Digital Environment (2/0): Understand the governance, risk management and compliance framework. Recognize information risk, control, and Assurance Framework. Experience internal control, internal audit and operational assurance
analysis practical operating procedures (using Arbutus audit software).

M2587 Sustainability and Accounting (2/0): Sustainable development and ESG reporting is the relatively new practices in the accounting field, and they have been growing importantly and rapidly. This course is designed to target practical developing of skills on this emerging issue for students. The course includes the topics on sustainable accounting standards (SASB), sustainability reporting (GRI), and financial disclosures on climate change (TCFD).

S0325 Calculus (2/0): Antiderivatives and indefinite integrals. Definite integrals and areas. Average value and area between curves. Application to business and economics. Integration by substitution. Integration by parts. Improper integrals. Functions of several variables. Partial derivatives. Optimizing functions of several variables. Lagrange Multipliers and constrained optimization. Multiple integrals.

T3174 Exploring Sustainability (1/0): This course aims to nurture students into agents of sustainable exploration, helping them understand the pivotal role libraries play in the SDGs. Particularly, libraries are indispensable in achieving SDGs objectives such as providing quality education, and reducing inequalities. The course centers on providing quality education and addressing inequality issues as its key focus. Through the utilization of the "Quality Talk" small group teaching method, students are encouraged to engage in discussions and develop independent thinking and critical analysis skills regarding SDGs topics.

Master's Program

B0124 Econometrics (0/3): The objective of this course is to familiarize students with econometric analysis of cross-sectional data. The contents focus on linear regression analysis and related issues. This course is designed to help the future research of students.

M0144 Seminar in Marketing Management (3/0): Marketing-oriented thinking is a necessity in

today's competitive world. This course enhances students' knowledge about how to carefully analyze needs, identify opportunities, and create value-laden offers for target customer groups that competitors can't match.

M0272 Seminar in Financial Management (3/0): Most business-related decision-making is heavily involved in financial concepts and financial management principles applied to government agencies, schools, hospitals, other non-profit business organizations, or individuals. Financial management integrates economic, accounting, legal, and other relevant business theories, creating practices that form a comprehensive science. The subject of financial management involves corporate finance, investment, and financial markets. This course will mainly focus on corporate finance issues.

M0504 Organizational Management (3/0): This course covers organizational operation, leadership, decision-making, and human resources. You'll learn about organizational management basics, external and internal environments, and dynamic management. Case discussions and field investigations connect theory to real-world practices. Practical insights for current business scenarios.

M0505 Corporate Financial Strategy (3/0): Analyze the business structure, business performance, financial physique and risks of the enterprise, and explain the complete forecasting and evaluation procedures, and grasp the close relationship between financial statements and corporate value.

M0800 Business Ethics (0/3): This course introduces the concepts of business ethics and social responsibilities to accounting students. Based on perspectives of internal operations and external relationships of the organization, discussions of diverse ethical obligations towards the stakeholders will be undertaken to help accounting students cultivate a sense of professionally ethical conduct and values.

M0997 Introduction to Derivatives (0/3): To introduce basic knowledge about derivatives which including trading operations, commodities, hedge function, market organizations, evaluation theories, and trading strategies.

M1068 Behavioral Accounting (0/2): The objectives of this course are to expose the students to the knowledge about psychological and organizational aspects of accounting and auditing.

M1092 Topics in Electronic Commerce (3/0): The course is designed to help students to understand the definition, framework, development and applications of electronic commerce. Also, it discusses the differences, risks and opportunities between electronic and traditional commerce environments. Furthermore, it studies the research methods and procedures related to electronic commerce.

M1936 Seminar in Management Accounting (0/3): This course provides students with a comprehensive understanding of key concepts about derivatives through in-depth topics, case study, and literature discussion. The course comprises derivatives' definitions, types, functions, market organizations and operations, commodity valuation theories and operation strategies.

M1971 Seminar in Tax Issues (3/0): The main objective of this course is to understand the tax systems, including income tax, land tax, housing tax and other taxes. It is to combine with the classroom lectures and discussions to help students to understand the meaning of the tax system.

M2167 Statistical Software for Accounting Research (0/2): The purpose of this course is to teach students how to perform statistical data and econometric model analysis by using Stata.

M2180 Accounting for Nonprofit Organizations (0/3): Taiwanese non-profit organizations are increasing, many accountants are lacking understanding for non-profit organizations accounting transactions, regulations and tax practices. This course aims to help students understanding the accounting system of non-profit organizations and the points of financial reports.

M2245 Big Data Mining (0/6): The purpose of this course is to enable students to get practical experience with big data to enhance future employment opportunities.

M2253 Corporate Tax Administration (0/3): The main objective of this course is to understand the tax systems, including income tax, land tax, housing tax and other taxes. It is to combine with the classroom lectures and discussions to help students to understand the meaning of the tax system.

M2254 Theory and Practice of Corporate Social Responsibility (3/0): The purpose of this course is to acquaint students with current academic and practical issues in corporate social responsibility (CSR). This course mainly covers meaning, development, and practice of CSR. The course involves careful consideration of the literature and case discussions that allow students a chance to apply the concepts of CSR.

M2255 Corporate Governance Practice and Case Study (0/3): The purpose of this course is to acquaint students with current academic and practical issues in corporate governance. This course mainly covers corporations and the governance mechanism. This course will mainly revolve around discussions of selected books and academic papers. Hence, there will be group presentations to help familiarize students with the corporate governance literature and research questions.

M2257 Accounting Issues in Non-profit Organization (0/3): Taiwan non-profit organizations are proliferating and many accountants lack full understanding of non-profit organizations accounting transactions and tax practices. This course helps students understanding the accounting system of non-profit organizations and the points of financial reports.

M2442 Seminar in Computer Audit (3/0): An audit is an examination and evaluation, often about financial records or accounts, which are checked for accuracy. A computer audit generally means an audit of a company's computer networks and related technology and software, as well as the procedures in place regarding the use of IT resources. It may be undertaken to check the efficiency of the system and turn up any violations. Computer audit is a tool to assist the traditional audit process.

M2477 Seminars on Accounting and Auditing (0/3): This course prepares students to conduct empirical research in in financial accounting, capital market, and auditing. Introduce the main paradigms of the related research fields and related literature. This course will help the students develop the ability of undertaking empirical research.

M2478 Seminar on Government Auditing and Business Auditing (3/0): The main purpose of this course is to introduce the major research frameworks and issues of government auditing and business auditing. It aims to enable students to review and analyze related literatures and find a research topic to prepare their thesis.

M2504 Financial Strategy and Value Creation (3/0): Analyze the business structure, business performance, financial physique and risks of the enterprise, and explain the complete forecasting and evaluation procedures, and grasp the close relationship between financial statements and corporate value.

M2513 Seminar on Empirical Tax Research (0/3): The purpose of this course is to introduce some important taxation studies and taxation issues to students.

M2537 Seminar in Tax Cases (3/0): Building the basic knowledge of each tax: including land tax, estate tax & gift tax, income tax, and capital gains tax. Offering the background about tax planning

M2538 Accounting Research Workshop (1/0): This class invites some scholars with different fields to present their research papers and interact with students. The purpose of this class is to introduce some recently popular and interesting issues in accounting empirical research.

M2539 Data Analysis in Empirical Research (0/3): Introduce some of the most important statistical model and analysis in accounting empirical research; and use STATA and other statistical software to do some fundamental statistical analysis.

N2568 Advanced Auditing Theory (0/3): This course is presented with lecturing. The course helps students understand the basic and interesting audit researches, including the topic of audit quality, audit fee, individual partner, internal control, audit committee, KAMs, PCAOB, and Whistleblower Provision etc.

M2572 Supply Chain Management Empirical Research Seminar (3/0): The topics of this course include supply chain strategy, specific relationship investment, key knowledge, coordinated supply chain

and application.

M2595 Case Study in Computer Audit and Automatic Control Testing Tools (0/2): This course introduce the basic operation and practical application in ACL software, and perform data analysis in some case study. Students will understand how to operate the tests that learned in Auditing class, and the audit method in information technology.

T0081 Research Methodology (0/3): This course trains students in the basic methods and theories of research, including research process, basic terms, reasoning and data collection methods. In addition, students are trained in research ethics and in competently writing theses.

EMBA Master's Program

B0947 Finance Planning and Forecast: Financial planning must be to plan its economic activities and capital movements within the scope of the law, in accordance with the enterprise's operating conditions, business objectives and operating plans, and to maximize the value of the enterprise. And the purpose of financial forecasting is to reflect the prior nature of financial management to help financial personnel understand and control future uncertainty, minimize future uncertainty, and achieve the expected goals and possible changes in the financial plan in order to achieve the implementation effect of the financial plan.

M0800 Business Ethics (2/0): The course presents the conceptual context of social responsibilities and business ethics. Through case studies, the students are expected to develop a sense of professional ethical conduct and criteria in the professional judgments. The students are also expected to behave ethically in their future business acts, to help their businesses or organizations act as a good "corporate citizen."

M2074 Leadership and Teamwork (3/0): The current course introduces the theories and practices of leadership and team building to help students apply what they learned from the course for work or future studies.

M2499 Athletic and Health Management (3/0): The Exercise and Health Management program is designed to provide students with comprehensive theoretical knowledge and practical skills to effectively manage and enhance the health status of individuals and others. This course will provide an in-depth look at various aspects of exercise science, including exercise physiology, exercise psychology, and exercise nutrition, and how this knowledge can be applied to health promotion and disease prevention.

M2706 Seminar on ESG and Sustainability (3/0): This course provides students with an in-depth look at the environmental protection, social responsibility, corporate governance and sustainability and other related issues. It includes an introduction to global perspectives on specific corporate governance mechanisms and corporate social responsibility, as well as case analysis and paper discussions on the environment of corporate governance and corporate social responsibility in our country.

M2707 Accounting and Legal Cases (3/0): The course covers how to combine accounting and legal knowledge to address real-world cases, including those related to Taxation, ESG, Intellectual Property, M&A, and Forensic Accounting.

T0081 Research Methodology (3/0): This course is concerned with training students in the basic methods and theories for research, including the research process, research basic terms, research reasoning and data collection. In addition, we train students in research ethics and skills used in writing theses.

DEPARTMENT OF STATISTICS

Degrees Offered: B.S., M.S.

Chairman: Pai-Ling Li（李百靈）

The Department

The predecessor of the Department of Statistics was the Statistics Section in the Department of Accounting and Statistics, founded in 1963. The Department of Statistics was organized as an independent department in 1973. The master's program in Applied Statistics was established in 1997. A new master's program in Data Science has been approved beginning Fall 2021. Since 1963, over 10,000 Bachelor's degrees and Master's degrees have been granted.

The department offers broad undergraduate and graduate programs to meet the diverse needs of students at different levels. Both programs provide students enough flexibility to pursue their special interest and time to take courses in other departments. At the undergraduate level, there are several introductory courses which prepare students for more advanced courses on statistical inference and applied statistical analysis. The department's master programs stress a balance between statistical theories and practical applications, preparing students for careers in industry, business, government, medical research, and academia. Both undergraduate and graduate programs cultivate students' abilities to conduct data analysis of real-world problems in diverse areas.

The department emphasizes the practice of sample surveys, marketing analyses, industrial engineering, biological sciences, data science, and many other areas. To help achieve TKU's triple objectives of education and accomplish multimedia-aided instruction, all faculty members are encouraged to make multimedia-aided teaching materials for the required courses. By combining the interests and expertise of faculty with the campus information network, we encourage faculty and graduate students to engage in cooperative research with people in other areas. To embrace and engage the age of the knowledge data economy, we are devoted to promote competitive capability, meet the demands of industry, offer opportunities for in-service personnel, and train students to be statistical specialists both in theory and practice.

Faculty

Professor Emeritus
Kuang-Nan Lin (林光男)；Chin-Chuan Wu (吳錦全)

Professors
Chun-Tao Chang (張春桃) ; Wen-Shuenn Deng (鄧文舜) ; Jyh-Jiuan Lin (林志娟) ;
Tzong-Ru Tsai (蔡宗儒) ; Shu-Fei Wu (吳淑妃) ; Shuo-Jye Wu (吳碩傑)

Associate Professors
Li-Ching Chen (陳麗菁) ; Man-Hua Chen (陳蔓樺) ; Yi-Ju Chen (陳怡如) ; Ai-Ru Hsieh (謝瑷如) ;
Hsiu-Mei Lee (李秀美) ; Pai-Ling Li (李百靈) ; Wen Yang (楊文)

Assistant Professors
Chiun-How Kao (高君豪) ; Yao-Ting Tseng (曾耀霆)

Degree Requirements

The Department of Statistics offers both undergraduate and graduate programs.

1. Requirements for a degree of B.S. in Statistics:
   Completion of 128 credits of courses, including 88 credits of required courses and 18 credits of statistics courses.

2. Requirements for a degree of M.S. in Statistics:
The general requirement for the master's degree in Statistics is to complete 37 credits of courses, including 10 credits of required courses, 4 credits of Seminar, at least 17 credits of elective courses in the Applied Statistics Program of the department, and at most 6 credits of elective courses in other departments. Students are required to complete a thesis under the supervision of a faculty member of the department, submit a thesis, and pass an oral examination.

3. Requirements for a degree of M.S. in Data Science:
The general requirement for the master's degree in Data Science is to complete 37 credits of courses, including 10 credits of required courses and 4 credits of Seminar. The elective courses consist of three fields: statistics, information, and miscellany. All students are required to take 3 credits form the field of statistics, 6 credits from the field of information, and 9 credits from the field of miscellany. Students are required to complete a thesis under the supervision of a faculty member of the department, submit a thesis, and pass an oral examination.

Course Descriptions

Undergraduate Courses

B0032 Marketing Survey (3/0): This course is an introduction to scientific research skills for managers, research processes and designs, measurement and selection, and data collection.

B0106 Casualty Property Actuarial Analysis (0/3): This course covers the theory of interest, concepts of certain annuities, measurement of mortality and life table, life annuities, life insurance, net annual premium, net level premium reserves, pricing for casualty insurance, statistical base, overall average pure premium and/or loss ratio, construction of loading and gross premium, risk classification, and ration plans.

B0302 Economics (2/2): This course discusses two main topics: the individual economy and theories of supply and demand, analysis of consumer acts, theory of production, structure of cost, structure of market, and supply and demand of production factors; and collective economy as the study of national income, determining rules for equalization of income standards.

B0456 Security Analysis (3/0): The aims of this lesson are to study equity price variation including stock and bonds. Also, it would be called fix and non-fixed income equity.

B0760 Financial Data Analysis (0/3): This course analyzes investments & manage portfolios rigorously for finance and investing using free source of financial data and hands-on project-based learning. Data analysis using Python is demonstrated to show how data could drive smart financial decisions.

B1613 Risk Management and Insurance (3/0): This course is designed for students without any prerequisite of insurance. Students are expected to learn basic concepts of risk management and insurance. The topics introduced in this course include the characteristics of insurable risk insurance interest, insurance operation, and several contemporary issues in insurance industry.

B1770 Financial Practice and Marketing Training Program (0/2): 1. Financial investment practice data analysis. 2. Financial professional marketing planning and data management. 3. Analysis of corporate financial reports and interpretation of statistical data of investment subjects.

E4245 Python Programming (3/0): Learn the basic knowledge and skills required for Python; including the basic structure, syntax. In addition, this course will also introduce web scraping and related libraries for data science with Python.

E4346 Digital Technology and AI Application (2/2): This course is designed for freshmen to learn basic computer knowledge, including digital technology and AI application, computer architecture and peripheral, hardware and software, operation system concept, information integration application, communications and networks, multimedia formats, e-commerce, office software, information security and artificial intelligence, and programming languages, etc. The goals of the course are to help students

have the employment skills to enter the enterprise in the future and have the ability to enjoy life in the new computer era.

M0115 Multivariate Analysis (0/3): This course covers a review of the matrix theory, univariate and multivariate normal distributions. Inference about multivariate means includes Hotelling's T squared. Inference about covariance structure includes principal components, factor analysis, and canonical correlation. Classification techniques include discriminant and cluster analysis.

M0191 Survey Sampling (0/3): This course offers an introduction to the design of sample surveys and the analysis of survey data. It emphasizes practical applications of survey methodology. Topics include sources of errors in surveys, questionnaire construction, simple random, stratified, systematic and cluster sampling.

M0202 Quality Control (3/0): This course offers an introduction to statistically based quality improvement methods useful in industrial settings, inspection data for quality control, sampling plans for acceptance inspection, and charts for process control.

M0203 Case Studies in Government Statistics (0/3): This course covers an introduction to the organization and major responsibilities of government statistics. It focuses on training through case studies. The course also emphasizes the need to sit for the Civil Service Examination.

M0264 Time Series (0/3): This course covers autocorrelation and elements of spectral analysis, auto-regressive and moving average models, identification and fitting, forecasting, and seasonal adjustment.

M0309 Statistical Mathematics (0/3): Statistical Mathematics is a fundamental mathematics that provides the foundation for understanding statistical theories and methods. This introductory course is designed to provide students with the foundational concepts and techniques necessary for future studies in Probability and Mathematical Statistics. It covers fundamental notions of limits, continuity, differentiation, and integral for functions of one or more variables, convergence of infinite series and improper integrals.

M0322 Advanced Statistics (0/4): This course provides an introduction of various statistical inferential techniques. It focuses on a comprehensive understanding of the fundamental statistics and related applications. Topics include analysis of variance, regression analysis, chi-square tests, nonparametric statistics, and other advanced statistical methods. Prerequisite: Statistics.

M0405 Management (3/0): This course not only offers students a theoretical framework for managing, but also illustrations and examples of how and when those theories do and do not apply in both small and large businesses as well as in non-profit organizations.

M0423 Machine Learning (3/0): This course introduces machine learning concepts, methods, and tools. The contents include linear regression, classification, resampling methods, model selection, regularization, GAM models, tree-based methods and support vector machine.

M0481 Categorical Data Analysis (0/3): This course covers methods of analyzing multidimensional contingency tables with an emphasis on practical applications. Topics cover the use of computing packages for analysis of such data, model selection, testing goodness of fit, and estimation of parameters.

M0517 Statistics (4/0): This course covers graphical and numerical descriptive measures, probability, random variables, expectations and variance, sampling distributions, central limit theorem, confidence intervals, hypothesis testing, chi-square tests, analysis of variance, regression analysis and nonparametric statistics.

M0518 Accounting (2/2): This course focuses on accounting concepts, the accounting model and financial statements. The course also discusses accounting for single proprietorships, partnerships, and corporations.

M0947 Data Mining (3/0): This course covers techniques and real-world applications in Data Mining, including decision trees, neural networks, association rules, and case studies.

M1043 Survival Analysis (0/3): This course introduces how to analyze the time-to-event data by statistical methods of survival analysis. In addition to basic ideas and theoretical results, practical applications of statistical software will be also demonstrated by biological and medical examples.

M1302 Special Topic Statistical Application and Exploration (0/2): This course provides an overview of the field of statistics for students who will continue to study cases in applied statistics.

M1744 Applied Statistical Methods (3/0): How to use computer software to help people to solve the problems efficiently has become a vital issue, after the rapid growth of data and computational speed. This course blends in TBL strategies and offers the computer skill demonstration using Microsoft Excel to do the basic statistical analysis through the long-distance learning environment on the iClass and model system.

M1831 Investment Theory and Market of Securities (0/3): This course focuses on investing equities in stock markets, fixed-income, mutual funds, options and futures. Theories and their applications, and a connection between the course and gaining financial certificates will be introduced.

M2012 Epidemiology (0/3): The purpose of this course is an introduction of the epidemiology related to health and diseases. The principles and methods of epidemiology are presented with applications of epidemiology to public health. The goal of this course is let students understand the measures of morbidity and mortality, the validity and reliability of diagnostic and screening tests, the efficacy of preventive and therapeutic measures (Randomized Trials), and the analytic epidemiology (Cohort study and Cross-sectional study/Case-control study, the Causal Inference).

M2367 SAS Programming (3/0): The course is designed to introduce the environment, basic concepts and programming language of SAS statistical software. The techniques and applications of the data management in SAS will be discussed. The course will be also show students how to apply statistical methods using SAS. If time permitted, advanced programming like SAS Macro, SAS EG, and/or IML will be partly covered for the course as well.

M2368 R Programming (0/3): In Introduction to R, students are expected to learn the basics of this open source language. The content includes basic operations, data inputs and outputs, creating functions, graphical methods and basic statistical programming techniques.

M2403 Business Data Processing System (0/3): This course uses Excel to learn data collection and analysis software.

M2432 Advanced SAS Programming (0/3): SAS (Statistical Analysis System) is a software suite that has been developed by SAS Institute and used widely in the world for processing a variety of tasks in business analytics, data warehousing, and data mining. In Taiwan, at least 80% of the banking and pharmaceutical industries as well as the academia or government agencies are using SAS. The course is designed to introduce the application of statistical methods in various fields through different SAS procedures. In this course, real cases will be studied and students must practice immediately in class. Students are also required in teams to research, develop, write, and make presentations related to variety of data analysis projects.

M2433 Introduction to Database and Its Applications (3/0): This course covers relational database design and management issues. It also surveys NO-SQL databases for handling big data problems.

M2474 Data Visualization (0/3): As we enter the era of big data, data visualization has become more important in the field of data science as a tool for solving problems and discovering knowledge. This course introduces data visualization related knowledge, including visual perception, data preprocessing, time series data visualization, spatial data visualization, network data visualization, etc. In addition to introducing the basic concepts of data visualization, the course will also introduce data visualization libraries and software, such as D3.js, Data Desk, GAP, Orange3, Gephi, Flourish, etc.

M2533 Big Data Fundamentals (3/0): Big Data means that the data has the 5V characteristics of Volume, Velocity, Variety, Veracity and Value. Based on the above characteristics, the Big Data cannot be effectively analyzed and processed using traditional techniques. This course introduces the concepts and techniques of Big Data analysis. The course content covers the use of programming language

combined with statistical analysis, data exploration, and artificial intelligence technology to analysis Big Data.

M2614 Advanced R Programming (3/0): The student is encouraged to work on two books datasets and try out the presented R code as the chapters are read. All of the data files and R code sections used in the book are available at the GitHub repository at github.com. We believe the course is useful for quantitatively oriented students who would like to learn R programming to perform their own analyses.

M2699 Artificial Intelligence Approaches and Applications in Healthcare (0/3): This course introduces the statistical methods and applications of artificial intelligence in medical diagnosis and understands the role of diagnostic methods through actual cases. The introduction of the data analysis process in the course content allows students to learn about the application of artificial intelligence and statistical methods in medical data, and through data processing and training to construct statistical disease prediction models, students can learn the skills of artificial intelligence computational analysis and medical diagnostic methods.

M2700 Business Intelligence Analysis and Information Applications (0/3): Learn how to use Power BI Desktop to import, process, and transform data, and then convert that data into insightful interactive visual reports. The course covers everything from building data models to advanced DAX function applications, starting with basic operations and moving on to exploring how to create and share dashboards to assist teams or businesses in data analysis and decision-making. Students will learn how to operate Power BI Desktop and understand how to design and create dynamic charts that highlight key business metrics, using data visualization for effective communication, ultimately enhancing the quality of business decisions.

S0075 Statistical Application in Biology (3/0): The main purpose of this course is to resolve the statistical problems generated from biological subjects. The lectures will focus on the linkage between the biological problems and the corresponding statistical designs and data analysis. Topics include data collection and description, hypothesis testing, two-sample test procedures, analysis of variance, linear regression analysis, contingency table analysis, nonparametric statistical analysis, survival data analysis, categorical data analysis, and logistic regression analysis.

S0191 Regression Analysis (3/0): This course is an introduction to regression with emphasis on practical applications. It involves simple linear regression and multiple linear regression models, inference about model parameters and predictions, diagnostic and remedial measures related to the model, independent variable selection, and multicollinearity.

S0295 Nonparametric Statistics (3/0): This course focuses on the conception, application and calculations of nonparametric statistics. Nonparametric methods include the procedures for one-sample, two independent samples, two related samples, three or more independent and dependent samples as well as the tests for association.

S0325 Calculus (4/0): This course covers limits, differentiation and integration of functions of one variable, infinite series, functions of several variables, partial derivatives, and multiple integrals.

S0408 Design of Experiments (3/0): This course offers an introduction to the basic principles of experimental design. Topics include an analysis of variance for experiments with single factor, randomized blocks and Latin square designs, multiple comparison of treatment means, factorial and fractional factorial designs, and nested designs.

S0439 Linear Algebra (2/2): Topics of this course include: matrix algebra, linear systems of equations, vector spaces, subspaces, linear dependence, rank of matrices, determinants, linear transformations, eigenvalues and eigenvectors, diagonalization, inner products and orthogonal vectors.

S0450 Introduction to Probability Theory (2/2): This course offers an introduction to the theory of probability, conditional probability, independence, Bayes rule, random variables and their distributions, and moment generating functions. Multivariate probability distributions, covariance, distributions of functions of random variables, sampling distributions, limiting theorems and order statistics are covered.

S0582 Mathematical Statistics (3/3): Topics of this course include: sufficiency, completeness, unbiased estimation, maximum likelihood estimation, Bayes estimation, confidence intervals, tests of hypotheses, Neyman-Pearson fundamental lemma, uniformly most powerful and likelihood ratio tests. Prerequisite: Introduction to Probability Theory.

Master's Program

1. Master's Program in Applied Statistics

M0153 Operations Research (0/3): The purpose for the course is to present the fundamental concepts and the technical method in the operations research. Topics include linear programming, transportation problem, assignment problem, network optimization models and decision analysis.

M0303 Statistical Theory (3/3): This course focuses on the theoretical statistics. Topics include distribution theory, approximation to distributions, modes of convergence, limit theorems, statistical models, parameter estimation, comparison of estimators, confidence sets, theory of hypothesis tests, and Bayesian inference.

M0481 Categorical Data Analysis (0/3): The objective of this course is to introduce statistical methods for analyzing categorical data based on practical application and statistical theories. Topics include inference for contingency tables, generalized linear models, logistic regression for binary responses, logit models for multiple response categories, loglinear models, and inference for repeated categorical responses.

M0798 Statistical Consulting (3/0): To train graduate students with the experience of processing real data sets and the ability of using statistical methodologies for practical applications.

M0883 Statistical Computing (3/0): This course focuses on the design of statistical software including special techniques for probability distributions, methods for generating random variables, numerical methods for linear models and multivariate data, bootstrap, jackknife, and some other recently developed methods.

M1043 Survival Analysis (0/3): In recent years a number of papers appeared, extending these models to handle more complex failure time data. In this course, we will learn several types of censored data and focus on how to approach these. Moreover, we will learn the idea how to handle the correlated failure time, non-informative failure time, and non-susceptible failure time.

M1646 Data Analysis and Prediction Model (3/0): This course will introduce how to define questions, prepare data including structured data and non-structured data. In addition, we will also introduce many model such as power-law distributions, concavity and convexity, models of value and power, network models, broadcast, diffusion, and contagion, entropy, random walks. Finally, we may introduce structured query language (SQL). This language is more popular in database.

M1708 Financial Software Application (0/3): Based on financial theory and model-oriented, explain the design of financial models, use EXCEL financial or statistical function concepts, including basic functions, financial functions and statistical functions and verification and common functions, through the integration of various functions, and Use the planning solution to deal with the optimization of investment portfolio, coupled with the use of E-VIEW software, to understand the data processing in financial management or risk management.

M1726 Internship of Advanced Applied Statistics (3/0): Apply business data to solve corporate problems by data analysis and understand the differences between theory and practice. To know the meaning of the results correctly through understanding of the attributes of the enterprise, and to achieve unity of learning and application purpose.

M2405 Quantitative Finance with R (3/0): This course aims at teaching students applying R finance tools to two financial decision issues: firstly, portfolio optimation and backtesting; secondly, asset returns forecasting.

T0095 Seminar (I) (1/1): This course is organized to help graduate students to understand the most recent developments in different areas of statistical research by inviting few talks given by scholars in statistics. Students can give an oral presentation on the paper they chose which is highly related to their graduation thesis.

T0096 Seminar (II) (1/1): This course is organized to help graduate students to understand the most recent developments in different areas of statistical research by inviting few talks given by scholars in statistics. Students can give an oral presentation on the paper they chose which is highly related to their graduation thesis.

2. Master's Program in Data Science

E0644 Database (3/0): The database is an organized collection of data stored and accessed electronically from a computer system. This course provides an overview of the current database management systems (DBMS) and SQL. The goals are 1) to get students familiar with how to use a relational database system to solve real problems; 2) how to use noSQL databases.

E0650 Data Structures (0/3): This course offers a study of data structures, including stacks, recursion, queues, lists, trees, graphs, sorting and searching. Students taken this course can understand the data structure and designing logic in the developed programs or software.

E3670 Deep Learning (0/2): Introduce deep learning concepts, methods and tools. You will build your understanding through intuitive explanations and practical examples. The contents include convolutional neural networks (CNN), recurrent neural networks (RNN) and generative Adversarial Network (GAN).

M0423 Machine Learning (3/0): To learn about SAS/R function, and statistical analysis in the machine learning and sampling methods by SAS/R program.

M0964 Applied Multivariate Analysis (3/0): This course introduces fundamental concepts of analyzing multivariate data, including basic exploratory and inferential statistics, principal components analysis, factor analysis, canonical correlation analysis, classification and cluster analysis, etc. In addition to basic ideas and theoretical results, practical applications are also illustrated by examples.

M1729 Internship of Advanced Data Science (3/0): Apply business data to solve corporate problems by data analysis and understand the differences between theory and practice. To know the meaning of the results correctly through understanding of the attributes of the enterprise, and to achieve unity of learning and application purpose.

M2345 Jave Programming (3/0): Learn the basic knowledge and skills required for object-oriented programming; including the basic structure, syntax, and object-oriented concepts of the Java programming language. In addition, this course will also introduce web programming, provide web services through back-end program by Java Spring Boot.

M2368 R Programming (3/0): The course is designed to introduce the R statistical software. The goal is to provide students with programming skills on data manipulations, explorations, and graphical presentations and summaries. The course coverage will also emphasize some popular techniques and methods for statistical concepts and data analysis using R. If time permitted, advanced programming in practical applications will be partly covered as well.

M2474 Data Visualization (0/3): Data visualization as a problem-solving and knowledge discovery tool has become even more important as we enter the Big Data era. This course offers a study of data visualizations, including visual perception, visual cognition, data preprocessing, time series data visualization, spatial data visualization, network data visualization, etc. In addition to introducing the basic concepts of visualization, the course will also introduce visualization libraries and softwares such as D3.js, Data Desk, GAP, Orange3, Gephi, etc.

M2525 Statistical Analysis Methods (0/3): To train graduate students with the experience of processing real data sets and the ability of using statistical methodologies for practical applications.

M2615 Artificial Intelligence for Business Application (3/0): Data analysis becomes a mainstream trends that companies are vying to master. The teaching goal is to apply the theoretical methods of big data analysis and apply to real-world data. Our student has ability to solve real problems independently. The teaching methods and case methods provided allow students to understand the concepts of data analysis and data preparation, methods and demonstrations of data mining, and advanced data mining applications. Students can easily apply data mining methods through Python., Thereby enhancing big data analysis and digital decision-making capabilities.

M2697 AI and Quantitative Trading Simulation (0/3): This course is designed to integrate investment knowledge and technology applications, aiming to develop students' cross-disciplinary investment skills. It combines professional investment knowledge taught in physical classrooms with generative AI and Python programming simulations in a virtual financial lab. Through team-based learning and collaborative activities, students will engage in exploration, problem-solving, and discussions within the virtual lab, enhancing their teamwork and communication skills. The course also teaches generative AI skills and Python programming, enabling students to backtest investment strategies, cultivate investment discipline, and improve psychological resilience. By applying investment knowledge and techniques in a simulated environment, students can build confidence, reduce career anxiety, and strengthen their practical capabilities in the financial sector.

M2698 Industry Database Applications (0/3): The teaching objectives will focus on key industries in Taiwan, such as semiconductors, information and communications, healthcare and biotechnology industries, etc., and guide and assist students to make good use of the database resources of relevant research units to discuss and analyze the industries.
To enable students to better understand the current trend of investing in the industry in the future, which is conducive to students' academic research or career development. It includes industry analysis overview, domestic key industry trends, domestic key industry analysis and application, industry and economic database application, etc.

T0095 Seminar (I) (1/1): The aim of this course is to help graduate students to understand the recent developments and results of statistical research in different areas. This course provides opportunities for students to practice the skills of oral presentation. A few invited talks are also given by some scholars in this semester. With the process of reporting and questioning, it is possible for the students to improve their skills in briefing. The invited talks can also increase the statistical knowledge of students. Furthermore, it intends to improve the research ability and quality of students.

T0096 Seminar (II) (1/1): The aim of this course is to help graduate students to understand the recent developments and results of statistical and data science research in different areas. This course provides opportunities for students to practice the skills of oral presentation. A few invited talks are also given by some scholars in this semester. With the process of reporting and questioning, it is possible for the students to improve their skills in briefing. The invited talks can also increase the statistical knowledge of students. Furthermore, it intends to improve the research ability and quality of students.

DEPARTMENT OF INFORMATION MANAGEMENT

Degrees Offered: B.B.A., M.B.A., EMBA

Chairman: Sheng-Pao Shih (施盛寶)

The Department

Established in 1985, the Information Management Department is one of the first departments in its field in Taiwan. In 1992, the department set up its Master's program to provide advanced courses in both computer technology and management theory. In 2004, it set up a Ph.D. program. In 2006, the EMBA program commenced. Currently, the Department has 20 full-time faculty members, 19 adjunct faculty members, and more than 725 undergraduates and 90 master's students.

The department provides an ideal educational environment, with modern computer resources, high-level teaching facilities and field project opportunities. There are five laboratories in the department, containing 203 PCs and 91 servers equipped with Windows Server 2016, Windows 10, Microsoft Office, MIS tools, DBMS systems, DreamSpark, and extensive multimedia software. The laboratories not only provide popular application packages, such as Enterprise Resource Planning (ERP), and statistical analysis software for faculties and students to implement their systems, but also come equipped with communication equipment such as servers, routers, hubs and switches used for experimentation.

The department offers students the chance to gain practical experience serving as IT professionals at local firms and non-profit organizations. In the course "Project Practice," students work in teams to operate information systems used by actual companies. The teams collaborate with clients to collect information, perform analyses, evaluate alternatives, and design a system. The teams present their results as written reports and oral presentations in a meeting with the clients and advisors. The field project requires students to apply knowledge from many courses in information management and business in a consistent, integrated framework.

Faculty

Professors
Huan-Jyh Shyur (徐煥智) ; Chi-Bin Cheng (鄭啟斌) ; Reuy-Shiang Shaw (蕭瑞祥) ;
Chia-Ping Yu (游佳萍)

Associate Professors
Jau-Shien Chang (張昭憲) ; En-Hui Liang (梁恩輝) ; Chi-Chang Jou (周清江) ;
Ying-Hua Chang (張應華) ; Sheng-Pao Shih (施盛寶) ; Shih-Chieh Wei (魏世杰) ;
Ya-Ling Wu (吳雅鈴) **;** Che-Pin Cheng (鄭哲斌)；Pei-Yu Cheng (鄭培宇)

Specially Appointed Assistant Professor
Huu-Khoa Tran (陳有科) ; Nadia Parsazadeh(米娜達) ；Yu-Ting Chang Chien (張簡郁庭)；
Yuan-Cheng Cheng (鄭元成)； Ren-Xiang Lin (林仁祥)

Degree Requirements

1. Requirements for a Bachelor's degree in Information Management:
   Completion of 128 credits of courses, including 90 credits of required courses and 22 credits of elective courses offered by the department.

2. Requirements for a Master's degree in Information Management:
   Completion of 39 credits of courses, including 10 credits of required courses. Students are also required to submit a written master's thesis completed under the supervision of a faculty member and pass two (one internal and one external) oral examinations.

3. Requirements for a Master's degree of EMBA in Information Management:
   The EMBA program in Information Management requires a minimum of 36 credit hours of

coursework. Students are also required to submit a written master's thesis completed under the supervision of a faculty member and pass two (one internal and one external) oral examinations.

Course Descriptions

Undergraduate Courses

A2006 Fundamentals of Computer Programming (2/2): This course will first cover the basics about computer hardware and software, including the binary number systems. Then basic programming skills in Java will be introduced which include the debugging process, basic class/object concepts, and flow control statements.

A2087 Advanced Computer Programming (2/2): This course discusses object-oriented design and its implementation though programming languages. Students will learn object-oriented programming language C++, Java, and concepts and features of object-oriented language, such as classes, objects, methods, encapsulation, polymorphism and inheritance.

B0173 Commercial Law (0/2): The purpose of this course is to help students obtain a basic understanding of commercial law, and various business activities or organizational structures. The course focuses on such subjects as corporate law, the classification of companies, how companies are established, the authority structure in companies, and other related issues. In addition, students are introduced to the content of negotiable instruments law and insurance law.

B0302 Economics (2/2): This course covers two major topics: (1) the individual economy, i.e., prices and the theory of supply and demand, analysis of acts, consumers, structure of cost, etc.; (2) the collective economy, i.e., the study of national income and determining rules for equality in income standards.

B0175 Operating Systems (2/0): This course introduces the operation concepts of modern operating systems. Specifically, the course will cover processes and threads, mutual exclusion, CPU scheduling, deadlock, memory management, and file systems. Depending on the actual progress of the course schedule, Microcodes and Queueing Theory may also be covered.

E0648 Database Design (0/3): This course, which introduces the SQL programming of Database implementation, emphasizes various aspects related to the use of databases, such as the syntax of Database SQL (Structured Query Language) in DDL (Database Definition Language), DML (Database Manipulation Language), DCL (Database Control Language), and Database Security Coding, etc.

E1111 Algorithms (0/2): This course is designed for students interested in Artificial Intelligence. It will cover the topics of Divide-and-Conquer, Dynamic Programming, Greedy Method, Backtracking, Branch-and-Bound, Computational Complexity and NP-Complete.

E1827 Network Programming (3/0): This course introduces the Web application design and practices of implementation. This course is focused on using Microsoft ASP.NET With VB as the practices tool to learn ASP.NET With VB programming language and to know the Web application programming that includes: basic server control items, advanced server control items, data validation controls, Web applications and state management, site appearance and navigation, the site configuration and deployment, the application of control items for access Database and the introduction of integrated application examples.

E4346 Digital Technology and AI Application: This course aims to develop students' understanding of computer hardware, software, and networks while also covering data analysis, databases, multimedia applications, and system analysis and design and programming languages. It introduces artificial intelligence and its applications, e-commerce, cloud services, information security, and information ethics and law. The goal is to provide students with the skills needed to explore advanced techniques and apply their knowledge practically in daily life.

M0007 Artificial Intelligence (3/0): Artificial intelligence (AI) is a research field that studies how to realize the intelligent human behaviors on a computer. This course provides an overview of methods, history, and impact of AI. In this course, we will study the most fundamental knowledge for understanding AI. It covers problem solving, reasoning, natural language understanding, computer vision,

machine learning, and so on. Students will solve a variety of AI problems using Python.

M0066 Production and Operations Management (0/2): Operations management is a critical factor in improving productivity. Businesses can build up competitive advantage and advance productivity by taking advantage of efficient work flows. This course not only considers how a business can achieve a competitive advantage, but it also lets students learn some techniques and tools that can apply to business in practice.

M0142 Marketing Management (0/3): This course considers the application of management to marketing.

M0171 System Analysis and Design (0/3): This course provides basic concepts and procedures for developing information systems. Topics include the development life cycle, accompanying analysis/design tools, and a systematic approach to systems planning during system development.

M0271 Financial Management (3/0): This course analyzes the underlying theories, principles and techniques used in financial management to maximize the value of a firm. Topics include cash flow analysis, risk and return measurement, capital budgeting, cost of capital, long-term financing policy, working capital management, etc.

M0286 Project Management (0/3): The goal of this class is to cover not only the concept of project management, but also to give students a solid understanding of the processes, resource control, and implementation of project management necessary to support project managers. Introduction to project management as a series of plans, organization, employment, guidance and control. The course explores how to make full use of corporate resources, including cost, scope, scheduling of employees, etc., to achieve the relative short-term goals of the enterprise.

M0404 Management Mathematics (0/2): This course discusses important mathematical concepts in the field of management. Topics include operation research, data analysis, and prediction methods, etc.

M0405 Management (3/0): This course provides students a comprehensive, systematic and relevant introduction to the field of management. Students will learn theoretical frameworks that guide managerial activities and illustrations and examples of how and when those theories do and do not work in both small and large businesses as well as in non-profit organizations.

M0490 Network and Communication (2/0): This course studies telecommunications and computer networks, including data communications, computer interfaces, transmission media and error detection. Some combined Tele-networking demands and trends in business are also discussed.

M0504 Organizational Management (2/0): Organizational behavior and management is an applied discipline that studies work behavior patterns within organizations. It aims to understand and predict individual behavior to achieve organizational goals. This course uses theory, literature reviews, and case studies to connect information management systems with organizational management and emphasize the importance of social network interactions.

M0517 Statistics (2/2): This course provides a strong mathematical background in statistics, and basic techniques for summarizing, analyzing, and interpreting large sets of data.

M0518 Accounting (2/2): This course focuses on accounting concepts, the accounting model, and their relationship to finance statements. Also, the course discusses the accounting methods of single proprietorships, partnerships, and corporations.

M0590 Introduction to Information Management (0/2): The MIS course deals with impacts and solutions as applied to information systems. Topics includes the information development procedure, strategic role of IS, human and organization factors within MIS, and ways to apply information techniques.

M0800 Business Ethics (2/0): This course introduces information ethics and the law. The content includes copyright, intellectual property, privacy, and Internet ethics. Students will establish a related concept of information law and ethics to assist them in making the right decision and preventing an

ethical dilemma in the workplace.

M0842 Hot Issues of Information Management (2/0): This course helps students to understand and analysis the direct connection between information systems and business performance though case study of information management hot topics. It helps students a better understanding of how specific companies use information systems to achieve the main business objectives: operational excellence, new products and services, customer and supplier intimacy, improved decision making, competitive advantage, and survival.

M0853 Electronic Commerce (2/0): This course introduces the strategies, models, technologies and applications of e-commerce. Students are required to examine practical cases to better understand the effects of e-commerce on businesses and consumers.

M0917 Information Technology of Enterprises (2/0): The application of information technology in enterprises has become one of the main trends of the current era. Nowadays, various industries apply the most recent technology to reduce cost and increase efficiency, thereby creating a competitive advantage. Course content includes the application of information technology in the electronics industry telecommunications industry, healthcare industry, digital content industry, as well as in enterprise cloud processing and mobile commerce applications. Students will learn about various trade and information technology applications.

M1058 Introduction to Information Security (0/2) This course introduces the fundamentals and practices of information security. Topics include introduction to information security, information security threats and attacks, hacker practices research, authentication, authorization and access control, information security architecture design, basic cryptography, information systems and network model, firewalls, network intrusion detection and multi-layered defense, information security management system.

M1087 Enterprise Resource Planning (0/2): From the perspective of information systems and IT project management, this course introduces basic concepts of enterprise resource planning （ERP） system and issues on mutual cooperation using the ERP system. Students will come to understand the business process and learn how to take advantage of SAP B1 to construct information systems.

M1103 Knowledge Management (2/0): This course hopes to enable students to understand the subject of knowledge management, and apply it to individuals, and then further assist enterprises and organizations, use the application of knowledge management to make the organization develop systematically, and help managers easily grasp the company's organization and departments. Process.

M1326 Programming and Data Structures (3/3): In the first semester, this course focuses on object-oriented programming. The purpose of this course is to equip students with high-level programming skills in C++ and Java. The second semester introduces data structure concepts and their implementation, which incorporates the programming skills taught in the first semester.

M1606 Electronic Business (2/0): The basic management concept and technology of the e-business will be introduced. In addition, this course invites business executives and technology experts to address the technical and management issues related to the electronic business of enterprises. The students should apply their knowledge to analysis industry practice cases which are discussed in the class. They will not only learn from these cases but also understand the trends and needs of the electricity market, to make possible recommendations by themselves.

M1629 Fundamental Information Security Practice (2/0): Amidst the global growth of digital technology, the demand for information security is surging, making the cultivation of skilled professionals crucial. To meet this trend, the Department of Information Management has partnered with FETnet and ISSDU to offer relevant courses covering key topics like information security standards, network security, system security, emerging technologies, and auditing. The program includes regular guest lectures by industry experts and provides a cloud-based information security lab for hands-on experience, deepening students' practical understanding.

M1630 Information Security Practical Application (0/2): Amidst the global growth of digital technology, the demand for information security is surging, making the cultivation of skilled

professionals crucial. To meet this trend, the Department of Information Management has partnered with FETnet and ISSDU to offer relevant courses covering key topics like information security standards, network security, system security, emerging technologies, and auditing. The program includes regular guest lectures by industry experts and provides a cloud-based information security lab for hands-on experience, deepening students' practical understanding.

M1731 Information Practice Internship (0/6): The purpose of this course is to provide students with practical experience in various industries. Students can obtain beneficial working experience through applying knowledge learned in previous courses.

M1751 Interpersonal Communication (0/2): Improving interpersonal relationships, showing social integrity and self-worth, improving students' differences in workplace and campus in terms of expression and interpersonal communication, establishing and maintaining interpersonal relationships in life, and establishing and maintaining interpersonal relationships and social activities using the Internet The norms of moral ethics are used to realize the practical application and development in life, workplace, campus and social environment.

M1824 Case Study for Information Management (3/0): This course helps students to understand and analyze the direct connection between information systems and business performance though case studies. It helps students gain a better understanding of how specific companies use information systems to achieve their main business objectives: operational excellence, new products and services, customer and supplier intimacy, improved decision making, competitive advantage, and survival.

M1866 Software Engineering Process Management (0/2): This course is aimed at students who are interested in working in Information management. The course content includes: basic concepts of software engineering, software engineering processes and methods, software engineering-related technologies, and software engineering development trends. By learning the core knowledge of software engineering, students can have the management ability of the software development process and improve the quality of development software for companies and organizations.

M1867 Marketing Planning (0/2): This course covers the following topics: functions of marketing planning, procedures of developing a marketing plan, structure and format of a marketing plan, data collection and market survey, industrial analysis and market analysis, marketing 4P, marketing strategies and programs, and marketing plan writing and implementation. In addition to lectures on these topics, case studies and group discussions will also be incorporated.

M1891 Information Service (2/0): The objective of this course is to assist students to apply their classroom learning and reflection to enhance their self-service capabilities. During the course, service teams made up of students will provide information services to local communities. Students are expected to fine tune their abilities to apply information technology to solve practical problems.

M1892 The Issue of Information Security Management (0/2): This course introduces international standards that have been proposed to provide a model for establishing, implementing, operating, monitoring, reviewing, maintaining and improving an Information Security Management System (ISMS). Through this course, students will gain a basic knowledge of the process of ISMS design.

M1894 Managing Digital Enterprises (0/3): The modern enterprise is becoming more digital in terms of what it is and what it does. Thus, this course provides some important topics in managing digital enterprises. Topics included are: website design and evaluation, business models, market channel conflicts, cyber trust, intellectual property, security, and ethics.

M1953 Operating System Practices (0/2): This course is an extension of the subject ‘Operating Systems’ that emphasizes advanced topics of a practical nature. Students should already possess a basic understanding of computer hardware and process scheduling, as this course focuses on advanced concepts of process synchronization, memory management, deadlocks, file systems, and secondary storage structures. Some examples of related system programs will be demonstrated, too.

M1955 Project Practice (2/2): This course is designed for students to practice a project by conducting system analysis/design and implement an information system. The implemented information system is expected to successfully operate on a computer.

M1956 Information Ethics and Law (2/0): This course introduces information ethics and the law. Content includes copyright, intellectual property, privacy, Internet ethics etc. Students will gain an understanding of information law and ethics to prevent violations of the laws and loss of rights.

M2018 Customer Relationship Management (CRM) (0/2): This course is designed to introduce customer relationship management (CRM) concepts and architecture, as well as the certification test contents and system operation of customer relationship management system application engineer (e-Contact + version) promoted by the General Chamber of Commerce of the Republic of China. The main courses contents include: CRM Introduction, e-Contact + system technical overview and systems management, basic module, marketing module, service module, and marketing modules.

M2083 Trend and Practices of Enterprise Cloud Computing (2/0): In recent years, with the rapid development of the Internet, businesses can save the cost in equipment and software by use of the public cloud to meet the variable customer needs. In line with this trend, this course invites industry experts to introduce the Microsoft Azure public cloud, which covers services on infrastructure, platform, and software. The topics will include data visualization, Internet of Things, machine learning, cognitive services, dialogue bots, and block chain. By knowing the trends and practices of the cloud, the students will develop better in their future career.

M2084 Practices of Business Intelligence (0/2): This course introduces the fundamental concepts and technology practice of business intelligence. Topics include Business Intelligence, Analytics, and Data Science, AI, Big Data, and Cloud Computing, Descriptive Analytics: Nature of Data, Statistical Modeling, and Visualization, Business Intelligence and Data Warehousing, Predictive Analytics: Data Mining Process, Methods, and Algorithms, Text, Web, and Social Media Analytics, Prescriptive Analytics: Optimization and Simulation, SNA, Machine and Deep Learning, NLP, AI Chatbots and Conversational Commerce, Future Trends in Analytics.

M2123 Practices on Networks and Communication (0/2): This course focuses on the TCP/IP protocol suit. Topics range from network layer protocols, IP, ARP, ICMP and IGMP to transport layer protocols, UDP, TCP, and SCTP. In addition, application layer protocols are also introduced during the course.

M2124 Information Technology and Information Management Professional Certification (1/0): With the advent of the era of license, certified professional functions and more attention, this course is offered to encourage students to obtain professional licenses and skills for employment purposes, all students are required to attend.

M2166 Advanced Object-Oriented Programming (0/3): The goal of this course is to provide building more concrete foundations for whom interested in object-oriented programming. First, we will navigate the object-model deeply, including introducing object creation and destruction, reflection and object serialization. Then, the applications of Java Collection Framework and distributed objects will be described. Finally, topics related to software reuse, efficiency and maintainability will be stressed.

M2170 Data Exchange Languages (0/2): In this course, mark-up languages including SGML, XML, HTML, and XHTML will be discussed. We focus on the syntax of XML and its grammar rules. The software tool for XML, DOM and SAX will be demonstrated using practical examples.

M2172 Mobile Application Program Development (2/0): This course is concerned with interactive system design and application of mobile devices.

M2186 Information and Management Internship (0/2): (1) Students who select this course must take practical training at industries for at least 2 days a week; the training must be relevant to jobs of information, management, or business. (2) Units and items of practice must be confirmed by the instructor. Units that are recommended by the Department of Information Management can waive the confirmation procedure; otherwise please contact the instructor by email (caching@mail.tku.edu.tw) for practice unit confirmation. (3) The semester scholastic records of the students are graded by the instructor based on the comments of the practice units.

M2206 Mobile APP Development Techniques Practice (2/0): This course is co-designed by the instructor and an APPs company. Each unit is taught by experienced practitioners in the APPs industry.

The course covers the entire APPs development process, and the units of the course are well designed to confirm the logic relations between units. Lab units are included in the course. The works by students will be presented at the end of the semester in the form of an idea show, like AppWorks.

M2235 Professional Composing and Design (2/0): This course is concerned with Word documents to learn professional typesetting and design, including book layout and design, academic publishing, typesetting evaluation reports, manuals, production and design, advertising, document design and production of eBook.

M2236 Presentation Design Techniques (0/2): This course is concerned with PowerPoint presentations to learn design skills, including academic presentations production, business presentation design and production, interactive presentations production, presentation master production, multimedia presentations production, convert between file with other software.

M2237 Enterprise Data Analysis Techniques (2/0): Learning correlation between Excel data and charts, including a combination of different charts and interactive applications, the process after the data more convincing. Further information and data are converted to the system for analysis purposes, including data filtering and subtotals, data validation and analysis and other applications, the use of advanced data processing functions, and making and statistical analysis of pivot tables.

M2244 Big Data Mining (0/2): This course introduces the fundamental concepts and applications technology of big data mining. Topics include Big Data Mining, Fundamental Big Data: MapReduce Paradigm, Hadoop and Spark Ecosystem, Association Analysis, Classification and Prediction, Cluster Analysis, Deep Learning with Google Tensor Flow, Data Mining Using SAS Enterprise Miner, Case Study and Implementation of Data Mining.

M2284 Business Intelligence Analytical Techniques (0/2): This course will use Excel massive data processing and analysis, Excel statistics and charts analysis, Excel database automation management, Excel Data Mining and me-ta-analysis to help students understand how companies large amounts of data generated by daily operations and various analysis, and then transform them into vital intelligence and information to assist in the development of relevant business decisions to produce excellent operating performance.

M2314 Network Planning and Implementation (2/2): This course aims to provide an entry level capability for network design and configuration in home and small businesses, small-to-medium businesses or Internet Service Provider (ISP). Many basic concepts and skills in local and wide area networks will be covered. The topics include subnetting, dynamic host configuration protocol (DHCP), routing information protocol (RIP), network address translation (NAT), and virtual local area network (VLAN). Students are required to learn the associated concepts and be able to configure the required functions in real routers.

M2318 Interactive Design and User Experience (0/3): This course aiming to master students with user-centered design thinking, user behavior analysis, and user interface design. The course will guide students from concept to practice, emphasizing the development of prototypes and functional designs for web pages and applications.

M2348 Secure Electronic and Mobile Commerce (0/2): This course introduces advanced technologies for secure electronic commerce, digital money, and payment systems. It covers well-known protocols (SSL, TLS, WTLS, and SET), encryption algorithms, EDI, micropayment, and IC cards. Impacts of electronic commerce on the society will also be discussed.

M2394 Introduction to Machine Learning (0/2): Recently machine learning has seen wide use in big data analysis. With theory and practice in mind, this course will first introduce various learning algorithms and then demonstrate their applications in different fields. Students will use the Weka machine learning software for practice. As a term project, the students will apply and evaluate the learning algorithms on real-world datasets.

M2395 Object-Oriented Software Developing Technology (3/0): When developing an Object-oriented Software System, there exists a large gap between the analysis phase and implementation phase. It needs more related techniques to build a proper connection. To this end, this course provides important

insights in OO design and implementations. The contents include object models, design patterns and software refactoring, etc. And, we will use extensive practice to help the students to understand the details of those topics.

M2436 Cloud Services Architecting Practices (2/2): This course, Cloud Services Architecting Practices, introduces AWS Technical Essentials and Architecting on AWS. In AWS Technical Essentials, students will learn about AWS products, services, and common solutions. Architecting on AWS covers fundamentals of building IT infrastructure on the AWS platform. Students will learn how to optimize the AWS Cloud by understanding how AWS services fit into cloud-based solutions. In addition, students explore AWS Cloud best practices and design patterns for architecting optimal IT solutions on AWS.

M2476 User Experience and Interaction Design (0/3): This course will give you the Design Thinking methodology and discuss how to insightfully analyze problems from a human-centered perspective, develop creative solutions, and understand how to continuously iterate concepts. I'll condense and deliver to you the essence from the best practice. This is an intensive course involves a significant amount of discussion and hands-on activities. It's not an easy course, and on the first day, participants will be grouped. If you cannot attend the first three sessions, please do not enroll.

M2675 Innovation and Entrepreneurship Practice (2/0): The aim is to cultivate students with innovative thinking and practical entrepreneurial skills. This course integrates Inspiring Innovative Thinking Cultivating Entrepreneurial Spirit and Industry Development Trends. It encourages students to think innovatively and solve problems. Students are encouraged to combine their professional knowledge with innovative and entrepreneurial spirit.

M2688 Artificial Intelligence: Innovations and Practical Applications (2/0): This course introduces Artificial Intelligence (AI) and its role in various innovative applications. We will cover the basics of AI, deep learning, and machine learning, explore generative AI and its applications, and discuss how to use prompt engineering to make AI systems respond more accurately. Additionally, we will delve into LangChain, REG, API, and image generation technologies, and address security issues related to AI. Students will have the opportunity to showcase their learning outcomes in midterm and final presentations and apply their knowledge to real-world cases.

S0325 Calculus (2/2): This course is designed to provide students with a solid foundation in calculus. It covers analytical geometry and differential and integral calculus of a single variable.

V0024 Linux Operating System (2/0): This course will cover the basics about Linux operating system, include the installing and configuration. Then basic Internet service application will be introduced which include setup and configuration of protocols of services of http, ftp, smtp, etc.

Master's Program

E1111 Algorithms (0/2): This course covers techniques for design and analysis of efficient algorithms, emphasizing practical problem solving. Topics include: prune and search, divide and conquer, backtracking, dynamic programming, the greedy approach, branch and bound, and AI algorithms.

E2827 Software Project Management (2/0): This course examines the managerial aspects of the software development life cycle - from its initial feasibility phase to its maintenance phase. It covers topics such as feasibility studies, cost estimation and control, project Scheduling, change management, and productivity and quality metrics.

M0007 Artificial Intelligence (2/0): Artificial intelligence (AI) is a research field that studies how to realize the intelligent human behaviors on a computer. The main research topics in AI include: problem solving, reasoning, natural language understanding, computer vision, machine learning, etc. In this course, we will study the most fundamental knowledge for understanding AI. We will introduce some basic search algorithms for problem solving, knowledge representation and reasoning, ontology, natural language processing, fuzzy logic, neural networks (deep learning), pattern recognition, etc.

M0144 Seminar in Marketing Management (0/3): This course will begin with introducing the fundamental concepts of Marketing Management, then will especially focus on the E-Marketing, including planning and management.

M0272 Seminar in Financial Management (3/0): This course offers a clear concept, contemporary theory, and practical applications to help students understand the concepts and reasons behind tasks of finance management. These include corporate budgeting, financing, working capital decision making, forecasting, valuation-investment, and Time Value of Money (TVM).

M0423 Machine Learning (2/0): This course will introduce basic concepts and techniques for machine learning. Topics will include input preparation, feature selection, classification/regression models, model evaluation, and parameter tuning. Students will learn how to apply given software to real-world datasets and evaluate the model predictions.

M0829 Software Technology (2/0): This course discusses the applications of Java language and platform. The subjects range from programming basics to GUI, networking, database, JavaBeans and complex commercial applications.

M0842 Hot Issues of Information Management (0/2): Students are required to perform in groups to collect and study interested topics or papers in the fields of information management/technology and give a formal presentation regarding their studies. Through the discussions with classmates and the instructor, students may explore their future research directions.

M1649 Data Acquistion Method And Thesis Writing (0/2): This course equip students with knowledge and skills required for effective data collection, analysis, and thesis writing. It covers various data collection methods, research design, ethical considerations, and the entire process of thesis development.

M1779 The Design and Application of Measurement (2/0): This course aims to equip students with the knowledge and skills required to design, implement, and analyze measurement instruments in different contexts. Students will learn about measurement theory, psychometrics, and practical techniques for developing reliable and valid measures.

M1984 Practices of Project Management (1/1): With the undergraduate course of System implementations, the graduate students will assist the course advisor to monitor the progress and quality.

M2244 Big Data Mining (2/0): Enterprises generate big data when conducting business activities. Many data contains important information, which is valuable to the enterprises. This course mainly introduce various techniques of data analysis and data mining to obtain information. By understanding this, it will inspire students to come up with new applications and thinking directions of data mining.

T0081 Research Methodology (3/0): The purpose of this course is to introduce graduate students to general research methods for information systems and related issues. Specific topics contain fundamental concepts and terminologies in research, types of research methods and their respective design, research measurement and statistical analysis, and writing research report for publications.

M2259 Open Data Research and Practice (0/2): This course discusses the practices and researches related to international open data progress. The topics includes the issues included in International Open Data Conference, the differences of date set between countries, the creative applications of open data, etc.

M2321 Topics In Digital Marketing (0/2): This course aims at instructing the impact of digital technology (including web and internet) on marketing communication, especially how advertising agency, public relations agency, media service agency and internet service agency use digital media and devices to plan and execute marketing communication. Digital technology has changed the content production, transmission, presentation and storage of communication. It also provides the industry of marketing communication with a lot of new media vehicles and marketing tools.

M2522 Digital Innovation and Entrepreneurship (0/2): The program will guide student to know the trend of latest digital technology. Through thesis discussing and case studying, this program also lead the students to analysis the innovation service, entrepreneur practices and business model.

M2606 Metaheuristic (soft Computing/computational Intelligence) (0/2): The course will discuss the theory and applications of the following methodologies and algorithms: 1. Fuzzy Logic 2. Neuron Network 3. Meta-heuristic algorithms, such as: Simulated annealing, Genetic algorithms, Particle swarm intelligence and Ant-colony system.

M2641 Emerging Technologies and Human-computer Interaction (0/2): This course aims to delve deeply into the exploration of current and future emerging technologies, analyzing how these technologies integrate with human-computer interaction, thereby impacting our ways of living, working, and socializing. Students will learn about the latest trends in technology, including artificial intelligence, virtual reality, augmented reality, machine learning, the Internet of Things, etc., and will explore the application of these technologies in various fields.

M2656 Service Management Seminar (2/0): This course focuses on service science and innovation, exploring: 1. Knowledge Economy, Technology Innovation 2. Service Science, Innovation Models 3. IT-Driven Service Innovation 4. Customer Analysis in Service Innovation 5. Service Process Analysis, Transformation 6. Service Knowledge Management, Application 7. Web Services, Innovation Technologies 8. IT, Service Innovation across Industries 9. Future Directions in Service Innovation.

M2693 Topics In Social Media (2/0): This course is designed for graduate students to learn mobile social networking and social media knowledge, including Web 2.0 and social media, social media as participatory culture, communication power, power and political economy of social media, search engine, facebook influence, youtube influence, communication software influence, etc. The goals of the course are to improve students' ability to use online and social media to obtain problem-solving skills and independent thinking.

EMBA Program

M0990 Information Management Seminar (3/0): (1) The course introduces the research topics of information management, (2) how to write a research article, (3) paper reviews, (4) research experience sharing.

M2078 The Case Studies of Applications of Information Technology (0/3): The graduate students will use case studies to discusses the issues for organizations and individuals applied information technology.

M2263 Financial Technology, Fintech (2/0): This course introduces the intersection of finance and technology. This course focuses on the transformative role of artificial intelligence (AI) in the financial sector, exploring how AI is reshaping banking, investments, and financial services. By the end of the course, students will be equipped with the knowledge and skills to navigate the growing influence of AI in the financial industry.

M2640 Automated Trading (0/2): This course introduces how to make trading strategies automatically. In other words, programs trading strategies to perform automatic trade. MQL4 is considered as the language for developing trading program, including Expert Advise, Indicators, Scripts. Also, various trading strategies will be introduced.

M2691 Artificial Intelligence and Data Analytics (0/3): Artificial intelligence (AI) is a research field that studies how to realize the intelligent human behaviors on a computer. In this course, we will study the knowledge and techniques of AI, and their applications to data analytics.

T3002 Internet of Things Applications (0/3): This course introduces the fundamental concepts, business model, and case study on the Internet of Things. Topics include smart health and medical care, smart homes, car networking and autonomous vehicles, smart industry, smart agriculture, smart retail, smart city and other related applications.

DEPARTMENT OF TRANSPORTATION MANAGEMENT

Degrees Offered: B.S., M.S.

Chairman: Chun-Ying Chen (陳俊穎)

The Department

Established in 1986, the Department of Transportation Management aims to help students develop their expertise in diverse transportation fields, including highway, railway, waterway, aviation, and urban transportation, to fulfill the needs of human resources for national economic development. Furthermore, to enhance the quality of advanced research and decision making in transportation and related industries, the graduate program not only focuses on the theories of transportation science but also emphasizes problem solving, and has recruited qualified candidates since 1995. Courses offered in the undergraduate program emphasize fundamental disciplines of transportation and management science, whereas the graduate program focuses on the theoretical aspects of transportation courses, as well as interdisciplinary technologies and practicalities. In addition, two special programs of logistics management, and air transportation are flexibly embedded in the course design for students to choose for their future career.

Faculty

Professors
Sheng-Hsiung Chang (張勝雄) ; Wan-Hui Chen (陳菀蕙) ; Chi-Chung Tao (陶治中) ;
Chao-Che Hsu (許超澤) ; Shiaw-Shyan Luo (羅孝賢)

Associate Professors
Chun-Hai Fan (范俊海) ; Shih-Sien Liu (劉士仙) ; Yuh-Horng Wen (温裕弘) ;
Chih-Lin Chung (鍾智林) ; Chun-Ying Chen(陳俊穎)

Assistant Professors
Hsin-Ping Hsu (許心萍) ; Hsiang-Chuan Chang (張翔筌) ; Chih-Kang Lin (林至康)

Degree Requirements

1. Requirements for a Bachelor of Science degree:
   The Bachelor of Science degree is awarded after completion of 128 credits, with 85 credits of required courses and 21 credits of transportation related courses.

2. Requirements for a Master of Science degree:
   The Master of Science degree is awarded after completion of 33 credits. Students are also required to write a thesis with the approval of the committee after the oral examination.

Course Descriptions

Undergraduate Courses

B0319 Transportation Economics (2/2): Transportation Economics is a branch of economics that deals with the allocation of resources within the transportation system. Transportation economics is the discipline concerned with the economic aspects of transportation problems, and involves the systematic analysis of transportation systems.

B0320 Transportation (3/0): The purpose of this course is to introduce students to the internal elements, external environment, and basic issues of transportation systems. This course will focus on the user's behavior, system characteristics, and elements and operations of traveler/freight transportation systems, which include highway, railway, maritime, and air transportation.

E0543 Urban and Regional Planning (3/0): This course aims to apply multi-media methods to demonstrate key issues regarding city and regional planning. A series of planning concepts will first be

introduced and then contemporary urban development issues will be discussed.

E0665 Transportation Engineering (3/0): This course introduces the major areas of traffic engineering and transportation planning. It is suitable for upper-level undergraduates.

E4346 Digital Technology And Ai Application (2/2): The purpose of this course is to guide students in understanding the basic principles and practical applications of information technology, clarify the types of computer software and hardware, explore communication and networking, and cover related fields such as the Internet, e-commerce, and information security.

E3486 Aviation Law (0/2): This course describes how the system of civil aviation has been developed, explains the responsibilities and activities of national governments and ICAO in the field of civil aviation and reviews the relevant domestic and international laws and regulations. This course focuses on the operational, safety, licensing and security regulation of air transportation.

M0022 Urban Economics (0/3): The purpose of the course is to familiarize students with the basic concepts and analytic techniques of engineering economics that are essential for evaluating economic feasibility of investment alternatives inherent in engineering projects. Students will acquire relevant knowledge through lectures, exercises, quizzes, and examinations.

M0070 Traffic Engineering (0/3): This course comprises three sections, including basic characteristics of traffic systems, capacity analysis, and signal control analysis. It provides basic training in the field of traffic engineering.

M0153 Operations Research (3/3): This course is an introduction to the basic operations, research procedures, and basic deterministic models of operations research. It covers the linear programming model, transportation problem model, assignment problem model, integer programming, and network models.

M0258 Transportation Management Seminar (0/2): This course provides graduate students from our department with practical knowledge and information through the holding of regular keynote speeches. In addition to speeches, the course also helps students understand concepts of knowledge management in the field of transportation. It also demonstrates how to complete a final term paper by working together in a team.

M0356 Transportation System Analysis (0/3): The first stage of this course focuses on the problem-solving process and model formulation in the field of transportation through various case studies. The second stage will emphasize demand analysis and alternative evaluation.

M0360 Transportation Planning (3/0): This course covers trip demand forecasting and network analysis and their extended applications. The purpose of transportation planning is to establish an efficient, economical and balanced transportation system, while reducing its impact on the environment. The result of achieving this is a transportation system that moves smoothly and safely in transporting both people and freight.

M0404 Management Mathematics (2/2): Management Mathematics (Linear Algebra) is a fundamental part of modern mathematics in the field of management science. This course provides a basic introduction to the concepts and techniques of linear algebra and its essential applications to the science of management decision.

M0405 Management (0/3): This course focuses on a basic introduction to the concepts and techniques of management. This course presents a thorough and systematic coverage of management theory and practice, including planning, organizing, leading, and controlling. Current issues and case studies in management are also discussed.

M0431 Transportation & Storage Management (0/3): This course covers physical distribution systems, logistic systems, transportation, and facility and inventory decision in logistics.

M0443 Air Transportation Operations and Management (3/0): This course looks at comprehensive knowledge of air transportation operations and management. This course is composed of basic concepts,

methodologies, systematic analysis and strategic planning issues of air transportation, airline management, and airport planning and administration. Many issues about air transportation industry, airline management and organization, airline marketing, airport design and planning, airport operations and management, air cargo logistics, and aviation safety are discussed.

M0482 Business Administration in Transportation (0/2): The purpose of this course is to introduce key concepts of management and their applications to business administration. In the first half of the semester, fundamentals of management including planning, organization, leading and governance are introduced. In the second half of the semester, students will learn how to write a successful business plan.

M0537 Rapid Transit System Management (2/0): Understand the basic planning and design, system operational methods, and management of the Mass Rapid Transit system, including an overview of the MRT system, passenger service, train operation planning, safety management, integration with other transportation and marketing management

M0593 Applied Statistics in Transportation (2/0): This course emphasizes the applications of statistical methods to the various topics related to transportation. Two statistical analysis software tools (EXCEL and SAS) are used for data processing and data analysis to learn how statistical methods are applied to the professional field of transportation.

M0671 Transportation Environment Impact Evaluation (3/0): This course introduces overall issues of environment impact assessment (EIA) due to transportation development. Course content includes a comparison of different systems of assessment and their ability to affect environmental acts, land use and traffic impact analysis, city landscape and aesthetics, noise measurement and management, habitat impact analysis, and cultural conservation and its evaluation.

M0692 Transportation Safety Analysis (3/0): This course introduces laws of responsibility related to traffic accidents. Students will learn basic concepts of legal responsibility and legal issues in road traffic accidents. It also teaches students how to assess culpability in traffic accidents by searching for critical evidence in the field.

M0706 PHYSICAL DISTRIBUTION MANAGEMENT **(0/3):** Students can understand logistics management under the context of the smart city. The focuses include logistical system design and applications.

M0870 International Freight Transportation (0/2): Through instruction and team discussions, students learn about daily operations of global liner and tramp services as well as air cargo & logistics. The course links theory to practice cultivating students' professional ability in the field of international freight transportation.

M1142 Railway Transportation (2/0): This course introduces various system technologies and forms of railway transportation. The course provides students with fundamental knowledge on railway transportation that will help them in future research or practical work.

M1173 Commercial Vehicle Operation (0/3): In recent years, the e-commerce market has rapidly grown, leading to the rise of various business models, such as B2B, B2C, C2C, and O2O. This growth has highlighted the need for better operational management of commercial fleets. To tackle this issue, the course will explore several key topics, including the current landscape of the e-commerce market, real-time monitoring systems for commercial fleets, AI-driven dispatching and scheduling for delivery vehicles, and strategies for managing delivery performance. The course will also include case studies to help students gain a deeper understanding of these processes.

M1747 Sustainable Transportation (2/0): This course explores key issues of sustainability of transportation systems by considering global climate changes. The first part involves understanding the concept 'sustainable development'. Then, students are presented with an introduction to the interrelated disciplines of transportation, environment, technology, ecology, sociology, politics, and economics. Finally, students are required to work in a team to conduct field surveys by using qualitative or quantitative methods to evaluate transportation sustainability in Taiwan.

M1900 Computer Programming (2/2): This course aims to train students to understand basic logical

concepts, to develop basic computer programming skills, and to use VB to develop basic computer programs.

M1923 Public Transportation (0/3): This course introduces the elements and operational characteristics of public transportation, including buses, mass transit systems, Paratransit, and new transportation systems such as public bicycle systems. The elements discussed in this course include vehicles, routes, stations, and control and management systems. The alternatives for improving the performance of public transportation are also discussed in this course.

M1925 Practices on Supply Chain (0/3): The purpose of this course is to provide detail presentation of the Practices on the logistics and supply chain. With the knowledge of these practices should enhance the basic understanding of the structure and basic functions of supply chain.

M2016 Operation And Management Of Highway Passengers Transport (2/0): This lesson is majorly to improve the understanding and characteristics in operations and management of highway passengers' transportation and increases the interest of students in the industry. It also provides students to reorganizes related transportation courses to apply on their future careers and becomes planners and managers in the government or highway bus operators.

M2155 Traffic Accident Judgment and Analysis (0/3): This course aims to introduce basic knowledge regarding the traffic accident investigation, judgment, insurance, and legal liability. A series of case studies will also be introduced to integrate the practice and theories to build the ability to conduct traffic accident judgment and analysis in real world.

M2234 Maritime Shipping And Port Management (2/0): The aim of this course is to introduce the basic concept of the maritime shipping and port, the main facilities and cargo-handling equipments of the port. We discuss different types of ports, it gives the students a complete picture of the maritime shipping and port management. It gives the students understanding the operation procedure and management of a ship call the port. We discuss the stevedoring and storage of cargos in the port. We introduce vessel survey, tonnage measurement, maritime shipping and port operator management and port tariffs structure.

M2287 Tour Planning (3/0): This course considers the use of demand analysis to help student explore focus groups in a market setting involving diverse aspects. Applying text mining, students can also quickly integrate dynamic market information and adequate modifications to formulate well designed trips that fit the needs of customers. Students are required to complete their own exclusive tour plans and itineraries.

M2288 Geographic Information Systems for Transportation (3/0): The purpose of the course is to familiarize students with principles of geographical information system and its applications in transportation through learning how to use ArcGIS. Students will acquire relevant knowledge through lectures, examinations, discussions, and team projects.

M2408 Practices of Transportation Business and Management (0/3): This course mainly introduces the operation and management practice of the transportation industry and explores the related issues of modern transportation industry management. Through practical case studies, practical lectures by industry professionals, company field visits and corporate internships, the course enables students to understand the basic knowledge of the transportation industry management, and to familiarize themselves with the practical operation procedures.

M2409 English For Transportation And Logistics (0/2): This course is designed primarily for seniors who want to enhance the English four skills via diverse transportation materials. Each unit has an assignment to practice the tools taught in the class. Students will use transportation English to discuss daily traffic problems and potential solutions.

M2291 Airline Planning and Management (0/2): The course will address the various air transportation planning and operation. The main purpose is to help students understand the areas, definition, operation and management for air transportation. Let students understand the trends of air transportation planning and related knowledge via case study. It will be the basis for the future related courses.

M2353 Transportation Policy And Administration (3/0): The course content mainly focuses on the development directions of policy formulation. It covers relevant issues and strategies concerning the four major transportation systems: railways, highways, aviation, and shipping. The course explores both the theory and practical aspects of policy analysis, aiming to deepen students' understanding of contemporary domestic transportation policies. Ultimately, the goal is to enable students to contribute to improving the quality of transportation policy formulation in the future.

M2511 Smart Logistics Operation (2/0): This course offers a fundamental understanding of the latest smart logistics development operations. Five modules will be covered, including 1. smart city, 2. introduction to intelligent transportation systems, 3. commercial vehicle operation, 4. smart logistics, and 5. connected/autonomous vehicles

M2550 Digital Transformation In Transportation (2/0): This course aims at introducing use cases of digital transformation in transportation by quantum leap processing. Theory and practice will be used to demonstrate how to implement digital transformation in transportation applications, such as DB4.0, Google and Amazon.

M2552 Maritime Shipping And Port Operation (0/2)：1.Introducing the Knowledge of Maritime Shipping and Port operation. 2. Understanding the practice of Maritime Shipping and Port Operation. 3. Increasing Learning interest in the field of Maritime Shipping and Port Operation. 4. Enhancing the demonstrating and analytic ability of the student to the maritime Shipping and port operation issues.

M2620 Big Data Management and Control in Transportation (0/2): This course introduces the investigation procedures of data collection, procession, and analysis, and the methodologies can be utilized for data. The analytic procedure will get useful knowledge from the data exploration when students face a transportation problem. This course will adopt theoretical explanation and the case studies that can help students to understand the real applications.

M2645 Research And Development Of Sustainable Transportation Policy (2/0): Due to the policy of Taiwan 2050 Net-Zero Emissions, this course aims to introduce basic knowledge and theories with regard to sustainable transportation policy. A series of case studies will also be interpreted and integrate the practices, in order to understand and discussion of the developing and future trends of sustainable transportation.

M2701 Traffic And Transportation In An Super Aging Society (0/3): By 2025, our country will transition into a super-aged society. To achieve the goal of "active aging," it is crucial to address the problems, challenges and opportunities in traffic and transportation from the perspective of elderly users. It is desired that older adults in a super-elderly society can still maintain their mobility and safety when going out. This course focuses on enhancing the mobility and safety of older adults, enabling them to maintain independence when using various forms of transportation, including cars, motorcycles, bicycles, and walking. Additionally, the course covers the role of mass and public transportation in meeting the needs of the elderly population. Students in this class will learn to analyze transportation issues from the perspective of the elderly, develop improvement strategies, and evaluate their effectiveness.

T0136 Research Seminar (2/0): This course emphasizes the establishment of undergraduate students' capability of doing independent research in the field of transportation.

T3174 Exploring Sustainability (1/0): This course focuses on the discussion of sustainable issues. Through the case study of the SDGs and group discussions on sustainable issues in daily life, to cultivate the student's literacy of exploration and sustainability.

Master's Program

E0769 Mathematical Programming (0/3): This course introduces how to formulate a general problem in Mathematics. Various types of theorems and their associated algorithms are summarized.

E1188 Transportation Network Analysis (3/0): The content of this course is mainly to introduce the theory and application of network analysis in transportation so that students have a basic theoretical foundation. To enable students to have the ability of model construction methods, practical applications, and solving methods for commonly used transportation networks.

M0115 Multivariate Analysis (3/0): Multivariate analysis focuses the theorem and its application associated with the tool of SAS. With the real case studies, students may improve their problem-solving abilities. The contents include the basic operation of SAS, concepts of hypothesis, variance analysis (including experimental design), test of normality, discriminate analysis, cluster analysis, factor analysis and SEM.

M0924 Transportation Research Methods (I) (3/0): This course emphasizes on establishing graduate students' capability of doing independent research in the field of transportation.

M0925 Transportation Research Methods (II) (0/2): This course introduces transportation research methodology, including literature search, paper critique, data analysis, reference listing, and research proposal writing. Classroom participation and practice is essential. Each group project is expected to develop a 10-page paper qualified for publication.

M1079 Operation Management of Mass Transportation (0/2): This course introduces the planning, operation and management of public transit. The Contents includes data collection, headway determination, time table development, vehicle scheduling, crew scheduling, service design, network design, and future development.

M1721 Traffic Engineering Practice (3/0): The purpose of this course is to explore the traffic characteristics of the various types of highway and problems they face in urban area. In addition, all the possible improvement measures or policies will be discussed to improve their efficiency and safety. With the comprehensive understanding of the associated methodologies, practices and legal issues, the course should provide students basic ability to handle various traffic problem in urban highway and street system.

M2135 Special Topics on Intelligent Transportation Systems (2/0): The purpose of this course is to introduce key technologies and their applications to Intelligent Transportation System (ITS). In the first half-semester, the front-end data collection, integrated platform and the rear-end applications technologies are reviewed. In the second half-semester, related ITS applications such as DRTS, MaaS and Connected Vehicles emerging with these technologies are discussed and their linkages with Telemetric, Cloud Computing, Big Data and Internet of Things are also explored.

M1983 Applied Data Analysis (0/3): The main content of this course includes the development and evaluations of the following statistical models: (1) multiple regression models, (2) ANOVA models, (3) count data regression models, (4) and classification tree methods. This course emphasizes on the applications statistical methods to transportation topics using statistical software (SAS) for understanding how statists applied to the professional fields of transportation.

M0667 Air Transportation (2/0): This course introduces fundamental knowledge of air transportation for students. The main topics include the components of the air transportation system, analyses of air market supply and demand, airport planning and management, airline operations and management, and regulations on air transportation. After finishing the course, students are expected to have a better understanding of the air transportation system, and be able to solve aviation related problems by applying the introduced knowledge and skills.

M0668 Airport Planning & Design (0/3): This course will introduce general concept and hierarchy of airport design, mechanism and facilities of air traffic control, as well as specific elements involved in airport planning and design, such as site selection, runway configurations, definition and computation of airport capacity and delay analysis. Topics of environmental impact and economic analysis will be also introduced.

M2412 Social Equity Issues in Transport (0/3): The purpose of the course is to explore social equity issues in urban transportation, with a focus on the transportation constraints face different social groups and ways to mitigate them. The course is divided into three parts: First, the instructor will introduce relevant theoretical frameworks and analytic methods. Next, students will read and summarize papers from foreign research. Last, students will analyze data from Taiwan and present their findings.

M2415 Intelligent Transportation Algorithms (0/3): This course introduces some algorithms that is the foundation of much researches. It includes neural network models, fuzzy theory, gene algorithm and

program algorithms etc. The program algorithms also include brute force, divide-and-conquer, decrease-and-conquer, etc.

M2549 AI and Smart City (2/0): To introduce the content and relationship of Artificial Intelligence and Smart City and to study the AI/Big Data/IOT applications in Smart Cities.

M1656 Global Logistics Management (0/3): This course looks at comprehensive knowledge of global logistics management. Discuss basic concepts, methodologies, systematic analysis and strategic planning issues of global supply chain logistics management. Many issues about global supply chain, international logistics, global transportation planning, intermodalism, integrated logistics, advanced information technologies and future development are also discussed. This course focuses on both academic research basis and practical case study.

M0356 Transportation System Analysis (3/0): This course will introduce the systematic system analysis and its application to transportation system. A framework of transportation analysis will be illustrated along with all related model components. Theory and specification of disaggregate demand modeling will be discussed, including those of specification and estimation issues

M2413 Traffic Assignment (3/0): Various traffic assignment problems will be introduced in this course, including the very basic definitions and models to the advanced dynamic and/or stochastic assignment problems.

M2558 Innovative Smart and Sustainable Urban-Rural Development (2/0): This course analyzes innovative cities, transportation systems, and low-carbon sustainable development cases.

DEPARTMENT OF PUBLIC ADMINISTRATION

Degrees Offered: B.A.

Chairman: Gillan Chi-Lun Huang (黃寄倫)

The Department

The Department of Public Administration covers four major disciplines in the social sciences: law, political science, public administration, and public policy. Courses in law include: Constitutional Law, Administrative Law, Law and Society, Civil Code, Business Law, etc. Courses of political science include: Introduction to Political Science, Comparative Politics, and Western Political Thought. Courses in public administration including: Public Management, Organizational Theories, and Behavior, and Personnel Management. Courses centered on public policy include: Policy Analysis, Political Economics, and Policy Evaluation, etc.

Our graduates can consider future careers in the following fields: government agencies, nonprofit organizations, Think Tanks, news and media industry, banks and financial organizations, and congressional staff.

Faculty

Professors
Tsong-Jyi Lin (林聰吉)

Associate Professors
Chih-Wei Chen (陳志瑋) ; Chen-Yu Huang (黃琛瑜) ; Irving Yi-Feng Huang (黃一峯) ;
Pei-Yuan Li (李培元) ; Yi-Bin Chang (張一彬) ; Gillan Chi-Lun Huang (黃寄倫); Yu-Yin Tu (涂予尹)

Assistant Professors
Li-Wei Cha (詹立煒) ; Ying-Chu Wu (吳瑛珠) ; Chian-Wen Wang (王千文)

Degree Requirements

The degree requirements of the department are as follows:

Requirements for a degree of B.A.:
A total of 128 credit hours are required for graduation. Of these 128 hours, 77 credit hours are required courses and the remaining 51credits are electives; 25 of the elective credits must be selected from courses offered by the Department.

Course Descriptions

Undergraduate Courses

A1605 Human Resources Development (0/2): The use of “Human Resource Development” (HRD) began from the 1970s to indicate the shift of treating human resources as assets of an organization. HRD means a strategic method of developing talents with work-related competencies. For organizations, HRD can be divided into Management Development (MD) and Career Management (CM). This course will focus on these two fields to help students learn related theories and skills.

B0033 Essentials of Civil Law (3/0): Civil laws are basic laws that regulate social life on a broad scale. This course introduces basic concepts and popular case studies, with an emphasis on important legal issues in general civil laws, debt, asset rights, and inhabitation.

B0260 Organizational Behavior (2/2): This course introduces theories and applications regarding the behaviors of individuals, groups, and organization systems to help the student to develop abilities and skills of management and lay the foundations for advanced study in the future.

B0302 Economics (3/0): This course is designed to give students a basic understanding of economics. We will discuss and research the causes of problems in the modern economy, as well as resource choices and allocation for maximal effects. Theories will be explained with economic conditions and social phenomena of different countries as cases.

B0173 Commercial Law (3/0): This course introduces fundamentals of company laws and regulations of commercial papers, insurance, and overseas business. Regulations on the organizational structure of companies, protection of interest of shareholders, and types and right protection of commercial papers, will be discussed.

B0404 Economic Policy (0/2): Comprehensive understanding the global economy and its macro policies.

B0433 Securities and Exchange Law (0/2): This course introduces a framework for the operation of the capital market. Focus is placed on regulations of security exchanges, including important issues such as company stock buyback, business management, and prevention of insider trading.

H0094 Local Governance (2/0): This course discusses from a legal perspective the issues of local Taiwanese government's organizational structures and operations. Course content includes the history of the local government's structural changes and the relationship between the central and local governments.

M1898 Public Human Resource Management (2/2): This course helps students to learn basic concepts and skills of human resource management in governments, including the major fields of recruitment, selection, HR development and rewarding. It also analyses government personnel policy.

M0036 Public Policy (2/2): This course introduces basic concepts of public policy and the stages involved in policy formation, including policy problem identification, policy design, policy implementation and policy evaluation.

M0048 Comparative Government (3/3): This course introduces basic concepts of public policy and the stages involved in policy formation, including policy problem identification, policy design, policy implementation and policy evaluation.

M0098 Introduction to the Criminal System (0/3): This course provides students with a general knowledge of criminal law, an introduction to criminal law, and criminal procedure punitive power.

M0100 Comparative Personnel Systems (2/0): This online course provides students with concepts and knowledge related to civil service systems in countries such as US, UK, France, Germany, and Japan. The major goal is to help students prepare for the national civil service examination.

M0130 Administrative Law (3/3): This course covers the legal effects of administrative actions, the main administrative procedures, administrative sanctions, administrative execution and the law relating to administrative grievance and litigation.

M0132 Public Administration (3/3): This course introduces the history, theories pertaining to and methods used in public administration. By guiding students to investigate the major issues of public administration, the course teaches students how to employ theories and techniques to analyze and solve administrative problems in the real world.

M1899 Contemporary Political Thought (2/2): The purpose of this course is to provide students with an introduction to the development and characteristics of western political thought. Both ancient and modern theories of political philosophers are interpreted by applying critical perspectives to equip students with the tools necessary to critique the modern political structure.

M0195 Introduction to Law (2/2): This course introduces studies in law with special emphasis on the meaning, functions, and nature of law. Students are expected to learn basic notions and principles of law as well as basic knowledge regarding the current law (positive law) of Taiwan.

M0206 Introduction to Political Science (3/3): The purpose of this course is to provide students with an introduction to the basic concepts and theories in the study of politics. It focuses on the scope and methods of politics, systems of government, political ideologies, democracy, the state, nations and nationalism, global politics, political culture and communication, elections and voting, parties and party systems, interest groups, the legislative branch, the executive branches, the judicial branches, and the policy process. This course will thus enhance students' understanding of the theory and practice of politics.

M0286 Project Management (2/0): This course introduces the latest Project Management Body of Knowledge (PMBOK® Guide) and Agile Practice Guide to help students understand the concepts, tools, and techniques of project and project management. After graduation and gaining practical work experience, students can aim to obtain project management certifications.

M0470 Policy Evaluation (2/0): This course provides students with intensive knowledge in policy evaluation, the last chain of public policy. The topics covered include major categories of policy evaluation: the evaluation of need, the evaluation of process, the evaluation of outcome, and the evaluation of efficiency, and their methods respectively.

M0556 Logics (2/0): This introductory course covers a wide range of logic and reasoning topics from the philosophy of social science to symbolic logic. It is designed to enhance learners' reasoning and critical thinking skills through principles of logic.

M0570 Public Management (0/2): This course introduces government divisional management. From the late 70s, new public sector management and the administrative reform movement initiated simultaneously by the government transformed the reform process, environment reform and practice, the process of benefit execution.

M0575 Government and Business (2/0): The purpose of this course is to illustrate the division between government and society and the coexistence between government and economy by applying the theories of organizational interaction and deviation as well as theories of the new corporation.

M0674 Political Economy (0/2): The purpose of this course is to provide students with an introduction to issues in political economy that influenced the global eco-political transformation in the 20th century. This course will focus on the development of advanced democratic states, the economic policy of transformed states, and methods of developing the remaining developed states. This course will thus enhance students' understanding of the contemporary eco-political context.

M0747 Strategic Management (2/0): This course is one of the advanced courses in public administration which aims to introduce the evolution of strategic management theories, the importance of organizational management, and its application to the practice of public management.

M1034 Law of Administrative Remedies (0/2): A part of administrative law, this course focuses on how people make claims for compensation from administrative bodies. The reason for the field to be dealt with in a separate course is simply because that it is always impossible, in terms of time and class session, for the course of Administrative Law to cover this last part of administrative law.

M1036 Information Policy and Regulation (0/2): This course investigates the nature and function of information, and goes further by exploring the existing system of law from the perspective of information economy.

M1041 Political Party and Election (2/0): This course provides students with some basic ideas concerning the party system, the electoral system, ethnic politics in Taiwan, campaign strategies, and voting behavior.

M1042 Administrative Ethics (2/0): This course will discuss concepts of ethics in public service, including violations of the ethics code, achieving responsibility, and accountability.

M1103 Knowledge Management (2/0): From expert decision making to crowd wisdom, from entity to virtual organizations, knowledge is integrated through the integration model of society, enterprises, organizations and individuals. This course will apply the knowledge management model to practical study through course exams and term papers.

M1256 Crisis Management (2/0): This course helps students understand and analyze the meaning of crisis management. It also teaches students how to turn a crisis into an opportunity and to make decisions and change correctly. It helps governments, the enterprises, and the individual solve problems when they face a crisis. At the same time, students are trained to turn bad luck into good fortune.

M1259 Political Communication (2/0): This course introduces the concept of political communication. It covers issues such as how to conduct research on political communication and defines the role and function of the media in emerging democracies, especially in Taiwan.

M1667 Cultural Affairs Administration (2/0): This is an introductory course on arts and cultural institutions in Taiwan. Themes focus on the assessment of the government's role in art and cultural development, policy and management in the arts and cultural industry, and community cultural planning.

M1770 Policy Marketing (2/0): The concept of policy marketing refers to the application of business marketing to policy planning and implementation. The purpose of policy marketing is to reach compliance agreements with the target population by propagating relevant information to policy stakeholders. This course first introduces key concepts of business marketing. Considering notable differences between government and industry, we then turn discussion to how the theory of business marketing can be applied to the arena of public policy.

M1804 Government Performance Management (0/2): The purpose of this course is to introduce the process of change from bureaucratism to transformational in performance management in the context of government.

M1830 Current Civil Service System (2/0): This course introduces various aspects of the civil service system, including the examination process, appointment, salary, performance rating, retirement and protection, and civil service laws & practices.

M1899 Contemporary Political Thought (0/2): The purpose of this course is to provide students with an introduction of the basic concepts and theories in the study of modern political ideologies. This course will focus on the scope of political ideologies, liberalism, conservatism, socialism, nationalism, feminism, ecologism, fundamentalism, and multiculturalism. This course will thus enhance the students' understanding of the theory and development of modern political ideologies.

M1926 Business Competition and Consumer Protection (0/2): This course introduces rules and regulations concerning market competition and consumer protection. Its purpose is to help students grasp basic knowledge of norms that firms follow when engaging in market competition. Students will also learn about means for recourse for disputes related to consumption.

M1927 Labor Law (0/2): The aim of this course is to increase students' knowledge of labor laws and relevant cases. The course consists of lectures as well as discussions on specific cases. The lectures are aimed at helping students understand the domestic labor law system and its legal foundation, while the discussions of actual cases will involve each group of students presenting a three thousand-word report.

M1995 E-Governance (2/0): This course introduces the history, challenges, cases, and trends of e-governance. Several topics will be covered: 1) Taiwan's current e-government initiatives; 2) Program evaluation methods of e-government; 3) Online service delivery systems; 4) e-democracy; and 5) The digital divide. The main purpose of this course is to provide the concepts and methods for public managers to succeed in using ICTs to improve public service quality.

M1996 Social Policy and Social Legislation (0/2): The goal of this course is to understand Taiwanese social policy and its implementation. Based on political and sociological inquiry and centered on governmental institutions and administrations, the course can illuminate the dispositions and possibilities of Taiwanese social policymaking both in the past and the present. Topics also include social welfare

theories and the evolution of Taiwanese social welfare systems, i.e. social security, health care, employment programs and pension.

M1997 National Tort Claims Act and Compensation of Condemnation (0/2): This course will introduce the concept and system of state responsibility, so that students can understand the legal status of the state compensation system.

M2047 Congressional Politics (2/0): The purpose of this course is to teach students about the basic theory of congressional politics. Students will also observe the real working of the ROC legislative Yuan.

M2048 Public Opinion Survey (2/0): The aim of this course is to teach students about theories related to public opinion surveys and how to carry out a "scientific" public opinion survey.

M2050 Public Policy Case Studies (0/2): This course is designed for students with a basic understanding of public policy theory. By following case studies of Harvard Business School, the course helps students integrate public policy theory with policy cases.

M2051 Media Politics (2/0): The purpose of this course is to teach students about media politics. Questions addressed in this course include how to conduct research on political communication and what is the role and function of the media in emerging democracies especially in Taiwan.

M2146 Law of officer (0/2): Civil Servant Law is an important part of Taiwan's administrative organization regulations, covering all aspects of a civil servants rights, obligations and interactions with administrative organizations. The study of these rules is not only necessary for the preparation of public servant entrance exams, but also contributes to the understanding of modern Taiwan administrative law system.

M2147 Program Design (2/0): This course aims to introduce students to the fundamentals of program design in the public sector, helping students learn how to identify and address public issues and social problems, develop effective programs, and evaluate program outcomes. The course covers topics including the program design process, needs assessment and problem definition, program goals and objectives, program design models, implementation and management strategies, and program evaluation methods.

M2148 Globalization Policy (0/2): In the scope of public policy, this course serves as a fundamental basis for understanding globalization. Broadly, the course discusses the major issues brought forward by globalisation. Specific topics include global financial governance and responses to the global economic crisis, global production and the post-war trading regime, cultural homogeneity and westernisation, cyberpolitics and civil society, environmental governance, poverty, and anti-globalisation.

M2149 Quantitative Data Analysis (0/2): This is a continued statistical course with statistics. Not only emphasizes conceptual understanding and develops statistical thinking, but also explores data with EXCEL spreadsheet program. Students are exposed to all kinds of statistical problems they will encounter in the real world.

M2276 Eu Politics and Policy (2/0): The purpose of this course is to provide students with an introduction of the basic concepts and theories in the study of EU politics. This course will focus on the scope and methods of EU politics, systems of EU government, and EU politics and policy. This course will thus enhance the students' understanding of the theory and practice of EU politics and policy.

M2325 Environmental Policy (2/0): This course is to discuss environmental policy and sustainability in the context of politics and public policy. It will start with the introduction of the concept of environmental policy and sustainability. Then we will discuss global environmental issue and governance in general. This course will conclude with the discussion and to formulate policy recommendations for various environmental issues in Taiwan.

M2364 Basic Applied Statistics (0/3): This course is intended to strengthen students' knowledge in statistics, primarily in how to utilize statistical software to analyze statistical issues and basic calculations. The software EXCEL will be used in this course.

M2365 Public Budgeting AND Management (2/2): This course will cover some basic concept in economics, particularly in government failure. Then, the tax system as well as budgeting system will be introduced. We will also investigate several theoretical arguments regarding the budget reform around the world.

M2429 Critical Thinking (0/2): This course aims to help students understand what is meant by critical thinking and create their own reasoning skills. These skills are essential to those progressing to higher levels of academic study, whether at reading or writing. This course will help you to build on your existing skills, to develop your critical muscle.

M2435 Practical Training of Institutes (2/0): This course is a practical training, arranging students to NGOs promoting human rights issues.

M2485 UK Governance and Policy (2/0): The purpose of this course is to provide students with an introduction of the basic concepts and theories in the study of UK governance and policy. This course will focus on issues including UK constitution, state system, system of government, parliament, and electoral system. This course will thus enhance the students' understanding of the theory and practice of UK governance and policy.

M2486 Game Theory and Public Policy (0/2): In decision-making and policy processes, Game Theory offers a useful theoretical approach and practical tool to uncover stakeholder interactions. The course will discuss the perspectives of the theory and introduce the concepts of the normal form and extensive form of game theory as well as the non-cooperative model and cooperative model, and discuss its implications for policy science before the midterm exam. In the meantime, we will analyze and argue relevant public policy cases using the game models.

M2530 AI and Future Politics (2/0): The purpose of this course is to provide students with an introduction of the basic concepts and development in the study of artificial intelligence (AI). This course will focus on issues including AI and global politics, the possibilities of AI, AI and work, AI and democracy, AI and consciousness, AI and freedom, and AI and the future. This course will thus enhance the students' understanding of the development of artificial intelligence and future politics.

M2695 AI and Administrative Applications (2/0): This course cultivates students' basic concepts in the application of artificial intelligence in public administration, enabling them to flexibly apply emerging technologies in administrative management and public governance to enhance the competitiveness of public organizations and civil servants. This course enables students to acquire the knowledge and skills required for practical use through interactive discussions on specific topics and case studies.

T0037 Psychology (0/2): The course is designed to give students the fundamental concept of psychology, as well as the general knowledge of human behavior. Topics will include perception, consciousness, memory, personality, intelligence, emotions, problem solving, social interactions, and pressure management. Emphasis will be placed on the science of psychology and the ways psychological science has impacted our understanding of human nature and behavior.

T0048 Civic Education (2/0): This course is to present the emergence of civil society and how citizens participate in civil society through different methods as well as devote themselves to make civil society better.

T0070 Sociology (3/0): The aim of this course is to present an integrated account of how the discipline of sociology contributes to our understanding of human beings' collective life i.e. dynamics, relationships, process and trends of collective action in contemporary society. Individual as well as societal issues will be addressed under sociological reflexivity and modernity perspectives.

T0081 Research Methods (0/2): This course deals with the following: politics and analysis, development of research questions, measurement, data collection through questionnaires and interviews, data analysis-coding, data analysis-frequency, and data analysis, as well as cross tab and correlation, and report writing and presentation.

T0696 Constitutional Law (2/2): This course comprises two sections. In the first half of the semester, we discuss fundamental human rights. In the second half of the semester, we introduce the operation of governmental organizations.

DEPARTMENT OF MANAGEMENT SCIENCES

Degrees Offered: B.B.A., M.B.A., EMBA, Ph.D.

Chairman: I-Fei Chen(陳怡妃)

The Department

The department was established in 1972 when the Graduate Institute of Management Sciences began offering a master's degree in management sciences with a focus on system analysis. Two more major fields—management sciences and management information systems—were added in the following year. In 1975, the department began to offer the first Ph.D. program in management sciences in Taiwan. An option to major in managerial economics was added to the master's program in 1978; and the management information systems program was expanded and became the Graduate Institute of Information Engineering in the same year. In 1992, the system analysis program was expanded and became the Graduate Institute of Management Information Systems, while the managerial economics program was expanded and became the Graduate Institute of International Business. In 1993, the master's program was divided into two groups: Group A is a quantitative group and group B is a general management group. In 1998, the department offered an undergraduate program in management sciences. In 2002 the department was transformed into two divisions: The Department of Management Sciences and Decision Making that offers the undergraduate degree, and the Graduate Institute of Management Sciences that offers MBA, EMBA, and Ph.D. degrees. In 2011, the Department of Management Sciences and Decision Making, and Graduate Institute of Management Sciences were unified to become the Department of Management Sciences that offers undergraduate, MBA, EMBA, and Ph.D. degrees.

Faculty

Professors Emeritus
Wei-Tzen Yang (楊維楨) ; Wen-Tao Huang (黃文濤) ; Liang-Yu Ou-Yang (歐陽良裕) ;
Hai-Ming Chen (陳海鳴)； Horng-Jinh Chang (張紘炬)

Professors
Pei-Chi Lii (李培齊) ; Shu-Hsien Liao (廖述賢) ; Ruey-Chyn Tsaur (曹銳勤) ;
Shui-Lien Chen (陳水蓮) ; Kuo-Ren Lou (婁國仁) ; Yen-Sen Ni (倪衍森) ; Han-Jen Niu (牛涵錚) ;
I-Fei Chen (陳怡妃)

Associate Professors
Hsu-Hua Lee (李旭華)

Assistant Professors
Meng-Ta Chung (鍾孟達) ; Meng-Hsiu Lee (李孟修) ; Tzu-Lan Tseng (曾紫嵐);
Chien-Hsin Wu (吳健鑫) ; Yun-Ching Tsai (蔡云瀞)

Degree Requirements

The Department of Management Sciences and Decision Making offers the undergraduate degree, and the Graduate Institute of Management Sciences offers MBA, EMBA, and Ph.D. degrees.

1. Requirements for a B.A. in Management Sciences and Decision Making:
   Completion of 128 credits of courses, including 82 credits of required courses and 20 credits of elective courses, where at least 26 credits of elective courses must be selected from courses offered by the department.

2. Requirements for a Master's degree in Management Sciences:
   Completion of 39 credits of courses, including 10 credits of required courses. Students are also required to submit a written thesis completed under the supervision of a faculty member and pass an oral examination.

3. Requirements for an EMBA Master's degree in Business Administration:
Completion of 36 credits of courses, including 9 credits of required courses offered by the department. Students are also required to submit a written master's thesis completed under the supervision of a faculty member and pass an oral examination.

4. Requirements for a Ph.D. degree in Management Sciences:
36 credits of coursework are required, including 8 credits of the required courses. Students are also required to submit a written doctoral dissertation completed under the supervision of a faculty member and pass an oral examination. At least two research papers should be published before the doctoral dissertation, including at least one research paper published in any journal listed in SCI, SSCI, A&HCI or E.I., and at least one research paper published in another journal.

Course Descriptions

Undergraduate Courses

A1376 Spoken and Written Chinese Expression (0/3): This course hones students' skills of expression in the Chinese language.

B0033 Essentials of Civil Law (3/0): This course discusses the Civil Law and its development.

B0066 Investment Decision Analysis (3/0): This course introduces investment analyses and strategies.

B0130 Intermediate Microeconomics (3/0): This course covers major microeconomic concepts, theories, tools and their applications. The goal is to provide students with a better understanding of analytical methods used in microeconomics to view the world from a more objective perspective.

B0173 Commercial Law (0/3): This course discusses Business Law and related case studies.

B0260 Organizational Behavior (3/0): This course offers a basic model in organizational behavior.

B0302 Economics (2/2): This course teaches elemental theories and the development of economics.

B0373 Intermediate Macroeconomics (0/3): This course introduces major macroeconomic concepts, theories and their applications. The goal is to provide students with a better understanding of today's economic environment to explain the past and predict the future.

B0416 Personal Finance (3/0): This course focuses on the concept of financial investment and wealth management including the understanding of related investment laws and asset transmission decision from the tax-saving viewpoint.

B1105 Advertising Marketing and Research (3/0): Global Advertising Strategies examines how experienced marketing professionals help companies gain profit across different borders and cultures. Consumer market research is a form of applied sociology that concentrates on understanding the behaviors, predilections, and preferences of consumers in a market-based economy. This course attempts to explore the effects and comparative success of marketing campaigns, and moreover, emphasizes the integration of theory and practice.

E1034 Introduction to Computers (2/2): This course provides a basic knowledge of information and its development.

M0001 Retailing Management (3/0): This course studies important activities from institutional, functional and strategic perspectives, including business activities involved in the sale of goods and services to consumers.

M0003 Human Resources Management (0/3): This course provides theories of human resource management.

M0066 Production and Operations Management (3/0): This course gives an overview of production

and operations management, including its activities, concepts, and analyses.

M0115 Multivariate Analysis (0/2): The following topics are included in this course: principal component analysis, canonical correlation, discriminate analysis and cluster analysis.

M0121 Service Management (0/3): This course provides a framework of service activities that integrate marketing, operations, and human behaviors as central to effective service management. In addition, the combination of texts, short cases, and readings make this course suitable for helping each student to become a good service manager.

M0142 Marketing Management (0/3): This course teaches the application of management in marketing.

M0153 Operations Research (3/0): This course studies basic methods and applications thereof.

M0188 Sampling Methods (0/2): This course analyzes different methods of sampling and their application.

M0271 Financial Management (3/0): This course is an application of financial management.

M0286 Project Management (0/3): The practice and theory used in this course pertains to five processes (initiate, plan, implement, control, and close) and nine knowledge areas (project integration, scope, quality, time, cost, human resource, procurement, communication, and contract management).

M0339 Accounting (I) (2/2): This course provides basic knowledge on accounting.

M0344 Data Processing (2/2): This course helps students operate computers.

M0404 Management Mathematics (0/3): This course is an application of mathematical approaches in management.

M0405 Management (3/0): This course teaches theories and practices of management.

M0477 Quality management (3/0): This course discusses theories of quality control in business.

M0500 Decision and Systems Analysis (0/3): This course offers a general view of managerial decision making with methods and applications.

M0517 Statistics (2/2): This course teaches methods and theories of statistics.

M0719 Bayes Methods in Statistics (3/0): Basic Bayes framework is introduced in this course. Two main topics, Bayes estimations of parameters and Bayes decision rules, are emphasized. Topics related to Monte Carlo Markov Chains (MCMC) methods are also discussed.

M0746 Planning and Management (3/0): This course teaches essential theories and methodologies in carrying out projects and plans.

M0848 Managerial Economics (0/3): This course introduces basic theories related to managerial economics. It is designed to enable students to understand the economic surroundings of business and managerial knowledge related to economics.

M1103 Knowledge Management (3/0): This course focuses on exploring theories and applications of knowledge management.

M1104 Supply Chain Management (3/0): This course focuses on how to manage supply chains, including related concepts, strategies, and models. It covers a comprehensive breadth of supply chain topics, and addresses major challenges in this area.

M1229 Brand Management (2/0): As the value of branding is gradually recognized in the context of competitive markets, a variety of firms increasingly emphasize the significance of brand for their competitive advantages. This course aims to incorporate contemporary developments and well-

established concepts to provide students fundamental frameworks and techniques of brands, brand equity, and strategic brand management to make better managerial decisions on related topics.

M1564 Analysis of Technological Industry (0/3): This course integrates technology management and industrial analysis to explore how technological industry develops in an uncertain environment. Thus, different theories and analysis methods are introduced to students. Case studies are also discussed in class.

M1570 Applied Statistical Software (3/0): Computer software has changed the nature of quantification research and statistical analysis. The software SPSS is designed to carry out large scale quantification research, data processing, and statistical analysis. The introduction of SPSS software applications will help students establish a framework of statistical knowledge and analysis ability.

M1746 Fund Investment Management (0/3): This course introduces the product and investment process of current mutual funds available on the domestic and foreign markets. The evaluation methods of various mutual funds will also be discussed.

M1776 Advanced Business Software (3/0): Since quantitative models have lent themselves to computerized solutions, some popular, accessible software packages, such as MS Excel and SPSS, begin to be extensively utilized in statistics, management science and data mining settings. This course aims to introduce these software packages to address the managerial decision-making problems, with benefits of information technology instead of tedious manual calculation.

M1861 Market Survey and Research (0/3): This course offers a solid coverage of the most important parts of the theory and applications of marketing surveys. The major contents of this course include industrial analysis, statistical program application, data collection, the process of marketing surveys, and commercial briefing. Students will be divided into groups to finish a marketing survey report in which they will require to use statistical methods. In addition, each student is required to submit a report based on lecture content.

M1862 Security Analysis and Practice (0/3): This course introduces many financial instruments and analyzes expected return and risk for these financial commodities. In addition, this course will explain and analyze how these financial instruments work in the real world.

S0191 Regression Analysis (3/0): This course discusses the application of mathematical theories to statistical regression.

S0325 Calculus (2/2): This course covers basic concepts of limits, differentiation and integration and integration of functions of one variable, infinite series, functions of several variables, partial derivatives, and multiple integrals.

Master's Program

B0260 Organizational Behavior (0/3): This course discusses characteristics of organizations and their related subjects.

M0066 Production and Operations Management (3/0): This course addresses the problem of integrating across a wide span of activities including production functions, warehousing functions, transportation, and marketing interface. Moreover, some popular and interesting issues will be discussed, such as productivity measurement and competitive strategies, forecasting, product and service designs, capacity planning and process alternatives, location selection and facility layout, job design, inventory management, aggregate planning and master production schedule (MPS), MRP and ERP concepts, and scheduling methods.

M0142 Marketing Management (0/3): This course requires students to be familiar with activities for implementing, monitoring, and controlling marketing strategic programs. Discussions also include ethical issues in the development and implementation of strategic marketing programs.

M0154 Operations Research (I) (3/0): This course provides a scientific approach to the analysis and solution of managerial problems. Essentially, this approach involves linear programming, mathematical

programming and probabilistic models.

M0155 Operations Research (II) (0/3): This course offers a scientific approach to the analysis and solution of managerial problems. Essentially, this approach involves linear programming, mathematical programming and probabilistic models.

M0188 Sampling Methods (0/3): This course analyzes different methods of sampling and their applications.

M0271 Financial Management (3/0): This course introduces the financial environment, value and risk, capital budgeting, capital structure, and working capital management.

M0348 Information Management (0/3): The course offers a contemporary overview of information technology and its applications. Some spreadsheet-based and web-based examples are investigated.

M0391 Management Theory (3/0): This course emphasizes classical human relations, human resources, and behavioral and quantitative management methods. Content includes planning, organizing, leading and controlling, the employment cycle, and organization design and motivation.

M0719 Bayes Methods in Statistics (3/0): The Basic Bayes framework is introduced in this course. Two main topics such as Bayes estimations of parameters and Bayes decision rules are studied. Topics related to Monte Carlo Markov Chains （MCMC） methods are also discussed.

M0801 Human Resource Management (0/3): This course emphasizes basic human resource functions of both personnel specialists and operating managers. Critical issues include selection, training, compensation, performance appraisal and discipline.

M1103 Knowledge Management (0/3): This course focuses on exploring theories and applications of knowledge management.

M11788 Financial Econometrics (3/0): Products based on financial derivatives have become an indispensable tool for risk managers and investors in recent years. Insurance products have become part of almost every personal and business portfolio. An increasing range of securities allows risks to be hedged in a way that can be closely tailored to the specific needs of investors and companies. The ability to handle efficiently and exploit successfully the opportunities arising from modern quantitative methods is now a key factor that differentiates market participants in both the finance and insurance fields. This course aims to introduce quantitative finance. More precisely, it presents an introduction to the mathematical framework typically used in financial modeling, derivative pricing, portfolio selection and risk management to increase corporation value.

M1205 Mathematical Methods for Management (3/0): This is an advanced course in finite mathematics, such as g-inverse, (semi) positive definite, etc., matrix differential equations, and other topics.

M1469 Investment and Financial Analysis (3/0): This course introduces investment theory and investment practice, and emphasizes the risks of financial commodities purchased by financial institutions and individual investors.

M1608 Industrial Statistics and Quality Control (I) (3/0): The first part of this course involves subjects about the use of modern statistical methods for quality control and improvement. The course covers statistical process control tools, process control charts, process capability analysis, acceptance sampling and experimental design for quality improvement.

M1609 Industrial Statistics and Quality Control (II) (0/3): The second part of this course emphasizes reliability engineering. Reliability engineering deals with the study of reliability: the ability of a system or component to perform its required functions under stated conditions for a specified period of time. This course is designed to provide students with the tools needed to better understand the factors that cause components and systems to fail. These tools include probabilistic methods to assess time to failure distributions, laboratory tools to conduct and identify failures causes, reliability prediction, Weibull analysis, reliability testing, accelerated life testing, and computer models to identify system failure modes.

M1732 Business Forecasting and Applied Econometrics (0/3): This course introduces forecasting tools and applied methodologies for financial and economic research.

M1769 Capital Budgeting and Valuation (0/3): A corporation's secret to success is to increase value through its operations. However, corporations should be concerned with the problem of how financial resources available to a firm should be allocated to the many possible investment projects if they are to survive and prosper. The purpose of this course is to evaluate the investment projects in the language of the business manager on three building blocks of decision criteria, namely, preferring more expected return to less risk, or less risk to more risk, or an amount of cash earlier to same amount of cash later. Additionally, there are different valuation methods to be introduced inclusive of the concept of modern exotic derivatives such as real options for maximizing the corporation value.

M1848 Green Supply Chain Management (0/3): Green supply chain management (GSCM) has been emerging as an important issue in the last few years. The purpose of this course is to describe the common framework of the GSCM and its impact on industries. Course topics also include those factors that influence the company to adopt the GSCM, i.e. codes from EU, and methodologies for GSCM implementation within the company. This course also demonstrates some examples of GSCM application in Taiwan's electronic industry.

S0775 Mathematics Writing (1/0): This is an introductory English mathematics writing course, which aims to expand students' paragraph-writing skills to essay-writing. Class activities include lectures, writing exercises, small-group and whole-class discussions, as well as individual and group presentations.

M1947 Seminar in Management Sciences and Decision Making (1/1): This course invites practitioners to share practical experiences with students.

M1948 Engineering Economic Analysis (3/0): This course helps engineers in performing analysis, synthesizing, and concluding or deciding as they work on projects of all sizes. These decisions involve the fundamental elements of cash flow of money, time, and interest rates. Many tools for evaluating alternatives and making decisions on real-world projects are introduced.

S0466 Applied Regression Analysis (0/3): This course analyzes applied regression and its application.

T0081 Research Methodology (0/3): Practice and theory in this course will be related to research enquiries and practice, research theory, research variables, research structure, research analysis, research results and discussions.

T0086 Technology Management (3/0): This course discusses the process of technological innovation, technological innovations and strategic planning, technology transfer, research and development management, technological entrepreneurship and new ventures, technological change and organizational structure, managing information technology, economic analysis and methodologies in the management of technology.

M0477 Quality Management (3/0): This course enables students to learn approaches of quality management research by studying critical content of quality management.

M1512 Service Management (3/0): Students will obtain a comprehensive picture of service management and how to improve service quality.

M0747 Strategic Management (0/3): This course introduces the basic concept of strategy formulation in the competitive environment around the world. All discussions will be accompanied by case studies.

B1186 Theory Seminar of Business Management (3/0): This course focuses on enterprise management practices. Students will gain experience and expertise in the field of industry management, which will help them in planning for their future careers.

T8000 Thesis (0): This is a required for students who are in the process of writing a thesis.

Master's Program in Business and Management (English Taught Program)

M0144 Seminar in Marketing Management (3/0): An understanding of how value is created through the integrated production and distribution of goods, services, and information, and an ability to analysis (compare and contrast, show causality, examine assumptions of) factors both internal and external of an organization. Students would be able to comprehend the concept of customer-oriented marketing strategies; the significance of buyers and markets; the selection of target markets; the art and science of product, place, price and promotional decision. Overall, students are expected to be able to write up a Strategic Marketing Plan.

M0800 Business Ethics (1/0): The current course introduces the ethical relationships between the business and the society, and help students understand the multi-ethical obligations of businesses toward stakeholders, inclusive of employees, stockholders, competitors, community, and environment.

T8000 Thesis (0): This course is required for students who are in the process of writing a thesis. (Chinese or English)

Selective Subjects:

M0747 Strategic Management (3/0): This course introduces the basic concept of strategy formulation in the competitive environment around the world. All discussions will be accompanied by case studies.

M1512 Service Management (3/0): Students will obtain a comprehensive picture of service management and how to improve service quality.

M0477 Quality Management (3/0): This course will cover the theory and practice of Quality Management including the concept, perception, system, and tools of Quality Management.

M0003 Human Resource Management (3/0): This course emphasizes basic human resource functions of both personnel specialists and operating managers. Critical issues include selection, training, compensation, and performance appraisal and discipline.

M0853 Electronic Commerce (3/0): This course introduces the concept of electronic commerce, including business model, strategy, marketing, branding, CRM, and mobile commerce issues. The practice cases also need to read by students to deeply understand the effects of e-commerce on business consumers.

EMBA Master's Program

M0003 Human Resource Management (3/0): This course emphasizes basic human resource functions of both personnel specialists and operating managers. Critical issues include selection, training, compensation, and performance appraisal and discipline.

M0066 Production and Operations Management (0/3): This course gives an overview of production and operations management, including its activities, concepts, and analyses.

M0142 Marketing Management (3/0): This course introduces the application of management in marketing.

M0271 Financial Management (0/3): This course includes an introduction to the financial environment, value and risk, capital budgeting, capital structure, and working capital management.

M0747 Strategic Management (0/3): This course offers a discussion on organizations' long-term strategic directions.

M1103 Knowledge Management (0/3): This course focuses on exploring theories and applications of knowledge management.

M1743 Total Quality Control and Management (0/3): This course introduces students to the history of quality management; company-wide quality control; plan, do, check, and action; quality control; quality assurance; quality management with integrative approach; the International Standard

Organization (ISO); and statistical quality control.

M1836 Managerial Methods (3/0): (A) Commercial mathematics: Money in time value, management, Value analysis, Annual value analysis, Factors: How Time and Interest Affect Money, Nominal and Effective Interest Rates, Present Worth Analysis, Annual Worth Analysis. (B) Statistics: Statistical data collection and measurement, Statistical data analysis and interpretation, Probability theory, Probability distribution, Sampling and Sampling distribution, Estimation, Testing Hypothesis, Statistical Inference for two populations, Simple regression models.

M1848 Green Supply Chain Management (3/0): Green supply chain management (GSCM) has been emerging as an important issue in the last few years. The purpose of this course is to describe the common framework of GSCM and its impact on industries. Course topics also include those factors that influence the company to adopt the GSCM, i.e. codes from EU, and methodology for GSCM implementation within the company. This course also demonstrates some examples of GSCM application in Taiwan's electronic industry.

M1939 Private Pension Fund Management (3/0): The following issues will be introduced and discussed in this course: (1) Taiwan's pension fund systems, including public and private systems; (2) basic concepts of pension fund systems and management, including DB, DC, and hybrid pension systems; (3) comparison among major international pension systems, including that of the United States, Singapore and Hong Kong; and (4) the pension fund management philosophy, including in-house management and mandate.

M1940 Product Innovative Design and Development Management (0/3): Topics include introducing innovative design processes and how to implement product innovation tools in design and development management. TRIZ methodology is highlighted and discussed. Software based on TRIZ concept is given to students as a tool to complete a team project at the end of the course. Some real-life cases are also discussed in the course.

T0081 Research Methodology (3/0): This course aims to instruct and present theories and practices of research methodology.

T0086 Technology Management (3/0): This course discusses the process of technological innovation, technological innovations and strategic planning, technology transfer, research and development management, technological entrepreneurship and new ventures, technological change and organizational structure, the management of information technology, economic analysis and methodologies in the management of technology.

T8000 Thesis (0): This course is required for students who are in the process of writing a thesis.

Ph.D. Program

M0115 Multivariate Analysis (0/3): The following topics are included in this course: principal component analysis, canonical correlation, discriminate analysis and cluster analysis.

M1210 Special Topics on Statistical Applications (0/3): This course discusses methods and theories of applied statistics and introduces some statistical papers to students.

M1211 Seminar on Applied Management Science (3/0): This course discusses research subjects on modelling and theory and application of management sciences.

M1212 Special Topics on Competitive Advantage of Human Resources (0/3): This course analyzes the role of employees in management from a strategic view and resource-based view and explores how to create a competitive advantage to achieve the goals of an organization through HR planning and policy development. The course outline is as follows: 1) Understand the context of organizations and analyze the opportunities and threats from their external environment; 2) Evaluate the strength and weakness of organizations and develop competitive human resource strategies at the corporate, business and functional levels; 3) Analyze the organization's human capital, which contributes to the distinctiveness of an organization; 4) Develop and train the human capital of competitive advantage. 5) Compensation strategy and human competitive advantage; 6) The integrated framework of human competitive advantage; and 7)

The practice of HR strategies to create competitive advantages.

M1611 Special Topics on Management (3/0): The purpose of this course is simply to equip students with the capability of conducting academic research in the management field. For the achievement of this purpose, students are requested to read academic articles in the subject of management. The articles will be assigned throughout the semester. All students will be expected to read the articles to participate in the discussion. By the end of this course, students ought to complete a research proposal.

M1725 Seminar on Knowledge Management (0/3): This course provides an aim and scope of problem domain, theories, and methodologies on knowledge management research area. By doing so, students can learn knowledge related to management subjects by integrating different aspects of practical events and theoretical models/architectures in terms of research.

M1782 Topics in Multi-Criteria Decision Analysis (0/3): This course provides an overall picture of multi-criteria decision making with theories, methods, and applications. Topics are broad, including multi-attribute decision making, multi-objective decision making, and group decision making. Some connections among the above three areas are also involved to develop a decision support system.

M1838 Topics on Stochastic Models (3/0): This course explores problems of several stochastic models, such as bath-tub hazard model, unsupervised masked system and some generalized censoring schemes. We posit several problems and try to solve them through discussions with students.

M1842 Six Sigma Management (3/0): The practice and theory of Six Sigma Management will be related to the DMAIC approach (Define, Measure, Analyze, Improve, and Control) and relevant quality management.

M1941 Seminar (I) (2/0): This course offers discussions of individual topics.

M1942 Seminar (II) (0/2): This course offers discussions of individual topics.

M1943 Numerical Methods and Simulations in Finance (0/3): This course introduces numerical methods and simulations in finance, including least squares, nonlinear equations, optimization, interpolation, numerical integration and differentiation, ordinary differentiation, partial differentiation, fast Fourier transform, random numbers and simulations.

M1944 Fuzzy Sets and Their Applications (3/0): Fuzzy Set Theory and its applications describe fuzzy set theory as a very powerful model that can cope with many uncertainties in real-life situations. Because of its generality, it can be well adapted to different circumstances and contexts. This course presents an up-to-date, comprehensive and readable treatise on fuzzy set theory and its applications. It is intended for students who major in engineering and computer science. The course is divided into two parts: fuzzy mathematics and applications of fuzzy set theory. The first part covers basic definitions for fuzzy sets, the extension principle, fuzzy measures, fuzzy relations, fuzzy graphs, fuzzy analysis and possibility theory. The second part describes fuzzy control, data analysis and a large area of applications in management and engineering.

M1945 Workshop in Investment Research (3/0): This course will cover paper reading, paper discussion, possible research topics, and relevant methodologies in investment research.

M1946 Topics on Product Design and Development Management (0/3): This course covers topics on product design / development, project management, product development, and innovative design processes. Course content includes (1) Product Planning, (2) Identifying Customer Needs, (3) Product Specifications, (4) Concept Generation, (5) Product Architecture, (6) Industrial Design, (7) Design for Manufacturing, (8) Prototyping, (9) Managing Projects, and (10) TRIZ methodology.

M0190 Special Topics on Sampling Theory (3/0): Using various precise sampling designs in combination with appropriate statistical analyses, students are to write papers in marketing research, consumer behavior research, and organizational behavior research. This course emphasizes thesis design and development. Students are required to have a thesis topic, a research proposal and a thesis draft prior to class. This course involves active work toward completion of a final thesis draft that is publishable, which will also be the final paper for the course.

M1974 Seminar on Advanced Decision Models (3/0): Decision making is essential in business and engineering. In this class, different kinds of decision-making models will be discussed, including fuzzy decision-making methods, grey decision models, TOPSIS, AHP, DEA, factor analysis, clustering methods and their applications. This course can help students possess an ability in multi-decision making.

M1975 Workshop in Behavior Finance (3/0): This course introduces topics on behavior finance through reading relevant academic papers and relevant books and articles. In addition, related research methodologies are introduced to link behavioral finance with empirical finance.

B0124 Econometrics (3/0): This course focuses on how to specify the quantitative model and how to estimate and test the parameters of sample data. Furthermore, this model is used to predict and analyze economic data.

S0467 Applied Statistics (3/0): Course content includes basic probability concepts, statistical sampling, statistical inferences, nonparametric procedures, goodness of fit, and linear statistical models.

T0102 Seminar (2/2): This course offers a discussion of individual topics.

T8000 Thesis (0): This is a required course for students who are in the process of writing a dissertation.

TKU-QUT DUAL MASTER DEGREE PROGRAM IN FINANCE (ENGLISH TAUGHT PROGRAM)

Degrees Offered: M.A. in Finance from TKU and M.B. in Applied Finance from QUT

Chairman: Chao-Liang Chen (陳炤良)

The Program

1. About this Program
This dual Master degree program (English-taught) is collaboratively designed and taught by College of Business and Management, TKU, and the School of Economics and Finance, QUT Business School. The program offers qualified students an M.A. in Finance from TKU and an M.B. in Applied Finance from QUT simultaneously in two years.

2. Business Programs at QUT
- QUT Business School is the first Australian business school to earn triple international accreditation (EQUIS、AACSB、AMBA).
- THE World University Rankings 2024 Top 200. THE Young University Rankings 2024 Top 20.
- Graduates are working in some of the best global companies worldwide including Google, BMW, Apple, Sony, Yum and Gucci.

Faculty

Faculty members consist of outstanding and experienced teachers from both College of Business and Management, TKU, and the School of Economics and Finance, QUT Business School to provide the best quality of teaching.

Master's Program
(First Year Studying in TKU)

B0130 Intermediate Microeconomics (2/0): This unit is designed to develop students' economic way of thinking. The concepts and frameworks developed in the unit will form the basis for understanding the behavior of consumers, firms and governments, critically assess the performance of markets and evaluate the impact of government policies on efficiency, distribution and welfare of the economy.

B0759 Financial Institutions Management (2/0): This course is designed to provide an understanding of financial markets and financial institutions that operate within the financial markets. Students successfully completing this course should have the necessary tools and understanding of the financial markets' operations and the functions of financial institutions in the economy.

B1078 Derivatives (2/0): Derivatives markets have become increasingly important in the world of finance and investments. It is now essential for all finance professionals to understand how these markets work, how they can be used, and what determines prices in them. This course addresses these issues.

B1687 Fixed Income Securities and Financial Innovation (2/0): This course discusses the analytical framework necessary to understand bond pricing and financial derivative pricing. This course will enable students to value bonds and quantify the exposure to interest rate risk and design strategies to minimize risk through derivatives.

M0272 Seminar in Financial Management (3/0): This interactive seminar will show how finance works for corporations in today's fast-moving business environment. The key topics are capital budgeting, cash, and dividend policy.

B0262 Monetary Theory & Policy (0/2): Monetary economics investigates the relationship between real economic variables at the aggregate level (such as real output, real rates of interest, employment,

and real exchange rates) and nominal variables (such as the inflation rate, nominal interest rates, nominal exchange rates, and the supply of money). Defined, monetary economics has considerable overlap with macroeconomics more generally, and these two fields have to a large degree shared a common history over most of the past 50 years.

B0373 Intermediate Macroeconomics (0/2): This is a graduate level macroeconomic course that considers the basic elements of income determination, consumption, investment, trade, unemployment, inflation, and growth.

B0697 Corporate Financial Policy (0/2): This is an advanced elective that provides an overview of corporate financing. It emphasizes the different types of securities issued by the firm, venture capital, choice of capital structure, cost of financial distress, dividend policy, share repurchases, short-term and long-term financial planning, corporate control, and mergers and acquisitions.

B0154 Financial Statements Analysis (0/2): Analysis of financial statements is exciting and dynamic. It reveals key to effective analysis to students a competitive advantage in market place. It is also relevant to the decision of investors, creditors and many other users. This course will equip students with analytical skills necessary to succeed in business.

B1039 Corporate Governance (0/2): This course is aimed to introduce you an overview of corporate governance, which is including internal corporate governance and external corporate governance. Students who take this course will present an academic paper and teaching materials in class. All of these trainings will help students writing master thesis. Students' final grades will rely on their performance (participation and presentation) in class.

T0081 Research Methodology (0/3): This course studies the nature, scope, and significance of business research and research methodologies. Additionally, the course studies primary research methods with applications to specific problems, using qualitative and quantitative methods for individual investigation and reporting on current problems within a student's area of interest.

The Office for AACSB Accreditation

Executive Director: Ku-Jun Lin (林谷峻)

Brief History

The office was established under the supervision of the Dean of School of Business and the Dean of School of Management.

Through the accreditation process, our strategic management standards are carefully discussed and designed. After aggregating the resources of the university, then we make sure those resources are sufficient and will be allocated to the university stakeholders in an effective and efficient way. Finally, we promise to provide quality education to our students and will verify the results of student learning, and take the results as bases for continuous improvement.

Currently we are in the pre-accreditation process and hope we will touch down in the near future.

Motto and Goals

The ultimate goal of this office is to promote both schools with international accreditations, such as AACSB (The Association to Advance Collegiate School of Business).

Future Development

The accreditation standards can be classified as:

1. Strategic Management and Innovation
2. Learning Success
3. Thought Leadership, Engagement, and Social Impact

The three aspects are including 9 criteria of accreditation, each criterion relates to purposes and goals of the school. The accredited schools will need to maintain the accreditation criteria and submit an annual report. Every five years those schools should take the review again with revised documents. During the accreditation process, it is critical to set up the vision of the school and explain the rational between resources and vision.

In the future, we plan to develop and align the accreditation plan and provide high quality education to our students through the accreditation process.

The Office of Executive Master of Business Administration (EMBA) Programs

Chief Executive Director: Chia-Chi Sun (孫嘉祈)

Brief History:

In July 2019, according to the "Global View Monthly" magazine, Tamkang University is the top three "Liberal art and Business University" in Taiwan. The Tamkang University EMBA was established in 2007, as part of the College of Business and Management. The Office is located at TKU's Taipei Campus, which is situated close to one of Taipei's major commercial districts and there are only five minutes of walk from MRT DongMen station.

Programs:

Tamkang University EMBA contains various disciplines for students to choose from. They are: International Marketing, International Business, Banking and Finance, Risk Management and Insurance, Business Administration, Accounting, Information Management, and Management Sciences.

Goals:

The objective of Tamkang University EMBA is to provide students with lifelong practical business and management skills.

Merits

The Tamkang University EMBA program:

1. More than 364 graduates every year.
2. Over 3,100 alumni all over the world.
3. More than 200 faculty members are ready to serve students.
4. Provides cross-discipline training. Besides three core courses, students can select elective courses from the above eight disciplines. They can adopt various management skills that are learned from different EMBA disciplines and achieve proficiency in several business-related fields.
5. Allows students to take part in a diverse range of activities, such as speeches by managers of famous enterprises, academic seminars, softball tournaments, basketball tournaments, golf and a year-end celebration party. These activities enhance interaction among students, faculty and enterprises.
6. Facilitates summer courses in foreign countries and short-term visit with sister universities, such as Zhejiang University and Xiamen University, which helps to enlarge students' overseas network.
7. Gives graduates an edge in the market. TKU graduates have been voted "enterprises favorite graduates" for 22 consecutive years in an annual survey conducted by Cheers Magazine

CROSS-STRAIT FINANCIAL RESEARCH CENTER

Director: Yun-Yung Lin（林允永）

The Cross-Strait Financial Research Center was established in 2012 to enhance research in Cross-Strait finance. The center is affiliated with the College of Business & Management and operates on a self-funded basis.

Functions of the center include:
1. Promoting research related to Cross-Strait financial issues;
2. Conducting research projects commissioned by external organizations;
3. Other related affairs.

(Contacts): email: yunlin@mail.tku.edu.tw；
(Official website): http://cross-strait.tku.edu.tw/home.html

CENTER FOR INFORMATION TECHNOLOGY USAGE BEHAVIOR RESEARCH

Director: Sheng-Pao Shih (施盛寶)

Information systems are social technology application systems that integrate human beings and computer equipment. With the rapid development of information and network communication technology, most people are equipped with mobile devices that provide ubiquitous information applications. This trend has a significant impact on the social, organizational, managerial, and behavioral aspects of information technology usage. This Center aims to provide a platform for enhancing the public's understanding of information technology usage and behavior, and for overcoming the usage barriers inherent in information technology applications.

CIRCULAR ECONOMY AND GREEN FINANCE RESEARCH CENTER

Director: Yen-Ling Lin（林彥伶）

Blockchain is widely used in many aspects, not only for economic transactions and financial transactions, but for government services, customer management, information security, and supply chain management. Blockchain has advantages in economic and political applications. With the advancement of technology, the characteristics of blockchain cooperation, record keeping and irrevocability of transactions are likely to be the cornerstones of the development of global society. The potential advantages of blockchain are not limited to the economic level. Its application can be extended to the fields of politics, public welfare, society and science. At present, the application of blockchain has gradually been used by some professional groups to solve real-world problems.

In industry, in addition to active investment in technology research and development, commercial applications, and financial markets in the cryptocurrency market, blockchain technology has also been widely extended to energy, medical, information and communication, policy development, and education are expected to generate quite a lot of innovative applications. This center will study the development and application of blockchain in a more pragmatic way, and clarify its economic development applications, potential and limitations of blockchain.

THE STRATEGIC VALUE MANAGEMENT AND ESG SUSTAINABILITY DEVELOPMENT RESEARCH CENTER

Director: Fan-Hua Kung (孔繁華)

The Strategic Value Management and ESG Sustainability Development Research Center at Tamkang University is dedicated to advancing research in strategic value management and ESG sustainable development. It integrates an international perspective to promote academic research and practical innovations in management accounting and introduces the application method of Activity Value Management (AVM). Through industry-academic cooperation, the center enriches education, enhances research capabilities, and promotes business upgrading. The responsibilities of the center are as follows:

1. Promote academic research and industry-academic applications related to AVM, management accounting, and ESG sustainable development.
2. Integrate academic and industrial resources related to AVM to serve as a regional hub for AVM education and promotion, implement practical applications, and showcase the results of industry-academic applied research.
3. Collaborate with the Institute of Management Accountants (IMA) by leveraging its expertise, research, and educational resources, and work with the IMA Taipei Chapter to focus on management accounting expertise, fostering multifaceted international talents, and enhancing international visibility and perspectives.
4. Engage in industry-academic cooperation, undertake R&D commissioned by enterprises, establish partnerships with educational institutions, and provide application services, fostering relevant personnel or organizations as a platform for research and professional exchange.
5. Provide services such as commissioned research from external institutions, academic conferences, consultations, training, and certification guidance courses.

RESEARCH CENTER FOR ECONOMIC ETHICS

Director: Chia-Chi Sun （孫嘉祈）

The "Research Center for Economic Ethics" was established with the support of Mr. Chen Ding-chuan, an outstanding alumnus of the Department of International Business at Tamkang University. Mr. Chen graduated from the Department of International Trade (now the Department of International Business) in 1969 and currently works in Everlight Chemical Industrial Co. Honorary Chairman of the Company, he was recognized as an outstanding Alumni by the "Golden Eagle Award" in 2010. Since August 1, 2010, Mr. Chen has entrusted Department of International Business to plan the "Economic Ethics Forum", organized a research team, brainstormed, and worked together to promote of economic ethics. In recent years, the Economic Ethics Forum has become an important academic activity in Taiwan. To further strengthen this forum function, Tamkang university establishes the " Research Center for Economic Ethics " on December 1, 2022. We believed that through this center, it will not only enhance the academic research energy but also more closely integrate the alumni philosophy with the work lead the Tamkang University is moving towards excellence.

AGING SOCIETY WELFARE AND INSURANCE RESEARCH CENTER

Director: Jyun-Ji Tien (田峻吉)

As the challenges posed by an aging society continue to grow, the need to enhance the overall health and well-being of the population becomes paramount. To address these pressing issues and promote comprehensive solutions, the Aging Society Welfare and Insurance Research Center has been established.

The Aging Society Welfare and Insurance Research Center is dedicated to being at the forefront of research and innovation in tackling the complexities of an aging society. By collaborating with experts

from academia, industry, and various disciplines, the aims of this center are to develop practical solutions that foster the well-being and prosperity of our aging population. Through its endeavors, the center envisions contributing to a more sustainable, inclusive, and resilient society for generations to come.

Center for Green Technology and Smart City

Director: Yong-Sheng Chang (張雍昇)

The Center for Green Technology and Smart City (CGTSC) partners with Taipei Foundation of Finance to provide educational seminars on sustainability. In addition to providing professional sustainable management courses, this center places special emphasis on the lecturing of certificate examination subjects, emphasizes the cultivation of management capabilities in specific industries (such as high-tech industries, manufacturing enterprises, and service industries) and the promotion of internship activities, and continues to strengthen the connections with industries and institutions.

Our mission is to prepare individuals and organizations with the knowledge, skills, and tools needed to embed social and environmental sustainability into business strategy. This center incorporates sustainability-focused curriculum into the existing undergraduate, graduate, and executive degree programs; moreover, we provide career development and networking opportunities for students as they navigate career paths related to sustainable business. We are proud to work with a diverse group of companies or institutions who are committed to investing in research and education on best practices and innovation in the field of sustainable business strategy.

STATISTICAL CONSULTING CENTER

Director: Wen Ynag (楊文)

The Statistical Consulting Center is positioned to provide a comprehensive range of services, including "primary consultation, secondary training and courses, and tertiary project services." The center aims to promote interdisciplinary collaboration and cooperation, bringing together statistical expertise and practical needs to offer analytical insights for business decision-making. The center is primarily composed of faculty and students from Tamkang University's Department of Statistics. Task-oriented teams are established based on specific requirements, and external experts are also recruited as consultants. Through the guidance of professors and expert scholars, interested students actively participate in industry-academic collaborations. This involvement enhances students' practical analytical skills and cultivates talent in statistical analysis that is in demand by businesses. By offering all-encompassing services, the center not only expands its research team but also elevates the future career competitiveness of its students. Additionally, by forming strategic alliances with businesses, it can increase the visibility and reputation of Tamkang University's Department of Statistics and broaden its influence in the industry-academic realm.

COLLABORATIVE GOVERNANCE RESEARCH CENTER

Director: Chian-Wen Wang (王千文)

With increased government expenditure, rising public demand, and awakening civic consciousness, traditional governance models no longer suffice. "Collaborative governance" emphasizing public-private partnership has gained significant attention, urging governments, the private sector, and citizens to establish closer partnerships. Digital technologies enhance the effective connection among these entities, placing them at the core of decision-making and public service delivery. Furthermore, given the swift evolution in the global landscape and the proliferation of information technology, organizations are now

inundated with an overwhelming volume of data, encompassing quantitative metrics and textual content. Unlike the traditional logic norms of statistical surveys verifying causality, this new norm emphasizes large-scale, diverse, and real-time information that extracts underlying phenomena from behavioral data. In recent years, the government has been actively constructing the "Government Data Open Platform" (DATA.GOV.TW), hoping to harness the analytical power of the private sector through public data from both central and local governments, aiming for synergies in data analysis. The operation of future governments should be based on evidence from data science to shape effective administration and precise policy analysis.

This research center was established with this premise in mind, aiming to use data science as a foundation and collaborative governance as an application, prompting a qualitative change in the role of citizens and enabling participation in and governance of the government through data science. The center's primary purpose is to realize the two core values of "deep learning and data citizenship." By applying techniques from "data science," including traditional statistical surveys and artificial intelligence (deep learning and big data), we hope to implement the idea of people's sovereignty and help citizens improve their data processing skills and training, enhancing their involvement in policy-making and overall governmental governance. The term "deep learning" used by the center not only refers to data processing techniques in data science but also has another implication. It emphasizes another critical point of our center: Students' learning should not be confined within the campus, and even after graduation, they should maintain a sustainable learning attitude and effective learning methods to adapt to the rapidly changing environment. Therefore, the center will also play a role in promoting blended learning for continuing student education. Given the background network of the faculty composition of the center, we aim to advance accredited courses for the public sector.

GLOBAL BUSINESS MANAGEMENT AND DECISION MAKING RESEARCH CENTER

Director: I-Fei Chen(陳怡妃)

The purpose of the center is to promote international academic exchanges and scientific methods to cultivate management and academic research talents. With excellent data analysis and reasoning, execution and management capabilities. The focus of the center's business development is to integrate quantitative methods and various professional management fields, and to handle international seminars and international journals. In order to integrate information technology and management decision-making theory, the center is responsible for cultivating high-quality management talents, further promoting international academic exchanges, and improving domestic management science academic and practical standards. In response to the country's future development direction of "AI", "SDGs sustainability", and "internationalization", the center's development focuses on (1) management science (2) marketing management (3) production and operation management (4) technology management (5) Service management (6) Human resource management, encouraging students to have both the academic accomplishment of technology and management.

In addition to organizing seminars and publishing periodicals, the center participates in academic research on management science, and also proposes ideas in local management topics or academic fields. In addition to conducting academic research activities, the center also hopes to further serve the society. On the one hand, it will contribute academic research results and talents to the society. Not out of touch with society. Therefore, at an appropriate time, the Center will try to provide knowledge-based consulting services to all levels of society and institutions through short-term lectures, consulting, or commissioned research.

COLLEGE OF FOREIGN LANGUAGES AND LITERATURES

COLLEGE OF FOREIGN LANGUAGES AND LITERATURES

Dean: Yi-Ti Lin（林怡弟）

Brief History

The College of Foreign Languages and Literatures had a long history of development before being formally established as a college in 1992. It began as an English program—the only program offered by Tamkang University at its inception in 1950. The English program became the Department of Western Languages and Literatures in 1958 and expanded over seventeen years to eventually comprise four sections: English, Spanish, French, and German. The "sections" were later upgraded to departments in 1975. In 1985, the Department of Oriental Languages was renamed the Japanese Department, and in 1992 became the college's fifth department. A year later, the Russian Department was established. The college has since retained its current structure of six departments.

Motto and Goals

The motto of the college is "innovative thinking in an age of digital learning." It encapsulates the spirit of the college; that of creating and innovating in order to prosper in a rapidly changing era of information technology.

In keeping with the TKU Triple Objectives of Education—globalization, information-oriented education, and future-oriented education—the college provides students with a dynamic, multi-cultural environment conducive to the learning of foreign languages and literatures. Such an environment is created through the holding of numerous academic and multicultural activities, the presence of international faculty and students within the college, various lectures by visiting scholars from abroad, regular international conferences, and an increasing degree of digitalization incorporated into our curriculum and teaching methods.

- The college offers Junior Year Abroad programs, which enable students to study and experience life at partner universities in the U.S., Canada, Spain, France, Germany, Japan, and Russia and gain further proficiency in their language of choice.
- The college also works with the College of International Affairs to offer interdisciplinary courses focusing on area studies, diplomacy, international relations, and economics.

The ultimate objective of the college is to prepare our students both professionally and personally for challenges that come with an increasingly globalized and digitalized age. We envision a bright future for our students and help them to create such futures with knowledge and skills acquired in our programs.

Future Development

A three-fold scenario for our future development is as follows:

1. Curriculum Reform
   This involves enhanced cooperation with other TKU colleges to establish interdisciplinary programs instructed in Chinese as well as in English. A Bilingual-International Business Program, cooperation with the College of Business and Management, is established in the 2019-2020 academic year, which offers 23 credits point in the field of foreign languages and international business. The goal is to train our students to have the ability to use two foreign languages and to possess the basic knowledge of international business. A Foreign Language and Aviation Program, cooperation with the Department of Aerospace Engineering, also established in the 2020-2021 academic year.

2. Enhancement Our Research Capabilities
   The College has long enjoyed a fine reputation for effective foreign language instruction. It is one of the few foreign language colleges in Taiwan to offer such a comprehensive range of foreign language programs. Currently, the College has three graduate programs: English, French, and Japanese (the English Department offers a dual-focus program in English and TESOL). The college publishes three scholarly journals: The *Tamkang Review* (since 1970), *Tamkang Studies of Foreign Languages and*

Literatures (since 1998), and *Tamkang Japanese Journal* (since 1991).

3. Further Expansion of our Junior Year Abroad Program
   The college's Junior Year Abroad Program was launched in 1993, with initial efforts focused on sending students to study for one semester at Reitaku University, Japan. In the following years, Spanish, German, French, English, and finally Russian majors began to attend TKU partner universities for a year of student exchange. The total number of students to participate in the program since 1994 from the college alone has already exceeded 2,800. Our partner universities include Brandon University (Canada), Indiana University of Pennsylvania (U.S.A.), Winona State University (U.S.A.), Universidad de Navarra (Spain), Université de Franche-Comté (France), Université Nice-Sophia Antipolis (France), Université Jean Moulin Lyon 3 (France), University of Bonn (Germany), University of Cologne (Germany), University of Saarland (Germany), Reitaku University (Japan), Josai University (Japan), Josai International University (Japan), Tachibana Women's University (Japan), and Saint-Petersburg State University (Russia), Moscow City University (Russia), Lomonosov Moscow State University (Russia), Far Eastern Federal University (Russia).

Common Elective Courses

To encourage students to take subjects outside of their majors, we offer elective courses to non-foreign-language majors. The following is a sampling of course titles:

Simultaneous Interpretation （English-Chinese）
World Literature in Chinese Translation
Sociolinguistics
Contemporary French Culture and Society
Introduction to Japanese Politics and Economy
Intercultural Issues
Socio-Political Issues of Contemporary America
Japanese Literary Classics in Chinese Translation
Digital Teaching Platform: Its Role in Innovating Foreign Language Teaching
Introduction to Environmental Literature

These course offerings vary from year to year to maintain diversity and encourage faculty participation in this sector of our curriculum.

Course Descriptions

A2516 Introduction to Mandarin Chinese (2/0): This course is to develop student's second skills by studying the Chinese teaching as a second foreign language and improve their teaching skills.

F1111 Digital Learning and Teaching Practical for Chinese as a Second (2/0): The course is designed for Technology and Chinese Language Teaching. To provide students theory and practice. Students can apply on the TCSL with digital technologies.

F1435 Mandarin Chinese Communication Skills (0/2): This course in the training of students to develop oral performance in Chinese Mandarin.

F0781 Interpretation (0/2): Though hard working and highly accomplished academically, Taiwanese college students have a hard time interpreting and translating rapidly and smoothly. Mastering translation and interpretation are a complex task which requires the full engagement of one's cognitive capacity as well as social and communicative skills. Students must be taught not only to translate and interpret, but also to develop professional attitudes that will stand them in good stead for their future careers. This course aims at achieving this goal by using a mixture of theory and practice.

F0782 Approaches to Translation (2/0): This course is designed to initiate students into the field of translation by introducing them to basic guidelines and theories of translation, assigning weekly translations of articles on different topics, and sharing experiences in class discussions.

F0784 Introduction to Practical Translation (0/2): The purpose of this course is to help students

enhance English-Chinese translation skills and knowledge through the reading of contemporary scholarly journals, current documents and major speeches and statements. Students also are required to engage in English writing and translation practice.

F1536 The Culture and Language of Vietnam I (2/0): This course is made up of three parts. In the first part, students will learn the Vietnamese alphabet, pronunciation, and spelling. The second part will cover Vietnamese vocabulary and phrases, including nouns, verbs, adjectives, adverbs, and function words. In the third part, students will use the words and phrases they have learned to make sentences, and they will learn to create different dialogues in different contexts.

F1537 The Culture and Language of Vietnam II (0/2): This course is made up of three parts. In the first part, students will learn the Vietnamese alphabet, pronunciation, and spelling. The second part will cover Vietnamese vocabulary and phrases, including nouns, verbs, adjectives, adverbs, and function words. In the third part, students will use the words and phrases they have learned to make sentences, and they will learn to create different dialogues in different contexts.

X0002 English Tutorial (2/2): This course is offered exclusively for those who fail to meet English proficiency standards set by the university before graduation. It is an online course gives students access to course materials anytime, anywhere. In addition to online learning, students are required to attend onsite instruction on designated days.

F1103 Korean (I) (2/0): Basic words, phrases and sentences of Korean are introduced and analyzed in this class.

F1104 Korean (II) (0/2): words, phrases and sentences of Korean are introduced and analyzed in this class.

F1532 Indonesian and Culture (I) (2/0): This course will help all the beginners to learn simple Indonesian quickly through various ways with professional teaching techniques, and trains the capability of speaking in Indonesian, simultaneously leading you to discover the rich culture of Indonesia. Students will be able to learn fundamental Indonesian and daily Indonesian conversations.

F1533 Indonesian and Culture (II) (0/2): Instead of the fundamental Indonesian, this course will focus more on grammar and sentence patterns to make the students be able to communicate in advanced Indonesian. By taking this course, students will be able to learn advanced Indonesian conversations.

F1487 AI and foreign language learning (2/0): Introduce the practical examples of artificial intelligence AI (Artificial Intelligence) widely used in foreign language learning for to increase the effect of foreign language learning.

F1488 Innovation and Entrepreneurial Management in Culture and Education (2/0): The course is divided into three phases. The first phase is to inspire students' innovative thinking and introduce tools such as mind map and TRIZ to enable students to open up to new ideas. In the second stage, students learn about the industry through individual industry cases, and then through their case discussions, they will inspire their ideas about entrepreneurship. In addition to allowing students to assess their ability and mentality to start a business, the third stage provides entrepreneurial knowledge to prepare for entrepreneurship.

F1530 University Innovation and Sustainable Development (2/0): This course takes the university as the main axis, connects new and innovative topics of university development, and links the sustainable development goals of the United Nations that affect the survival of mankind, thus highlighting the value of the existence of universities.

F1538 Portuguese Language and Culture (2/0): Portuguese pronunciation and differences (Brazilian and Portuguese) / Learning grammar in parallel with basic daily conversation and its application / Learning language with songs / Basic concepts of etiquette and customs on different occasions. / The course is rich in content and lively.

F1557 Ukrainian and Ukrainian Culture for Beginners (2/2): The main aim of this course is to ensure students will have basic knowledge of Ukrainian phonetics, grammar and vocabulary through text

reading and conversation practice. At the end of the course, students should possess basic skills in listening, speaking, reading, and writing, and communicate using these language skills. Students should be able to participate in basic conversation in Ukrainian. In addition, this course will introduce Ukraine, Ukrainian culture, and local traditions.

F1578 Reading World Literature (2/0): We will read and discuss modern Anglophone short stories.

F1626 Industry-University Cooperation and Innovative Startup Internship (0/2): Through this course, students will learn about the job market; and through practice, to understand the direction of their work. Students through internship, understanding, communication and operation within the company. Several instructors and tutors from different companies lead students to create a series of personal works, and there are opportunities for them to give services or internships in companies.

F1691 Readings on New Technology (2/0): This course offers a comprehensive exploration of current and emerging technology trends and their practical applications. Students will delve into a wide range of topics, such as artificial intelligence, blockchain, quantum computing, and more. Through readings, videos, discussions, and assessments, students will develop a thorough understanding of how these technologies are influencing our world.

F1692 Introduction to Philosophy: German Philosophy and the Spirit of Japan (2/0): The common characteristics and historical roots of philosophy between German and Japanese Philosophy are the main contents of this course.

F1694 Foreign Languages for MICE Planning (2/0): This course will train the students to develop international exchange and exhibition skills. Students will acquire essential cross-cultural communication and event management abilities by combining foreign language communication with professional exhibition planning. The course integrates industry practices, enabling students to gain well-rounded proficiency in exhibition and conference planning, design, and marketing execution.

DEPARTMENT OF ENGLISH

Degrees Offered: B.A., M.A., Ph.D.

Chairman: Jui-Min Tsai（蔡瑞敏）

The Department

The English Department is the oldest department in Tamkang University. It owes its origin to the Tamkang English College established in 1950. The Department offers a diverse range of programs at the undergraduate, graduate, and doctoral levels. The aims of the Department are to cultivate students' English proficiency in language and literature and to train students to be well-rounded English professionals with an international perspective for domestic and international institutions.

The faculty consists of 29 full-time and 75 part-time faculty members. To enhance the quality of instruction and research, the Department continually hires qualified teachers specializing in literature, TESOL, interpretation, translation, linguistics, and related fields. In the 2023-2024 academic year, the Department accepted 958 undergraduates, 32 M.A. students, and 33 Ph. D. students.

Faculty

Professor Emeritus
Chun-Chung Lin (林春仲) ; Mei-Hwa Sung (宋美璉) ; I-Min Huang (黃逸民)

Professors
Chen-Hsing Tsai (蔡振興) ; Yi-Ti Lin (林怡弟) ; Pei-Yun Chen (陳佩筠) ; Iris Ralph (羅艾琳)

Associate Professors
I-Fen Wu (吳怡芬) ; Ming-Hong Tu (涂銘宏) ; Tzu-Shan Chang (張慈珊) ;
Yea-Huey Chang (張雅慧) ; Song-Ling Chyi (齊嵩齡) ; Jui-Min Tsai (蔡瑞敏) ;
Chin-Jau Chyan (錢欽昭) ; Yu-Cheng Sieh (薛玉政) ; Yu-Ching Tseng (曾郁景) ;
Chiou-Rung Deng (鄧秋蓉) ; Chia-Chen Kuo (郭家珍) ; Jia-Ying Lee (李佳盈) ;
Shizen Ozawa (小澤自然); Ming-Huei Lin (林銘輝); Pei-Hsun Liu (劉佩勳)

Assistant Professors
Yu-Yun Wu (吳瑜雲) ; Iain Kelsall Brown (包俊傑) ; Wei-Ting Wang(王蔚婷) ;
Yen-Chen Chuang(莊晏甄) ; Guy M. Redmer (雷凱); Ting-Hui Hsiung (熊婷惠);
Chieh-Ying Chang (張介英) ; Chia-Chien Chen (陳家倩) ; Kai-Su Wu (吳凱書) ;
Chia-Hung Lin (林嘉鴻)

Degree Requirements

1. Requirements for a degree of B.A. in English:
   Completion of 128 credits of courses, including 88 credits of required courses, 20 credits of elective English major courses, and 20 credits of any other courses.

2. Requirements for a degree of BA in English (English-Taught Program):
   Completion of 128 credits of courses, including 72 credits of required courses, 18 credits of elective English major courses, and 38 credits of any other courses.

3. Requirements for an M.A. degree:
   Completion of 28 credits of courses, including 4 credits of required courses and 24 credits of elective courses. Students are also required to submit a written master's thesis completed under the supervision of a faculty member and pass an oral examination.

4. Requirements for a Ph.D. degree:
   Completion of 30 credits of courses. Students are required to pass a comprehensive examination,

publish at least one research paper in an academic journal or a conference proceeding approved by the Curriculum Committee. Students are also required to submit a written doctoral dissertation completed under the supervision of a faculty member and pass an oral examination.

Course Descriptions

Undergraduate Courses

F0755 Freshman English (2/2): This course is aimed mainly at improving students' reading comprehension ability.

A0159 Approaches to the Study of Literature (2/2): This course helps students learn how to analyze literature in terms of such elements as plot, character, setting, symbols, and traditional and postmodern forms; to appreciate the aesthetic dimensions of poetry, drama, and fiction.

A0318 Introduction to Western Literature (2/2): This course provides a basic understanding of different cultures, ranging from Mesopotamian literature to Modernism to develop knowledge about the cultural paradigm shift in the Western world, and to develop techniques of historical as well as critical analysis for appreciating and understanding arts and literature.

A0472 American Literature (3/3): This course offers a survey of the chronological development and background of American literature from the colonial period to the present.

A0988 Selections of Novel (2/2): This course aims to help students develop techniques of reading, analyzing, and appreciating fiction through such elements as characterization, setting, plot, symbols and thoughts of fiction.

A0484 English Translation (2/2): This course helps students improve their reading and writing skills, which in turn helps to sharpen their translation skills. Both theory and practice of translation are discussed, while the focus is placed on comparisons of Chinese and English, both from linguistic and cultural aspects.

A0506 English Composition I (2/2): This course hones students' writing ability by providing basic knowledge and techniques of English writing as well as English rhetoric. Emphasis is placed on frequent practice in writing meaningful and idiomatic sentences and paragraphs.

A0507 English Composition II (2/2): This course aims to train students in formal academic writing. Students will learn how to expand single-paragraph writing into a multi-paragraph essay, learn more about different forms of writing and begin to understand that writing is an ongoing process of shaping ideas, writing, editing, and rewriting.

F0497 English Poetry Reading (2/0): This course aims to familiarize students with major English and American poets by examining their poetic forms in terms of "sound and sense" and teach students how to apply various interpretive strategies to the reading of poetry in general.

A0514 English Literature I (3/3): This survey course covers the Medieval Period, the Early Modern Period (Renaissance through Milton) and the Enlightenment (late 17th century through 18th century).

A0515 English Literature II (3/3): This survey course covers the 19th and 20th centuries, focusing on Modernism and contemporary authors.

F0788 Introduction to English Language Teaching (2/2): This course surveys traditional as well as current methods of English teaching and discusses the teaching of specific language skills.

A0529 English Conversation (2/2): This course is designed to develop students' ability to communicate in English with a focus on fluency and articulation and to acquaint students with useful expressions in daily conversation.

A0532 Oral Presentation in English (2/2): This course focuses on effective English speech delivery skills. Students will learn how to prepare and deliver speeches, and will be required to deliver speeches

in class.

A0572 Advanced English Workshop (2/0): The purpose of this course is for students to understand the basics of effective communication and to polish English speaking skills, especially those related to public speaking.

A0685 English News Writing (2/2): As an introduction to journalism for English majors, this course includes extensive practice in newspaper writing, radio and television reporting, public relations, and advertising.

A0888 Women's Literature (0/2): This course familiarizes students with different contemporary schools of feminist thought and issues of great concern to feminists as background knowledge for appreciating feminist literature and political debates and action for empowerment and agency.

A1053 English Composition III (2/2): This course emphasizes the writing of *argumentative* essays. It requires as much attention and efforts to be spent on syntactic structure as on the way of thinking itself, i.e. the proposition of a concept, the elaboration of its significance to certain claims, and the logical approach toward a conclusion.

F1081 Theatre and Performance (2/2): This course is designed to introduce students to plays by well-known dramatists in British, American, and European literature. Readings are selected at the discretion and interest of the instructor.

A1152 Introduction to Western Literary Criticism (2/2): This course serves two purposes: (1) to provide students a background on the history of Western literary criticism; (2) to cultivate the *virtus* of an active performance of critical theories so that students will be obliged to apply these strategies to literary texts.

A1617 English Literary Prose (2/2): This course covers selected readings in English short stories and essays on contemporary issues to reinforce students' reading comprehension. It offers lively prose models for grammatical and structural analysis and for the appreciation of syntactical beauty and rhetorical strategies.

A6537 English Phonetics (0/2): This course focuses on the following: pronunciation practice in Standard American English; transcription exercises in IPA (International Phonetic Alphabet); contrastive analysis of other phonologies; design of phonetic tools for TESOL use.

F0101 Oral Communication (2/2): This course is designed to help students speak fluent English. Classroom activities include pair work, small group discussions, and role-plays, each of which give students opportunities to practice and, therefore, hone their English-speaking skills.

F0127 Selected Readings in Eco literature (2/0): This course helps students acquire a basic knowledge of nature writing as a genre, its relation to ecology and its relevance to the solution of ecological crises. It is also designed to raise students' consciousness of ecocriticism while improving students' skill of reading through a perusal of ecological prose, poetry and fiction.

F0252 Syntax (2/2): This course covers major issues in English syntax from the viewpoint of generative grammar founded by Noam Chomsky. The course is primarily organized around lectures and in-class discussion. Grades are based on a combination of examinations and class attendance.

F0298 Shakespeare in Films (2/2): This course considers screen adaptations of William Shakespeare's dramas. Rather than focusing on the reading of plays, it aims to explore the issues of cultural studies such as nationalism and sexuality through film representation. Different film versions will be provided for discussion, through which to learn various approaches to Shakespeare's plays.

※Please see the course information system for more extensive and up-to-date course information.

Master's Program

A2134 English Writing I (2/0): This course is intended to prepare students to write for a variety of

occasions and audiences, with emphasis on graduate level academic writing. Students will focus on matching contents, argumentations, and styles suitable for specific purposes and audiences.

A2135 English Writing II (0/2): This course is intended to prepare students to write for a variety of purposes and audiences, with an emphasis on graduate level academic writing. Students will focus on a more advanced level.

F1376 Research Writing, And Methodology in Language Teaching (2/0): This course is to introduce the various approaches, methods and techniques of doing academic research, during which students are to finish an academic report.

A2055 Literary Theory (0/2): In this course we will read a cross section of critical texts with a special focus on the concepts of identity, difference, and the other. Thus, the purpose of this course is to impart a familiarity with contemporary literary theories and criticism so that students of literature will not only arm themselves with ideas that have shaped the contemporary scene in literary studies, but also can apply them to the reading of literary as well as social texts.

A1793 Second Language Acquisition and Teaching (0/2): The aim of this course is to introduce the theories, principles, and methodologies of TESOL. The students are expected to understand and analyze the theories, principles, and methods, and to apply them appropriately in different contexts.

A2917 Quantitative Research Methods (2/0): This course is designed to develop basic statistical literacy. The students will be able to understand the role of statistics in the research process, be competent to perform basic calculations, comprehend research reports they may encounter in everyday life, and evaluate the professional research literature in their field.

D0037 Qualitative Research (0/2): This course aims at providing a general overview of the qualitative research methods in terms of project design, data collection, analyses, and writing up. Topics to be covered in the course include four genres: (1) ethnography, (2) phenomenological study, (3) socio-communication study, and (4) case study. The students will have opportunity to (1) read and evaluate published qualitative studies, (2) integrate qualitative research methodologies into their overall research design, and (3) examine the appropriateness of methodologies in doing research in the field of language education.

F0502 Language Testing (2/0): The course is desinged to offer a comprehensive thoery of essential principles and tools for second language assessment. Students should be able to understand the basic theories in language testing, and more importantly, to apply those ideas to practical testing developments.

F1494 Noir Fiction (2/0): What is "noir"? Is it a visual style, a nihilistic attitude towards law and order, a hard-hearted way of dealing with the world, or a black and bleak philosophy of life? In this course, we will examine what gave rise to noir fiction, how it is different from traditional crime stories, and why readers have been continuously drawn to this famed and fatal genre.

F1588 Seminar on Diasporic Chinese (2/0): This course centers on the works about diasporic Chinese. We will discuss on such topics as history, identity, hybridity, boundary, space, memory, mobility, and language in the cultural production of diasporic Chinese. The course materials include both literary and visual texts across the U.S., Canada, Australia, Singapore, and Malaysia. We also cover theoretical discourses helping to formulate the poetics and practice of China diaspora.

F1583 AI and Translation Studies (I) (2/0): This course is designed for students who are interested in research on AI-based machine-assisted translation. By immersing in AI translation environment, students can also acquire the knowledge of language localization in addition to building up translation theories and skills.

F1636 Research in Translation Studies (2/0): Teach students how to conduct research in the area of Translation Studies.

F1461 ESL Teaching Practice and Research (0/2): This course is an introduction to the concept of game-based learning (GBL) for students who would like to know more about GBL techniques and research. Students will learn about the features of and rationale for GBL while improving their skills of

language, teaching, and research in the field. Students will also take part in creative classroom activities to reflect upon aspects such as GBL techniques and assessment. This course will be concluded with students completing a mini-research project on GBL.

E0747 Language Structures (0/2): This course does not involve reading or writing reports, but it heavily incorporates the use of digital materials for both learning and creating them. The course offers an engaging exploration of language structure, English grammar, and digitalized materials. In this course, you'll build a strong foundation in essential linguistic concepts and English grammar principles. We'll investigate different perspectives of language structure, emphasizing how to use these insights to design and create digital resources centered around English grammar.

F1060 Reading Images and Visual Cultures (0/2): This seminar explores the "textuality", technologies, environments, and the institutional apparatus of visual media/arts (including everyday life images, memes, comics, game culture and films) from an integrative viewpoint. In a comparative gesture, our understanding of visual culture will include literary theories of textuality and draws them into dialogues with visuality, image and sound culture, and media interface.

F1584 AI and Translation Studies (II) (0/2): This course is designed for students who are interested in research on AI-based machine-assisted translation. By immersing in the environment of AI translation studies, students can also acquire the knowledge of language localization in addition to building up translation skills and strategies.

F1590 Research in Interpreting Studies (0/2): Help students develop hands-on research abilities and zero in on their research topics via Project-Based Learning (PBL) and paper-reading.

Ph.D. Program

F1375 Research Writing, and Methodology in Literary Studies (2/0): This course is a survey, providing students a general framework about trauma theory, testimony and the specific role that literature plays. This course will be divided into three sections: (1). to investigate trauma theory, (2). to understand the definition and difference of testimony, testimonial literature and literature as testimony, (3). to explore relevant literature to see how trauma is deeply and sadly intricated in literature and how literature becomes a trope of testimony to speak for those dead.

F1376 Research Writing, And Methodology in Language Teaching (2/0): The course reviews the English academic writing style commonly accepted worldwide. We will look at it from several levels: from vocabulary to the overall organization of research writing, such as thematic progression. We will analyze and differentiate good research papers from poor ones. For this purpose, students will read a considerable amount of journal and book articles to build up a corpus for analysis. We will also discuss several research methods in SLA and the viability of each method. In the end, students will learn how to design viable research and produce good research papers.

F1383 Corpus-Aided Language Teaching (0/2): This course is given the aim to develop students' knowledge of corpus aided language learning. Students enrolled will have to read a great number of papers, write reflections on them, learn how to operate a corpus, and within given time finish conducting a small scaled experiment teaching students using a corpus.

F1443 Introduction to Game-Based Learning (2/0): This course is an introduction to the concept of game-based learning (GBL) for students who would like to know more about GBL techniques and research. Students will learn about the features of and rationale for GBL while improving their skills of language, teaching, and research in the field. Students will also take part in creative classroom activities to reflect upon aspects such as GBL techniques and assessment. This course will be concluded with students completing a mini-research project on GBL.

F1639 Instructional and Learning Psychology (2/0): The course aims at understanding the fundamental theories for teaching instruction and students' learning at postdoctoral level. In this course, students are able to understand relevant theories to develop their research framework in their research projects.

F1552 Seminar on English Higher Education (0/2): In this course, we will examine the various claims

that have been made regarding the issues of English higher education in order to give a sense of the theories in this area of research. Then, theories and hands-on experiments related to English higher education will be taught and conducted.

F1637 Seminar on Performance Studies (0/2): This course aims to cultivate an understanding of Performance Studies by exploring its interdisciplinary nature, historical development, and key concepts. Students will analyze performances as cultural practices, examine power dynamics within them, and delve into the intersections of identity. Through critical examination of the body, technology, and site-specific performances, students will gain insights into the diverse ways performance functions as a dynamic cultural and social phenomenon.

F1638 American Modernist Literature (0/2): This course aims to focus on American modernist literature. Students will read and analyze American modernist poetry and novels. Key concepts and issues related to modernism would also be discussed.

DEPARTMENT OF SPANISH

Degrees Offered: B.A.

Chairman: Ai-Ling Liou（劉愛玲）

The Department

The Department of Spanish, established in 1962, is the oldest of its kind in Taiwan. In 1992, it became a department of the College of Foreign Languages and Literatures. Its main objective is to teach Spanish and the cultures of Spanish-speaking countries, so that graduates can communicate fluently in Spanish, teach Spanish, and play important roles in the relations between Taiwan, and Spanish-speaking countries.

To achieve its objectives, the department has designed a curriculum with subjects ranging from philology to culture, and has organized various activities to help students practice Spanish and experience the culture of Spanish-speaking countries.

The most outstanding features of this department are its international orientation, its exchange programs with foreign universities, its dynamism in the organization of national and international events, and its forward-looking vision.

Faculty

Professors
Jose Miguel Blanco Pena (白士清)

Associate Professors
Lih-Lirng Soang (宋麗玲) ; Hui-Ing Lin (林惠瑛) ; Wan-I Her (何萬儀) ; Yu-Fen Tai (戴毓芬) ; Ai-Ling Liou (劉愛玲) ; Fernando Dario González Grueso (孔方明) ;Yun-Chi Chang (張芸綺) ; Chen-Ling Liu (劉珍綾) ; Li-Mei Liu (劉莉美) ; Rachid Lamarti (葉汐帆)

Assistant Professors
Wen-Chin Li (李文進) ; Ya-Fang Lo (羅雅芳)

Degree Requirements

Requirements for a degree of B.A. in Spanish:
Completion of 128 credits of courses, including 60 credits of required courses and 20 credits of elective Spanish courses.

Course Descriptions

Undergraduate Courses

A0359 Spanish Conversation I (4/4): This course deals with the listening and speaking abilities involved in everyday Spanish, such as greetings, personal information, description of surroundings, etc.

A0360 Spanish Conversation II (4/4): This course practices more phrases, tenses and grammar concepts through listening and oral practice to improve students' Spanish communication ability.

A0361 Spanish Conversation III (4/4): Student will learn to develop their communicative competence and amplify their understanding of Spanish culture through conversation.

A0362 Spanish Conversation IV (2/2): This is an advanced conversation course that provides further training in Spanish speaking and listening. It aims to help student's express opinions on various topics fluently.

F1632 Listening Comprehension and Pronunciation in Spanish I (2/2): This course aims to train students' pronunciation, intonation and listening. The oral practice for pronunciation and the training of listening both will be emphasized during the course. According to the text-book, it will be helpful for students' language learning.

A1452 Spanish Composition I (2/2): This course cultivates students' Spanish writing techniques in reading as well as rhetoric.

A1453 Spanish Composition II (2/2): This course involves learning how to write compositions with more complicated sentence structures, vocabulary, and grammar concepts in a superior level.

F0049 Elementary Spanish Grammar (4/4): This course provides general concepts of Spanish grammar, from the basic conjugation of verbs to simple sentence patterns.

F0054 Intermediate Spanish Grammar (4/4): This course is a continuation of Elementary Spanish Grammar. In addition to the review of elementary Spanish grammar, this course provides a deeper exploration of the conjugation of verbs and other tenses.

F0739 Advanced Spanish Grammar (2/2): The goals of this course include both improving students' skill in communicating in Spanish using correct grammar, and improving students' knowledge of the Hispanic world.

F1357 Reading and Writing in Spanish (2/2): The content of this course matches that of Elementary Spanish Grammar, while also providing a basic introduction to the course 'Spanish Composition I'. In this course, students have more opportunities to practice sentence-construction and thereby improve their grammar.

F1366 Hispanic Culture (2/0): This course is planned to give a brief introduction to the history, geography, culture, and customs of Spanish- speaking countries (including Spain, Mexico, Central and South America and the Caribbean and Equatorial Guinea, a total of 21 countries) within one academic year. In the first semester, the course mainly focuses on the subjects of Spain and Mexico; in the second, it turns to introduce the rest of Spanish-speaking countries.

F1033 Translation of Spanish (I) (2/2): This course is an elemental course for oral interpretation and translation. The objective is to practice basic Spanish syntax.

F1034 Translation of Spanish (II) (2/2): This is an intermediate course for translation skills with an aim to train the translation skills from Chinese into Spanish, and *vice versa*.

F1395 Spanish Lexicon and Reading (2/2): This course, via readings of selected articles, aims to systematically improve students' vocabulary used in daily life.

F0778 Spanish for Tourism (2/2): This course consists of three parts (transportation, accommodation and food), and aims to strengthen students' ability of travel in Spanish, and to increase their knowledge of tourism in Spanish-speaking countries.

F0132 Hispanic Art (0/2): This course gives an introduction to present masters such as Picasso, Miró, Dalí, Gaudí, etc., with an emphasis on the study and analysis of major art works.

F1431 Contrast and Application between Chinese and Spanish (2/2): Students will gain a basic understanding of Spanish phonetics, phonology, morphology and syntax, in contrast with mandarin.

F1489 Teaching Elementary Chinese to Spanish Speakers (2/2): The objective of this course is to train the students to use Spanish to facilitate the teaching of Chinese as a foreign language and to acquire basic Spanish and Chinese language learning knowledge in order to reach this objective. This course will prepare students for: 1. Cultivate the reading and writing ability of Chinese characters. 2.Learn the Chinese vocabulary and syntaxes for self-introduction, greeting, telling time, ordering a meal, and discussing interests through various topical lessons. 3.Learn the basic daily life conversation and develop Chinese speaking ability.

Spanish Examination held by the Madrid Chamber of Commerce, so that students can acquire Spanish knowledge and skills related to business.

F1547 Analysis of Hispanic Cinema (2/2): This course will introduce films from different regions of Latin America, including directors and the historical background of films, at the same time the students will be able to learn related vocabulary and the diversity of Spanish in Central and South America.

F1237 Apprentice Program (3/0): This course will help students improve their skills in such things as filling in documents, writing business letters and how to deal with variety business documents; help get better skills in many practical situations.

F1541 Tour Guiding Interpretation of Hispanic Culture (2/2): This course offers participants the opportunity to develop the technical, social skills needed to deliver tour guiding service for tourists.

F1542 Performance and Theater Arts in Spanish (2/2): Familiarize students with theater, poetry and literature in general in the Spanish language through its most representative works. Arouse taste and interest in literature. Refine pronunciation and both conversational and reading fluency in Spanish.

F1543 Teaching Advanced Chinese to Spanish Speakers (2/2): The objective of this course is to train the students to use Spanish to facilitate the teaching of Chinese as a foreign language and to acquire basic Spanish and Chinese language learning knowledge in order to reach this objective.

F1548 Fundamentals of Business Spanish (2/2): This course provides general concepts of Commercial Spanish, from the basic commercial knowledge to the operation of trading practice.

F1394 Listening Comprehension and Pronunciation in Spanish II (2/2): This course aims to improve students' Spanish listening and speaking skills. Through the main textbook, students will be able to learn grammar and vocabulary at the A2-B1 level.

F1693 Hispanic Literature (2/2): To familiarize students with Spanish-language literature through its most representative works. To awaken a taste for and interest in literature.

DEPARTMENT OF FRENCH

Degrees Offered: B.A., M.A.

Chairman: Gilles Boileau（徐鵬飛）

The Department

The Department of French has long been devoted to promoting students' language ability and knowledge, and to introducing various research methodologies. Evaluated as one of the best French departments in Taiwan, the Department launched a partner relationship with France-Comte University in 1989. Subsequently, in 1994, twenty juniors were sent to this university for the very first time. Since then, the one-year Junior Year Abroad Program has enhanced the Department's relationships with the universities of Lyon III, Louvain-la-Neuve, Haute École-Léonard da Vinci, Paris IV and Nice, which have also been sending students to Tamkang on exchange programs. These young European students cement the friendship already existing between our institutions, and greatly contribute to the French learning environment at Tamkang University.

Always eager to update our teaching techniques, we undertake a curriculum reform with the goal of preparing our students for the DELF (Diplôme d'Etudes de Langue Française) and the DALF (Diplôme Approfondi de Langue Française), considered international references of excellence.

We are also working on the Internet front, constructing a permanent infrastructure for our web page content, and establishing numerous links to relevant French web pages. A project consisting of the indexing of French sources will allow our faculty and students to more efficiently use this wealth of information.

In the future, we will enhance our distance learning courses to adapt to an increasingly digitalized world while staying true to our foremost task of teaching French.

Master's Program

The Master's Program of French was established in 2002. It aims to nurture specialists in French studies, promoting cultural exchange between Taiwan and France.

Faculty

Professor Emeritus
Hsi-Deh Wu (吳錫德) ; Shu-Chuan Yang (楊淑娟) ; An-Chyun Jeng (鄭安群)

Professors
Gilles Boileau (徐鵬飛) ; Zong Liang (梁 蓉) ; Kuo-Lei Chang (張國蕾)

Associate Professors
Chia-Jui Chu (朱嘉瑞) ; Hun-Hui Hsu (徐琿輝) ;

Assistant Professor
Li-Chuan Chen (陳麗娟) ; Jun-Pei Liao (廖潤珮) ; Yu-Pei Kang (康鈺珮) ; Wei-Ching Chen(陳瑋靜)

Degree Requirements

1. Requirements for a degree of B.A. in French:
   Completion of 128 credits of courses, including 82 credits of required courses and at least 20 credits of elective French courses.

2. Requirements for a Master's degree in French:

Completion of 30 credits of courses. Students are also required to submit a written master's thesis completed under the supervision of a faculty member and pass an oral examination.

Course Descriptions

Undergraduate Courses

A0409 French Translation I (2/2): Using French chansons, actuality, and fables, this course discusses basic problems of Chinese/French translation.

A0410 French Translation II (2/2): This course deals with intermediate problems of translation from Chinese into French through the syntax and structure of sentences and helps students understand the differences between Chinese and French.

A0421 Introduction of French Literature (0/2): Introduce the famous works of French literature and encourage students to read and enjoy the pleasure of reading in French literature.

F1606 Introduction to the French Literature in 18th Century (2/0): This course aims to provide students with a general overview of French literature in aspects of historical background and knowledge of key events/characters/terms. This course also introduces modern theories in French Literature.

A0435 French Drama (2/2): This course introduces the development of French drama, appreciation of individual works and practice in staging through the study of French drama.

A0439 French Conversation I (2/2): This course aims to train students to speak basic French through conversation practice and familiarize them with oral expressions through practical exercises.

A0440 French Conversation II (2/2): This course aims to train students to speak intermediate French through conversation practice and familiarize them with oral expressions through practical exercises.

A0441 French Conversation III (2/2): This course aims to train students to speak advanced French through conversation practice and familiarize them with oral expressions through practical exercises.

A0442 French Conversation IV (2/0): This course aims to train students to speak fluent French through conversation practice and familiarize them with oral expressions through practical exercises.

A0448 French Phonetics (2/0): The objectives of the course are threefold: (1) Pronounce correctly French vowels and consonants; (2) Manage a good French Intonation and rhythm; (3) Learn differences between French phonetic and Chinese phonetic.

A0449 French Language Laboratory Work (1/1): This course teaches elementary French grammar with writing practice in short sentences and essays, and helps students acquire a basic knowledge of linguistics, intonation and pronunciation.

A0906 French Film and Literature (2/0): This course discusses the relationship between French movies and literature via French film masters' classical masterpieces. This course also helps students understand and analyze different viewpoints through movies.

A1006 French Grammar I (2/2): This course deals with the development of fundamental French grammar and practices in writing short sentences through an analysis of sentence structures.

A1055 French Grammar II (2/2): This course deals with the development of intermediate French grammar and practices in writing long sentences through an analysis of sentence structures.

F0919 Advanced Grammar (2/0): This course deals with the development of advanced French grammar. During the class, students will practice the use of verbs in proper tenses.

A1823 Tourist Industry French (2/0): This program aims to enhance students' skills required for traveling in French, through their understanding and learning in cultural and tourism characteristics of

their own country and French-speaking countries to develop intercultural competence.

A1056 French Composition I (2/2): This course teaches basic composition skills through the practice of composition texts. Students will learn how to make complete and logical sentences and write compositions.

A1057 French Composition II (2/2): This course teaches advanced composition skills through the practice of composition texts. Students will learn how to make complete and logical sentences and write compositions.

A1239 The History of Art (2/0): This course presents works of art belonging to Europe, from late Roman era to the 19th century. We will present those works in their context.

A1853 Simultaneous Interpretation (2/2): This course offers interpreting practice in small groups on various topics based on actual ability, starting from Chinese to French and moving into both directions. Theory, experience sharing, corrections and advice will be given.

F0379 Contemporary French Thought (2/2): This course will introduce the works of famous French philosophers, such as Henri Bergson, Jean-Paul Sartre, Jean Baudrillard, Roland Barthes, Georges Bataille, Michel Foucault, and Gilles Deleuze.

F0646 French Correspondence and Composition (2/2): This course aims to enhance students' composition ability by providing practice in different forms of correspondence such as personal, administrative and commercial, emphasizing also the cultural aspects of everyday life in France.

A0583 French Commercial Correspondence (0/2): This course aims to help students gain a basic understanding of commercial French through texts, multimedia, commercial letters, and the Internet.

F0705 French Reading and Writing I (2/2): This course deals with the elementary grammar and vocabulary of French and helps students improve their reading skills through extensive reading in French.

F0706 French Reading and Writing II (3/3): Through extensive reading, this course deals with intermediate grammar and vocabulary of French and helps students improve their reading skills.

F0708 Approach to the Study of Linguistics (0/2): This course focuses on linguistics, not only the syntax analysis, semantic analysis, lexical domain, but also the acquisitions of second language. Therefore, via the concept, we find out that it associates always with us in the daily life.

F0710 News from Papers and TV (0/2): The aim of this course is to focus on news about French society, to understand French culture by reading this news, and to analyze the differences between Taiwan and French society and culture.

F0759 Reading and Writing of French Literature I (2/2): This course introduces French literature through a systematic study of French writers, the history of France, and French literary development.

F0760 Reading and Writing of French Literature II (2/2): This course examines French literature through a systematic study of French writers, celebrated philosophers, the history of France and French literary history.

F1604 Introduction to French Culture (2/0): This course describes factors that have influenced French lifestyle, culture and art policies, as well as development and change. Students will see how French culture and art policies have helped to preserve the rich traditions that still exist even today.

F0863 Introduction to the Literature and Language of French-Speaking Areas (0/2): The language and culture aspects in this thesis discuss the elements of the culture and how to learn the language, the literature through these texts from French-speaking areas.

F1086 French Reciting and Reading (2/0): Object of this course is getting improvement in oral expression and comprehension through reciting and reading selected texts of various subjects in French.

F1149 Omnidirectional French Learning Course (2/0): This course introduces several aspects of French life, including issues of European Union and education, diplomacy, business, culture, and the art of France.

F1607 Workplace Communication And Practices In French (2/0): This course tends to help students to prepare for their professional career and to learn more communication skills.

F1608 Cultural Readings of French Gastronomy (0/2): This course is an introduction to French culinary discourse, since great gastronomic texts from the beginning of the 19th century to the Red Guide current. Students will get acquainted with French gastronomy, classified patrimonial of mankind.

F0377 French History of Twentieth Century (0/2): This course aims to introduce the formation, the special character and the spirit of contemporary France in the 20th century, by presentations from various perspectives including political, economic, social and cultural activities.

F1237 Apprentice Program (2/2): This course pursues two main objectives; the first is to help students make the most of their career opportunities, while the second is to provide support to firms looking for talent.

F1084 French For Teaching Chinese(2/0): This course aims to equip students with the skills to teach Chinese to French speakers. By combining theoretical learning with practical application, students will be able to confidently design and implement Chinese language courses, playing an active role in cross-cultural communication.

A0583 Frehcn Commercial Corresp. (0/2): The Business French course cultivates fundamental language skills for professional communication, encompassing basic terms and practical writing. Simulated scenarios enhance adaptability in real business environments. The course aims to elevate presentation skills, emphasizing cross-cultural communication and etiquette. Through peer interactive activities and a cross-cultural communication analysis project, learners are ensured an immersive learning experience, fostering proficiency in Business French.

Master's Program

F0771 Studies of the Modern and Contemporary French Novelists (2/0): This course provides readings, discussion and research on French novelists in the modern era.

F1075 Methodology and Advanced French Writing (2/2): This course introduces students to the French sociological and historical schools, with explanations of key concepts and their application to French studies.

DEPARTMENT OF GERMAN

Degree offered: B.A.

Chairman: Yu-Hsien Lin (林郁嫻)

The Department

German studies at Tamkang began in 1963 as a German program within the Department of Western Languages and Literatures. In 1975, the program became an independent department. Since 1984, students of the German Department have had the opportunity to participate in summer courses in Germany. In 1994, the Department established the Junior Year Abroad program. Since then, students have the opportunity to spend their junior year as exchange students at Bonn, Köln, or Saarland University, Germany.

During the first two years of the four-year program, a strong emphasis is given to building a solid foundation in practical German. In their junior and senior years, students choose their specialization according to their interests and career plans. Some pursue a classical humanities syllabus in German literature and cultural history; others who develop a deeper interest in one author or issue can pursue their interest in individually designed tutorials. Another option of specialization prepares students for a career in the business environment. The Department offers courses in business German, AI German Translation and Interpreting and, in coordination with a course offered at the college level, in intercultural communication.

The German Department considers each student as individuals with particular interests, and helps students develop a career plan based on their personal circumstances. The overall policy of the department may be characterized as *customized internationalization*. Students have the opportunity to arrange their studies at the Department according to two different modules, each of which offers a distinct international study experience.

Standard Module: students complete a four-year program at Tamkang University. They are encouraged to participate in one or more summer courses in Germany. The Department is doing its best to include a localized form of internationalization into this module by providing opportunities for students to develop contact with the German community in Taiwan.

Internationalized Module *3 Plus 1*: Students participate in the Junior Year Abroad program. They study for three years at Tamkang University and one year abroad. Students may spend their junior year as exchange students at one of our partner universities in German-speaking countries. Presently, exchange programs have been established with the University of Bonn, the University of Cologne, and the University of Saarland. Additionally, an exchange program with Ruhr University Bochum features a role as a Chinese teaching assistant. Arrangements with other universities are under preparation. Exchange students usually go to their host universities either individually or in groups containing no larger than six students.

Faculty

Professor Emeritus
Reinhard Düßel (狄殷豪) ; Ying-Yen Chung (鍾英彥)

Professor
Wan-Bau Wu (吳萬寶); Reinhard Biedermann(雷納德)

Associate Professor
Holger Steidele (施侯格) ; Yu-Hsien Lin (林郁嫻) ; Huei-Ling Yen (顏徽玲)

Assistant Professors
Hsiu-Chuan Chang (張秀娟); Michael Schön (孫敏學) ;

Degree Requirements

Requirements for a degree of B.A. in German:
Completion of 128 credits of courses, including 78 credits of required courses and 20 credits of elective German major courses, and 30 credits of any other courses.

Course Descriptions

Undergraduate Courses

A0098 Intermediate German (4/4): This course emphasizes building up students' reading ability by reading different types of articles and analyzing the construction of sentences to expand their vocabulary and familiarize themselves with the grammar they have already learned. In addition, this course also contains German grammatical rules, especially those particularly difficult for Chinese-speaking students. Students are required to take Basic German as the prerequisite.

A0772 German Composition I (2/2): This course is an introduction to German composition for Chinese students who are new to this area. In addition, an emphasis is placed on the correct semantic use of vocabulary in compositions. Students will write a number of compositions.

A0773 German Composition II (2/2): This course emphasizes the use of written German to express personal experiences and the basic form of the research essay. Students will learn to collect information on issues of their choice from the German pages of the Internet, take notes, organize their notes, and present the information collected in short essays.

F1662 Basic German (6/6): This course aims to help students understand German syntax so as to strengthen their writing ability through basic sentence practice and interesting articles. while though reading articles, this course introduces fundamental German grammar with an emphasis on sentence patterns and basic grammar to help students build a good basis for German study.

A0796 German Conversation II (2/2): In this course, students are taught to have conversations in the German language with special emphasis on grammar and colloquial use of the German standard language.

A0797 German Conversation III (2/2): This course provides conversation training at an advanced level of content-based conversations to develop fluency and conversation strategies. Also, students will expand their vocabulary.

A0800 German Language Laboratory I (2/2): This course aims to improve students' ability in pronunciation, sounding out sentences and articles correctly, and in their listening and speaking ability.

A0801 German Language Laboratory II (2/2): This course is a continuation of German Language Laboratory I with an intention to further improve students' ability in speaking and listening in German.

A1508 Journalistic Reading in German (0/2): This course offers practice in reading German newspapers and provides instruction in the major elements of the language of journalism and an introduction into feature news writing. It will also help students get acquainted with the German-speaking world by making use of different media and styles of reporting. Background information in various areas, among them politics, economics and education, will be provided to facilitate the understanding of what is presented in the media.

A1513 Tourism in German (2/0): The main objective of this course is to help students gain a better understanding of the usage of the German language in tourism industries to expand the horizon of student's career opportunities after their study. Apart from teaching the German language, this course will also teach methods of communication in the tourism industry.

A1569 German Conversation I (2/2): This course aims to improve students' ability in listening and speaking German by listening to language tapes, group discussion and class communication.

A1669 Basic Business German (0/2): This course focuses on reading and writing business texts:

emphasizing special traits in business transactions, procedures of international trade and the process of business inquiries, offers, quotations, contracts, B/L opening, etc.

F1659 German Creative writing (2/0): The main feature and objective of this course is by means of analyzing of novel adaptation of classic literature in German to improve writing ability. Students will become familiar with a wide variety of text types and writing styles ranging from practical purposes to creative writing. Academic writing is also introduced.

F1660 AI German Translation and Interpreting (2/0): This Course aims to introduce theories German Chinese translation. Additionally practical exercises and project works will be provided. In addition to cultivating human translation ability, students should also be familiar with the application of AI-assisted translation.

F1661 German Literature and Film (0/2): German Literature and Cinema aims at observing different social themes through classic German literature and presenting them through different media, and in this case, through cinema, to bring readers a comparative view. In the classroom, the comparison of the two media will allow for a deeper exploration of social issues.

A1669 Business German (0/2): This course contains knowledge and abilities of business German language use: diverse business contact situations and the forms, organization and function of enterprises, basic knowledge of some important industries as well as current international/European economic development. Through diverse business learning texts and conversations to acquire business related language abilities. Especially written and oral presentation skill within the business context.

F0721 Perspectives on German-speaking Countries (2/0): This course invites experts from various fields to lecture regarding their views on German-speaking countries to help our freshmen gain a better understanding of the German language and culture.

F0797 Exam Preparation "Certificate German B1" (0/2): This course aims at helping students to pass the Zertifikat Deutsch (ZD) examination. They master the main grammatical structures and are capable of understanding and taking part in routine conversations. They are also capable of describing simple matters orally and in writing and understanding texts on general topics.

F1611 Political, Economic and Social Development in Germany (2/0): This course helps students understand the institutions and functioning of the German Federal system. The process of decision-making, the political spectrum, the political participation of the German people, and the role of social media will be highlighted.

F0798 Introduction to Germanic Linguistics (0/2): This course focuses on the knowledge acquisition of the function and mode of the German language. It also trains students in basic skills in handling linguistic issues.

F1612 Advanced German Grammar (2/0): This course designed for students who want to Learn advanced grammar and to deepen the knowledge of German.

F0932 German Tutorial (0/2): This course is designed for those who failed to pass the standard set by TKU for the German proficiency test.

F1432 Introduction to German Culture (2/0): To make sure students have a basic but comprehensive understanding of German culture. This course focuses on the Germany's historic development, religion, architecture, literature, painting, environmental culture, music and social media, eating and drinking culture.

F1433 The Selected German Short Stories (2/2): This course will begin with the Grimm's story, then the classic short story, at last is the well-known book from the modern author. The intentions of this course will be: improving the reading skill and inspiring independent reading and engagement with German language and cultures.

F1434 The Role of Germany in the EU (0/2): This course is designed for students who want to find

out the Germany’s external relations, especially the relationship between Germany and the European Union. Besides, the course is a case-study-oriented course. A lot of actual cases will help the students easily understand how the German government interact with European institutions and what kind of role does Germany play in the European Union.

F1471 German Selected Reading (0/2): Each semester uses "news" to allow students to understand the latest social issues. The following selections include popular professional books and articles from German-speaking countries and online Newspaper columns and magazine articles. The range of topics is as diverse as possible, such as education, philosophy, cultural thought, literature and art, social issues, and common knowledge of popular science.

F1591 Analysis of German Textbooks and Multimedia Teaching (2/0): DaF textbooks for adolescents. Textbook analysis, selection criteria, use in practice and didactics

F1237 Apprentice Program (2/2): This course aims to provide students with interships opportunities. Students can grasp the culture and expectations of different companies and cultivate competencies for future careers.

F1090 German for Teaching Chinese (0/2): The course aims to provide an overview of the current status and prospects of Chinese language programs in German and all over the world.

DEPARTMENT OF JAPANESE

Degrees Offered: B.A., M.A.

Chairman: Pei-Ching Tsai (蔡佩青)

The Department

The mission of Department of Japanese is to offer a variety of flexible courses and programs to meet numerous social needs, and educate students to be highly qualified citizens with advanced language skills and a global sense.

Department of Japanese, originally the Department of Eastern Languages, was established in 1966, and has been offering courses on linguistic, economic, political, and cultural study of Japan. In 1985, Department of Eastern Languages was renamed Department of Japanese. With continuous growth in student numbers, Department of Japanese currently accepts about 240 undergraduates every year in three day-time classes (about 180 students) and one night-time class (about 60 students). The Department also offered an M.A. degree since 2006.

Department of Japanese was the first department at Tamkang University to set up one-year study abroad programs with partner universities in Japan. Every year, students participate in the programs and study in Japan for one academic year.

Department of Japanese has a number of Japanese textbooks, academic journals, and audio and video teaching materials about Japanese and Japanese culture and society. Students and faculty can watch Japanese live TV programs at any time using a new satellite system.

Faculty

Professors
Chiou-Guey Tzeng (曾秋桂) ; Chuen-Yang Peng (彭春陽) ; Wen-Shun Chiang (江雯薰) ;
Pai-Hua Chueh (闕百華)

Associate Professors
Charng-Huei Liou (劉長輝) ; Yaw-Huei Maa (馬耀輝) ; Kazuo Horikoshi (堀越和男) ;
Chi-Wen Lin (林寄雯) ; Jiin-Fen Ku (顧錦芬) ; Akira Tomita (富田哲) ; Hsin-Yu Shih (施信余) ;
Mei-Ling Wang (王美玲) ;-Yu-Ching Liao (廖育卿) ; Wen-Ju Lee (李文茹) ; Pei-Ling Hsu (徐佩伶) ;
Chia-Lin Wang (王嘉臨) ; Kanae (中村香苗) ; Pei-Ching Tsai (蔡佩青) ; Hsin-Yin Tsai (蔡欣吟) ;
Ling Yeh (葉菱)

Assistant Professors
Kikushima Kazunori (菊島和紀) ; Yu-Chin Lai (賴鈺菁) ; Tatsuroh Higuchi (樋口達郎)

Lecturers
Tze-Hsin Chung (鍾慈馨)

Degree Requirements

The Department offers two programs B.A. and M.A. degrees.

1. Requirements for a B.A. degree: (Effective from 2018)
   Completion of 128 credits, including 96 credits of required courses and 32 credits of elective courses.

2. Requirements for an M.A. degree:
   Completion of 34 elective credits. Students are also required to submit a written thesis completed under the supervision of a faculty member and pass an oral examination.

Course Descriptions

Undergraduate Courses

A0178 Japanese Writing (I) (2/2): This course aims to develop students' basic Japanese writing skills through analysis and writing exercises of modern Japanese phrases, clauses, and sentence structures.

A0179 Japanese Writing (II) (2/2): This course aims to cultivate students' overall writing skills through discussion and analysis of modern Japanese.

A0190 History of Japanese Literature (2/2): This course offers an introductory overview of the history of Japanese literature, which facilitates students' understanding of representative Japanese literary works of each era.

A0197 Selected Readings in Japanese Literature (I) (2/2): This course offers an introduction to renowned modern and classical Japanese novels and other genres of writings, which enhances students' understanding of Japanese literature.

A0198 Selected Readings in Japanese Literature (II) (2/2): This course focuses on renowned classical Japanese novels and selected literary works, which enhances students' understanding of Japanese literature.

A0212 Japanese Politics (2/2): This course offers an introduction to contemporary Japanese politics, with a special focus on modern political systems in Japan starting from the Meiji Era.

A0235 Introduction to Japanese (2/2): This course helps students develop the linguistic understanding of the Japanese language including basic knowledge of Japanese phonetic, phonological and syntactic features.

A0239 History of Japan (2/2): This course helps students develop the linguistic understanding of the Japanese language including basic knowledge of Japanese phonetic, phonological and syntactic features.

A0249 Japanese Rhetoric (2/2): This course helps students develop the linguistic understanding of the Japanese language including basic knowledge of Japanese phonetic, phonological and syntactic features.

A0254 Japanese Conversation (I) (2/2): This course aims to develop students' basic speaking and listening skills in Japanese and to cultivate students' interest in Japanese culture and society.

A0255 Japanese Conversation (II) (2/2): The goal of this course is help students become articulate speakers in Japanese through discussion on various social and personal topics in Japanese.

A0256 Japanese Conversation (III) (2/2): This course aims to develop students' advanced competence in listening and speaking Japanese through discussion on various social issues.

A0260 Japanese Language Laboratory (I) (1/1): This course aims to improve students' listening comprehension of elementary Japanese.

A0260 Japanese Language Laboratory Practicum Course (I) (0/0): This course offers language laboratory drills in elementary Japanese as part of the course work for Japanese Language Laboratory I.

A0261 Japanese Language Laboratory (II) (1/1): This course aims to improve students' listening comprehension of intermediate Japanese.

A0261 Japanese Language Laboratory Practicum Course (II) (0/0): This course offers language laboratory drills in intermediate Japanese as part of the course work for Japanese Language Laboratory II.

A0565 Advanced Japanese (2/2): This course aims to develop students' overall Japanese proficiency with special focus on advanced-level Japanese sentence patterns and daily language usage referring to Japanese literature.

A0926 Journalistics Reading (2/2): In this course, students read Japanese newspaper articles and discuss various topics including national and international issues.

A1104 Japanese Society and Culture (2/2): The purpose of this course is to cultivate students' ability to explore various aspects of Japanese society and culture, and analyze them objectively and academically.

A1107 Japanese Conversation (IV) (2/2): The goal of this course is to facilitate students to communicate with more sophisticated and advanced linguistic structures, expressions and vocabulary regarding various issues.

A1531 Teaching Japanese as a Second Language (2/2): This course offers an introductory overview of the Japanese language education in Taiwan and facilitates students to acquire fundamental knowledge of teaching Japanese as a second language including course design and various teaching methods.

A1645 History of Japanese Philosophy (2/2): This course examines the development of Japanese philosophy and culture referring to Chinese and Western histories and cultures. Modern philosophy and culture in Japan are also discussed in this class.

A1755 Japanese Word Processing (1/0): This course trains students to acquire the input method of Japanese characters on the computer to compose Japanese documents by word-processing software.

A1757 Business Applications of Japanese (2/2): This course aims to help students acquire rules and styles of Japanese usage and frequently used phrases and sentences in business documents and letters.

A1759 Research Method of Japanese Linguistics (2/2): This course discusses how to conduct research on Japanese linguistics for graduation thesis.

F0038 Introduction to Japanese Enterprises (2/2): This course explores the developmental history, distinctive characteristics, underlying problems, and prospects of future development of Japanese enterprises.

F0113 Basic Japanese Reading (4/4): This course introduces the Japanese syllabary (50 sounds system) and their symbols. Additionally, basic phrases and sentences will be introduced and analyzed. This course also focuses on the grammatical features of Japanese sentences at the beginners' level.

F0114 Basic Japanese Grammar (2/2): This course introduces the Japanese syllabary (50 sounds system) and their symbols. Additionally, basic phrases and sentences will be introduced and analyzed. This course also focuses on the grammatical features of Japanese sentences at the beginners' level.

F0115 Intermediate Japanese Reading (4/4): This course focuses on intermediate-level Japanese reading, with particular emphasis on complex Japanese phrases and sentence structures based on the knowledge acquired in Japanese I.

F0116 Intermediate Japanese Grammar (2/2): Through lectures and discussions, this course explores Japanese sentence structures and grammar on the intermediate level to enhance students' writing proficiency.

F0270 Guidance for Bachelor Thesis (1/1): This course offers an introduction to the methods of researches on Japanese language, culture, and society, with particular emphasis on formats and styles of academic theses. All senior students are required to submit a graduation thesis at the end of the final semester.

F1032 Business Japanese Writing (0/2): This course focuses on rules and styles of Japanese business documents as well as frequently used phrases and sentences.

Master's Program

F0400 Translation Theory (2/2): Through reading of translation-related articles and in-class discussion,

this course aims to deepen students' understanding of translation theory. In addition, in-class practical translation exercises and translation analysis will be included.

F1311 Cross Cultural Exchange between Taiwan and Japan (2/2): This course is designed by TKU and Business Breakthrough University, TKU's partner university. Webcast, Classroom instruction, Videoconferencing and BBS discussion will be included in the course. The course aims to encourage students to understand in depth the various aspects of exchanges between Taiwan and Japan and think of the meanings of such exchanges with particular attention to the movement of people, objects, information and so forth between the two countries, through class discussions.

F1334 Readings of Selected Chinese and Japanese Syntax Papers (I) (II) (2/2): The course offers an introduction to Generative Grammar. Students will be assigned selected readings that mainly focus on the syntax on Japanese, Chinese and English languages.

T0294 The Study of Modern Japanese (2/2): This course explores various subjects regarding modern Japanese societies and language.

F1175 Syntactic Theory and Method for Studying Japanese Grammar (I) (II) (2/2): This course introduces basic theories of formal syntax of Japanese. Students are required to read papers on Japanese syntax and lexical semantics to deepen their understanding of the distinct grammatical system in Japanese.

F1315 Introduction to Literature during the Meiji to Taisho Eras (I) (II) (2/2): This course examines Japanese literature from the Meiji Era to the Taisho Era, especially focusing on Romanticism and Naturalism in the Japanese language.

DEPARTMENT OF RUSSIAN

Degree Offered: B.A.

Chairman: Hsin-Yi Kuo (郭昕宜)

The Department

The Department of Russian was established in 1993 with the aim of developing students' language ability in the practical applications of the language, to improve their knowledge of Russian people and culture, and train them for careers in diplomacy, economic affairs, and international trade.

Faculty

Professors
Ching-Gwo Chang (張慶國)

Associate Professors
Shwu-Yann Su (蘇淑燕) ; Hwang-Shing Liu (劉皇杏) ; Natalia Bourovtseva (龔雅雪) ;
Tatiana Naydina (那達怡) ; Hsin-Yi Kuo (郭昕宜) ; Ying-Ying Cheng (鄭盈盈) ;
Svetlana Zaretskaya (史薇塔)

Degree Requirements

Requirements for a B.A. in Russian:
Completion of 128 credits of courses, including 92 credits of required courses and 36 credits of elective courses.

Course Descriptions

Undergraduate Courses

A0693 Basic Russian (I) (4/4): This course offers an introduction to fundamental Russian with an emphasis on sentence pattern practice.

A0696 Basic Russian (II) (4/4): This course is a continuation of the study of fundamental Russian with more complicated sentence pattern practice.

A0846 Basic Russian (III) (2/2): This course focuses on practice in reading abridged Russian novels with an emphasis on the structure of language patterns.

A0885 History of Russian Literature (2/2): As an overall review of periods and trends in Russian literature, this course studies and analyzes representative works of each period.

A0887 Russian Phonetics (0/2): Pronunciation practice of vowels, consonants, and intonation is the focus of this course.

A0911 Russian Grammar (I) (4/4): Fundamental Russian grammar and practice in writing short sentences are central to this course.

A0912 Russian Grammar (II) (3/3): This course focuses on fundamental Russian grammar and, on sentence structure.

A0913 Russian Conversation (I) (2/2): This course focuses on practice in speaking Russian.

A0914 Russian Conversation (II) (2/2): This course focuses on speaking Russian in various common and special topics.

A0915 Russian Conversation (III) (2/2): In this course, students will practice speaking Russian in various special topics.

A0916 Russian Language Laboratory Work (I) (2/2): This course emphasizes training in listening and speaking everyday Russian with more complicated structures.

A0917 Russian Language Laboratory Work (II) (1/1): In this course, attention is given to training in listening and speaking everyday Russian with more complicated structures.

A1375 Russian Folk Music (0/2): This course offers students an understanding of Russian song lyrics that invoke a variety of feelings. It also aims to cultivate students' interest in Russian music and the musical art of singing.

A1480 Introduction to Russia (2/0): This course offers a general survey of Russia with elements from history and culture.

A1518 Russian Conversation (IV) (2/2): This course trains students in speaking Russian on different special topics.

A1519 Basic Russian (IV) (2/2): This course is devoted to widening students' knowledge in vocabulary, grammar, intonation, reading and communication.

F0384 Oral Translation of Commercial Russian (0/2): This course is an advanced course in business correspondence, commercial negotiations, advertising and other aspects of business activity. Its aim is to provide students with solid knowledge of Russian business activities.

F0714 Business Russian (I) (2/2): This course deepens important reading, speaking, writing and listening skills for business and business-like communication in Russian language with emphasis on most common situations. The course introduces business etiquette, business correspondence and related vocabulary to help the students understand and navigate business Russian language.

F0717 Business Russian (II) (2/2): This course further develops the main premises of Business Russian (1) It focuses on the issues of commercial correspondence and negotiations.

F0761 Russian Composition (I) (2/2): This course focuses on teaching writing skills in accordance with the requirements of the 1st certificate level (TORFL-1).

F0762 Russian Translation (2/2): This course covers practice in translation from Russian into Chinese, including an analysis of the fundamental translation problems, peculiarities of some Russian expressions and untranslatable word structures.

F0806 Russian Composition (II) (2/2): Course content includes the following: practice in basic Russian writing; analysis of grammatical structures and common mistakes and practice in writing Russian paragraphs and short essays.

F0968 Russian Plays (0/2): This course aims to help students understand the deep complexities of Russian culture by examining famous Russian dramas.

F1141 Teaching Chinese As A Foreign Language By Russian (2/0): The main objective of this course is to introduce students to the basics of teaching Chinese to Russian speakers. We will discuss specifics of teaching Chinese in Russia, Russian textbooks on Chinese, and methods of teaching Chinese in Russia with an accent on phonetics and writing system of Chinese. We will also analyze typical mistakes and difficulties Russian speakers experience while learning Chinese language. Students are recommended to obtain sufficient level of Russian to fully participate in this course.

F1189 Tourism Russian (2/0): This course provides students with knowledge about tourism and helps to expand students' tourism-related vocabulary in Russian.

F1291 Seminar in Business Russian Practices (2/0): This course will invite experts and scholars to analyze the current situation of Taiwan's enterprise investment in Russia, aiming to help students to

understand the economic and industrial developments in Russia and lead the students to experience the workplace culture.

F1293 Methods for Teaching Chinese as a Foreign Language Using Russian (0/2): This course provides instructor-training for the teaching of Chinese as a second language. Elective students will be looking to provide instruction to Chinese teachers whose native language is Russian, or to foreign countries interested in publicity and promoting Chinese learning.

F1362 Russian Audio-Visual Presentation (1/1): This course emphasizes training in listening, hoping to help students pass the Russian listening test.

F1620 Learning Russian Through Gamification (2/0): This course will go through gamified way (Board games and activities) to let students learn basic level Russian words and sentences and to shorten distance of knowing a new language. new words will cover: Colors/ Numbers/ Alphabet/ Fruits and so on. Sharing some basic knowledge of Russian culture to students to make them understand Russian by different way.

F1621 Thousand Years Of Russian Culture: Architecture, Painting, Sculpture (2/0): General review of the development of Russian culture and fine arts from the 10th century till the beginning of the 20th century with special emphasis on the major artistic styles and ideological trends.

F1622 Thousand Years Of Russian Culture: Myths, Customs, Folktales, Food (0/2): Comprehensive understanding of Russian folklore with polytheistic myths, customs, folk tales, Russian food and proverbs, and traditional food.

F1623 Test of Russian as a Foreign Language (A1-A2) (2/0): This course aims to help students pass the TORFL level A1 - A2 examination. In this class, the teacher uses real questions to demonstrate how to prepare for the vocabulary, grammar, reading, conversation, and listening comprehension tests.

F1624 Test of Russian as a Foreign Language (A2-B1)(0/2): This course aims to help students pass the TORFL level A2 – B1 examination. In this class, the teacher uses real questions to demonstrate how to prepare for the vocabulary, grammar, reading, conversation, and listening comprehension tests.

F1625 Current Affairs In Russia (2/0): As a leading nuclear power and the Permanent Five of the United Nations, Russia is not only the second largest military power in the world after the United States, but also a regional power. This course is mainly to understand the current situation in Russia. In addition to exploring Russia's political, economic and social development and its foreign relations through historical and cultural contexts, it is also in the hope that students can be inspired to think about Taiwan's subjectivity and future.

COLLEGE OF
INTERNATIONAL AFFAIRS

COLLEGE OF INTERNATIONAL AFFAIRS

Dean: Cheng-Hao Pao (包正豪)

Brief History

The College of International Affairs was inaugurated in 1992 with the mission to train students to be familiar with international affairs. The College includes 3 undergraduate programs and 6 postgraduate programs (MA/PhD for International Affairs and Strategic Studies; MA/PhD for European Studies, MA for China Studies, MA for Japanese Political and Economic Studies) The 3 undergraduate programs are all English-instructed ones, which offered by the Department of Diplomacy and International Relations, the Department of International Tourism Management, as well as the Department of Global Politics and Economics with the aim to advance the College's internationalization. No other university in Taiwan offers as extensive a range of academic programs in international affairs and area studies as Tamkang University does.

All programs of the College are characterized by our interdisciplinary approaches to scholarly studies and teaching. In addition, the College encourages its students to take courses at renowned overseas institutions of higher learning, either as exchange students or as students pursuing dual degrees.

The College takes pride in its outstanding faculty members and is privileged to have distinguished diplomats and cabinet officials in its staff. The College has an ongoing commitment to ensuring excellence in both teaching and research. As part of this commitment, the College has installed several research centers: The Center for Advanced Technology, the Center for Japan Studies, the Center for ASEAN Studies, the Center for Cross-Strait Relations, and the Center for New Southbound Policy and Belt Road Initiative Studies. The College also publishes an English quarterly journal, the *Tamkang Journal of International Affairs* to explore crucial international issues and theories. It regularly publishes books and conference papers both in Chinese and English as well.

Mottos and Goals

Our mottos and goals are as follows: nurturing the distinguishing strengths of the College; providing excellent academic programs to local and international students; and co-shaping the national security, defense, mainland China affairs and foreign policies of Taiwan.

Future Development

The College will continue to encourage its faculty to advance their academic achievements and expertise. It will further strengthen its internationalization by expanding academic cooperation with international and mainland China's academic institutes, by increasing dual-degree partnerships for its postgraduate and undergraduate students, by providing more English-instructed courses and by enrolling more international students. The College will also enhance its practical cooperation with governmental and private corporations to provide more intern training and job opportunities for its students.

Course Descriptions

I0557 Exploring Multicultural Issues (2/0): This course builds and expands prior professional knowledge, preparation, and experience fostering astute awareness, knowledge, and skills so that individuals may interact in learning environments with learners whose cultural background may differ from their own.

I0558 From Anime & Tv Drama To Explore Japan (2/0):This course is using popular Japanese content such as Kimetsu no Yaiba（鬼滅の刃）, Jujutsu Kaisen (呪術廻戦), NHK Taiga Drama The 13 Lords of the Shogun(鎌倉殿の 13 人）. Language and content express people's thinking. The meaning of songs is also the point. We are going to discuss about why so many people like Japan.

T3101 INDONESIAN(I) (2/0): This is an elementary level Indonesian course aiming at making students primitively understand the pronunciation system, daily-use vocabularies and grammatical structure of the language. After the one-semester-long instruction, students will be supposed to talk with Indonesians in day-to-day conversation, to read the headlines of magazines and newspapers, as well as to communicate roughly through e-mails and mobile apps with Indonesians.

T3102 INDONESIAN(II) (0/2): This is an elementary level Indonesian course aiming at making students primitively understand the pronunciation system, daily-use vocabularies and grammatical structure of the language. After the one-semester-long instruction, students will be supposed to talk with Indonesians in day-to-day conversation, to read the headlines of magazines and newspapers, as well as to communicate roughly through e-mails and mobile apps with Indonesians.

M2679 Circular Economy and Sustainable Supply Chain (2/0): Circular supply chains play a key role. Circular economy has become a new concept for the sustainable development. The course aims at widening understanding and basic knowledge of the circular economy and its relation to the sustainable supply chain.

Citizen Science and Environmental Actions (0/2): This course aims to integrate citizen science and citizen journalism skills with hands-on fieldwork in case communities across northern and eastern Taiwan. It will empower students to explore the intricate relationship between indigenous community livelihoods, cultural identity and the conservation of environmental resources.

GRADUATE INSTITUTE OF INTERNATIONAL AFFAIRS AND STRATEGIC STUDIES

Degrees Offered: M.A. or M.S.S, Ph.D.

Director: Da-Jung Li (李大中)

The Institute

The Graduate Institute of International Affairs and Strategic Studies was founded in 1982. As the oldest graduate institute dedicated to strategic studies in Taiwan, the Institute is considered one of Taiwan's most prestigious institutions in this field. The Institute is distinctive among Taiwan's leading institutes of IR and Strategic Studies for its cross-disciplinary approach, powerful combination of theory and practice, and highly policy-oriented character. The Institute offers MA, Executive MA, and doctoral programs. In addition to IR and Strategic Studies, our main fields of study include Regional Security, National Security and Defense Affairs, as well as Chinese Military and cross-strait relations. The faculty members of the Institute are widely recognized experts in their fields and many have real-world experience in the public sector.

Faculty

Professors
Cheng-Hao Pao (包正豪) ; Da-Jung Li (李大中)

Associate Professors
Alexander Chieh-Cheng Huang (黃介正)

Assistant Professors
Chun-Wei, Ma (馬準威) ; Ying-Yu, Lin (林穎佑) ; Ray Ou-Yang(歐陽睿) ; Hsiao-Chen, Lin (林筱甄) ; Ying-Han, Wu (巫穎翰)

Professor Emeritus
Ming-Hsien Wong (翁明賢)

Degree Requirements

Ph.D. Program
Successful completion of 30 credits of courses. Students must pass a qualifying examination and publish 2 articles in academic journals with an anonymous review system. Students are also required to submit a written doctoral dissertation completed under the supervision of a faculty member and pass an oral examination.

Master's Program
Successful completion of 30 credits of courses. Students are also required to submit a written master's thesis completed under the supervision of a faculty member and pass an oral examination.

Executive Master's Program
Successful completion of 33 credits of courses. Students are also required to submit a written master's thesis completed under the supervision of a faculty member and pass an oral examination.

Course Descriptions

Ph.D. Program

I0005 Colloquium on Diplomatic Strategy and Hermeneutics (2/0): This course is designed to introduce the study of diplomatic strategy through the German Dilthey hermeneutic philosophy. It uses explanation, understanding, and reflection methods to understand the thinking, plans and actions of diplomatic strategy. This will enable graduate students to have the ability to analyze international situations and predict diplomatic strategies. It can also be helpful for paper publication in learning methodology.

I0599 A Disquisition on Theory of Strategy of Action (2/0): This is an advanced course of National Power and Strategy of Action. It'll be conducted in two essential parts as follow:1. Fundamental theories concepts of national, strategic decision-making, and strategy of action. 2.Case study of strategy of action from the ancient to the contemporary such as Qin's unification strategy, Prussian unification strategy, China's strategy of action for South China sea, and America's strategy for returning to Asia, etc. In short, this course is trying to make an advanced analysis for strategy of action based on theories and practices.

I0628 Artificial Intelligence Technique and Cyber Security Strategy (2/0): With the development of information technology, people have become increasingly dependent on the Internet. Because of its highly-developed information industry, Republic of China (ROC) boasts a convenient environment for use of the Internet, which, however, also makes it become a target for black-hat hackers and cyber forces around the world. This course focused on cyberspace-related threats. It started off with an interpretation of cyber warfare as defined by China before analyzing and probing into China's threats to Taiwan's cyber security.

I0670 Geopolitics & Geoeconomics (2/0): This course is offered to provide graduate students with new and important concepts and thoughts related to future strategic studies, and foreign & defense policy issues in the 21st century. Government documents, journal articles, academic papers, and policy statements are put into categories to guide students to better inquiry in the field.

I0672 Political Economy of National Security (3/0): This course explores the relationship between national security and political economy. It covers theoretical frameworks and case studies to analyze the economic aspects of security issues. Key topics include the role of international trade in security, economic sanctions, the economic impact of military spending, and the strategic use of economic tools in foreign policy. By the end of the term, students will have a comprehensive understanding of how economics influences national security and will be equipped with analytical skills to assess current and future challenges.

I0682 Technology and Strategy of Great Power Competition (2/0): Technology has become a new geopolitical variable in international relations. This course will review the historical technological competition between major powers and look ahead to the current technological rivalry between China and the United States. The goal is to cultivate students' independent thinking skills and inspire them to explore new research areas.

T0067 Social Science Research Methods (2/0): This course explores the research methodology and methods of social science, including the philosophy of science, philosophical foundations of social science, research ethics, theory-building, research design, qualitative and quantitative methods, papers and thesis writing, research outcomes publishing, and reflections of social science. With this course's teaching and training, the students should have capilibities of thinking, studying, and analysing independently to research the deciplines of social science.

I0530 Seminar on the U.S. and Indian-Pacific Security (0/3): The primary goal of the course is to examine the traditional role and the interests of the U.S. in the Asia-pacific (Indo-pacific) region and to explore the Asia-pacific (Indo-pacific) policies of the post-Cold War U.S. administrations.

I0463 Great Powers' Economic Statecraft (0/3): This course is designed specifically for Ph.D. students. Students who intend to take this course but did not take the course "Economic Statecraft and National Security" in Semester 109-2 may encounter some difficulties with the assignments. The course will focus on how the U.S., together with its ally, UK, designed the Bretton Woods system, and, some 7 decades later, how a rising China's intends to mimic the US to have its own design of geo-economic international relations. Course will be conducted in both Chinese and English.

T8054 Critical International Issues Topics on International trends (0/2): The course "Critical International Issues" is mainly divided into two parts. The first part is media literacy, which involves comparing the emphasis of the "Top Ten International News of the Year" selected by different international media, to explore the messages that international media attempt to convey and their perspectives on world affairs. The second part is the analysis of critical issues, from a Taiwanese perspective, selecting case studies from the aforementioned top ten international news.

I0543 Seminar on US-China Relations (0/2): This course looks forward to having students understand US-China strategic relations through the base of international theories, especially focusing on the factors of competition and cooperation among great powers. Besides, it introduces the CCP's and American strategic style for knowing US-China-Taiwan relations more precisely. In addition, the course will train students presentation and writing thesis skills.

I0125 Modernizing of Chinese Militery (0/2): People's Liberation Army (PLA) has established over 70 years. In 70 years of the development process, PLA from use of People's war (Mao's military Thought plus millet plus rifles) transform to a modernization troops. How do they achieve it? What's the strategic intent in China's leader use the PLA's modernization? And PLA's ability can or can't to achieve China's leader's political purposes. This is the goal of this course to explore.

Master's Program

F0077 The Theory and Practice of International Relation (2/0): This course introduces four key theoretical frameworks in international relations: Realism, Liberalism, Constructivism, and Post-Positivist theories. Students will learn to apply these theories through levels of analysis to understand global political affairs. The course covers major 21st-century issues such as security, economy, human rights, and transnational problems, focusing on different theoretical interpretations to develop critical thinking and problem-solving skills.

I0676 New Trends 2030 (2/0): This course is offered to provide graduate students with new and important concepts and thoughts related to future strategic studies, and foreign & defense policy issues in the 21st century. Government documents, journal articles, academic papers, and policy statements are put into categories to guide students to better inquiry in the field.

I0677 Seminar on Taiwan's Security Challenges in the Age of AI (2/0): The main objective of the course is to provide students with the opportunity to collectively explore the various challenges and solutions Taiwan faces in the AI era through the sharing of personal experiences and professional knowledge by scholars and experts from both inside and outside of the university.

I0683 Strategic Study for Generation Z in the Digital Era (2/0): In this course, we will discuss the important topic of strategy in the digital age. We will start with the origins and evolution of the concept of strategy and approach it from themes suitable for Generation Z youth. Our main focus will be on the following issues: the concept and evolution of strategy, how technology influences strategy, and strategic issues in the digital age. This will facilitate the exploration of strategic concepts for the younger generation.

Seminar on Strategy and Culture (2/0): In this course, we will discuss the cultural approach to strategic studies to clarify the relationship between international relations and strategic culture. The course will begin with an overview of international relations theory, exploring the development and evolution of strategic culture. Through case studies of countries such as China and the United States, the course will help students develop an understanding of the cultural approach to strategic studies.

T1059 International Political Economy (2/0): This course introduces you to international political economy (IPE). As an interdisciplinary field, IPE brings together politics and economics at both the domestic and international levels to analyze global exchanges. We will focus on how state-market interactions affect the distribution of power and wealth. For example, what drives global trade and finance? To what extent is China's economic statecraft reshaping geopolitical orders? What is the association between territorial disputes, climate change, and natural resources? During the term, you will learn various approaches to answering them.

T2416 Study of Military Politics (2/0): To understand the basic concepts and theories of 'military politics', and to analyze those related issues, such as the interactions military and domestic politics and international politics, especially civil military relations, military professionalism, coup d'etat, civilian control over military, MOOTW, national security policy. ...etc.

T0578 The Basic Research of Strategy (2/0): This course not only asks students to understand the strategic research development and related implications by focusing on major strategic concepts and topics, but also explores the strategic research approaches and methodology, according to the change of strategic environment and tendency, integrating the disciplines, to be the foundation of future strategic studies.

I0051 Comparative Studies on Defense Transformation (0/3): This course is offered to provide graduate students with new and important concepts and thoughts related to future strategic studies in the 21st century. Government documents, journal articles, academic papers, and policy statements are put into categories to guide students to better inquiry in the field. The focus of the course is defense transformations in major powers and various impacts of such changes on the development and practice of military institutions as well as capabilities.

I0069 Advanced Studies of Taiwan's National Defense (0/3): The purpose of this course is, through small-group workshop, to analyze the critical issues in Taiwan's national defense and to seek for possible solutions.

T0512 International Negotiation and Mediation (0/2): The goal of the course is to provide an understanding of the roles of international negotiation and mediation in conflict resolution. The content of the course is divided into two parts: negotiation and mediation. The former covers the basics of international negotiation with emphasis on theoretical knowledge, such as the impact of power, the role of culture, and the nature of multilateral negotiation. The latter surveys major issues of international mediation with case studies, including the Oslo Accord, the Iran hostage crisis, and third-party intervention in Cambodia and East Timor**.**

T0816 Understanding Journalistic English (0/3): This course aims to equip students with the skills to read English newspapers and news magazines with ease and in depth. Students will be familiarized with various aspects of a news story, ranging from headlines to its various other constituents. After the basic structures, students will be introduced to various types of news stories and articles, ranging from political news, diplomatic news, to military news. Editorials and columns will also be included in the readings. To encourage students to learn more on their own, bonus points will be given to those who transcribe taped newscasts.

T1136 History of Western Strategic Thoughts (0/3): This course aims to introduce the western strategic thought and theory from ancient Greek era to modern era. There are two study approaches included as follows: (1) the vertical historical development, where students realize the developed logic and essence of the western strategic thought and theory; (2) the horizontal study of selected strategic writings to inspire current strategic theory. Ultimately speaking, it will cultivate students' capability of strategic thinking and strategic analysis is the further purpose.

T1571 Research Methods for Social Science (0/3): The goal of this course is to provide an understanding of major research approaches and methods of social sciences. Students will be required to complete a research project.

T2003 Asia-Pacific Security Strategy (0/3): The course aims to analyze the strategic situation in the Asia Pacific region. It will explore the general strategic situation in the region, the major countries' regional security strategy, including the United States, China, Japan, Taiwan, North and South Koreas, and ASEAN, and their strategic interactions.

T2416 Study of Military Politics (0/2): A study of the involvement of the world's military forces in domestic politics, government, and policy making. Seminar topics include but are not limited to the followings: a historical perspective on the armed forces; social and international impact of military activities; civil-military relations; mechanisms of civilian control of the military; armed forces as interest groups; military interventions; military government; and military performance in government; CBMs; and MOOTW.

T2592 Studies on Globalization (0/3): The main purpose of this course is to analyze different aspects of Globalization development, i.e. political, economic, military, social and cultural dimensions. Besides, it will explore from a security perspective how to understand the implications from traditional and non-traditional security threats toward globalization. First, it will identify the core concepts of globalization, related international relations theories and research approaches. Second, it will analyze different security situations under diversity globalization. Finally, it will integrate a situation including not only theoretical, but also practical outcomes under globalization.

Executive Master's Program

I0458 Homeland Security and Homeland Defense Establishments (3/0): The top priority of homeland security is "prevention" rather than just immediate and effective "response" to incidents. Therefore, the competent authorities and operators of the eight critical infrastructure fields and sub-fields that have been clearly defined in daily life must conduct effective drills in order to be more effective. A good grasp of "all hazards" and the ability to demonstrate best practices when responding to hazards.

I0673 Artificial Intelligence and Economic Strategy (3/0): Artificial Intelligence and Economic Strategy will discuss the impact of the rising AI and its application on the state of international economy and economic strategy planning. In addition to analyzing the international politics of the rise of AI, this course will also discuss the impact of AI applications on information security, big data analytics, large language models, and geopolitics of semiconductor.

I0675 Taiwan & Great Powers Cmpetition (3/0): This course is offered to provide graduate students with new and important concepts and thoughts related to future strategic studies, and foreign & defense policy issues in the 21st century.

T2710 Power Balance and US-China-Taiwan Relations (3/0): This course will not focus on specific events in the trilateral relations between the US, China, and Taiwan. Instead, it will center around the impacts of the rise or fall of great powers on the international system. For example, we will not study the Taiwan Relations Act (TRA); rather, we will look at the US grand strategy of balance of power during the formation of the TRA. Henceforth, the course emphasizes the rise and decline of great powers and how other states adjust to the fortune of great powers.

T0067 Social Science Research Methods (3/0): This course expects to combine academic theory and practical operation at the same time. At the academic level, through the explanation of literature, students can understand what is the essence of social science research? What is the purpose of social science research? What tools are used to enable social science research to be conducted? What types of research tools are there? And so on. The other part is to expect that students can complete the master's thesis research proposal in this class. Besides, the problems of the future graduation thesis can be solved in the classroom first.

T2876 THE. U.S. And Asia-Pacific Security (3/0): The goal of the course is to provide students with an understanding of the important topics surrounding the U.S. and Asia-Pacific regional security. The contents of the course include the fundamental interests and traditional role of the U.S in the Asia-Pacific region since the end of WWII, U.S. alliance system, U.S. and the major potential conflicts in the region, and the U.S. and the future of the region.

I0047 PLA Modernization (0/3): As an emerging great power in the Asia-Pacific region, the People's Republic of China (PRC) is striving for a strong military that is parallel to its growing influence in international affairs. The course is designed to provide students an overview of defense modernization in the PRC and contemporary development of the People's Liberation Army (PLA) with a specific focus on Chinese understandings, interpretations, and propositions regarding the revolution in military affairs (RMA).

T0776 Seminar on Strategic Theory (0/3): The purposes of this course are to cultivate the students' strategic concepts and shape their capability of strategic thinking and strategic analysis through specific research on Chinese classical strategic theories and western classical, modern and contemporary strategic theories. Furthermore, the students will be able to make a better combination between strategic essence and their own professionalism. Thus, they will have the unique capability of strategic analysis and strategic judgement.

T0958 China's National Security Strategy (0/3): The course is based on the basic theory of security strategy, research approach and research method. It will clarify the security policies of China under the tradition and non-tradition security environment. Including: National security decision making mechanism and process, international and regional security, including politics, diplomacy, culture and energy. Finally, by understanding the security strategies and policies of China, we will suggest the timely solution of Taiwan.

I0067 Quantitative Analysis of Political Economy (0/3): Do numbers speak truth or lie? Living in the modern age, we must understand numbers. This course introduces how numbers are used in social sciences. It has three parts: how quantitative analysis evolved, how numbers tell stories, and how we should think in terms of numbers. There is no prerequisite for math, or statistics, but the students must do the reading faithfully.

T0576 The Security Situation in the Taiwan Strait (0/3): The goal of the course is to provide Students with an understanding of the subject of security and peace in the Taiwan Strait. The contents of the course include the theoretical concept of security, U.S. East Asian security strategy, US-China-Taiwan trilateral relationship, U.S.-Japan Alliance, military modernization of China, the role of the US in the Taiwan Strait crises, and U.S.-Taiwan Security ties.

DEPARTMENT OF DIPLOMACY AND INTERNATIONAL RELATIONS

Degree Offered: B.A., M.A., Ph.D.

Chairman: Hsin-Chih Chen（陳杏枝）

The Department

All undergraduate courses in this department are instructed in English. By offering intensive and relevant courses, this department aims to equip students with proficient knowledge and skills on diplomacy, international relations, regional politics, economic development, etc. A friendly international learning environment is especially characterized in this department so that students from all over the world can properly enhance their professional competence together with a global vision of career development. In addition to providing excellent opportunities for the study of international relations, with abundant choices among texts and topics from many periods, this department will train students to apply theories and techniques of international relations to diplomacy. Students will also be able to explore some of the complex interactions between these two disciplines.

For better consolidation of teaching resources and academic dynamics, the merging of 2 graduate institutes into this department in the August of 2022, which makes this department an integrated one with 1 Ph.D. program, 2 master programs, and 1 In-service Master Program, which are introduced below:

The Master Program of the European Studies derives from the Graduate Institute of European Studies, which was established in 1971, was then the only one interdisciplinary research institute for European studies in Taiwan. Due to the restructuring of the College of International Studies in 2009, the Graduate Institute of European Studies and the Graduate Institute of Russian and Slavic Studies was integrated into the Graduate Institute of European Studies. The Graduate Institute of European Studies is divided into 2 sections: EU Studies and Russian Studies. The Ph.D. Program was established in 2000, therefore, the Graduate Institute of European Studies has become the only one interdisciplinary research institute for European studies in the Asia-Pacific area. Additionally, the EU Center in Taiwan (EUTW) which was set up in 2009 makes Tamkang University one of the consortium universities of the EUTW.

The Master Program of China Studies is the former Graduate Institute of China Studies which was set up in the August of 1991 under the encouragement from the Ministry of Education and under the circumstance that Cross-Strait relations had been entering a new phase with close personal relationships as well as economic and trade exchanges. It was then the time to conduct comprehensive research on our largest neighbor, China. The Graduate Institute of China Studies was established to train researchers to undertake in-depth studies of China-related affairs to promote practical solutions and ways to cope with the ever-changing Cross-Strait situation. Since 1999, this institute has also offered a master's program for extension education.

Faculty

Professors
Li-Jiuan Chen-Rabich, LL.M (陳麗娟) ; Hsin-Chih Chen (陳杏枝) ; Chung-Hung Cho (卓忠宏)

Associate Professors
Wu-Ueh Chang (張五岳) ; Lie Lien (林 立) ; Chien-Fu Chen (陳建甫) ; Chin-Mo Cheng (鄭欽模) ; Fu-Chang Chang (張福昌) ; Lin Tsui (崔琳)；Mor Sobol (莫少白)

Assistant Professors
Mateus Lee (李文基) ; Gregory Coutaz (唐裕安) ; I-Ching Chen (陳逸青) ; Yao-Nan Hung (洪耀南)

Professor Emeritus
Hurng-Yu Chen (陳鴻瑜) ; Ching-Lung Tsay (蔡青龍) ; Wan-Chin Tai (戴萬欽) ;
Chun-Shan Chao(趙春山) ; Juo-Yu Lin (林若雩)

Degree Requirements

1. Students must complete 128 credits including all the required credits.

2. Requirements for Master's degree in European Studies and China Studies and Executive Master's degree in China Studies (M.A.): Students must complete 32 credits of university courses. They are also required to pass the review of thesis proposal, submit a written master's thesis completed under the supervision of a faculty member, and pass an oral examination.

3. Requirements for a Doctoral degree in Foresight for Educational Leadership and Technology Management (Ph.D.): Students must complete 27 credits of courses. They are also required to publish or present at least one research paper in academic journals or international conferences, submit a written doctoral dissertation completed under the supervision of a faculty member, and pass an oral examination.

Course Descriptions

Undergraduate Courses

B0200 International Private Law (2/0): To provide students with an understanding of the major theories in diplomacy & international relations and to equip students with practical skills and help them become outstanding members of the diplomatic and international relations community.

B0468 International Economics (2/0): To provide students with an understanding of the major theories in international trade and international finance in order to promote students' practical skills in diplomacy and international relations and help them becoming outstanding members of the diplomatic and international relations community.

H0134 International Relations (I) (2/0), I0161 International Relations (II) (0/2): This course will help students build up their knowledge about the history of the international society. It will particularly help students understand the major issues facing the contemporary world. Besides, it will help students obtain the basic knowledge about the major theories of international relations.

H0136 Politics (I) (2/0), P0023 Politics (II) (0/2): Politics is chiefly concerned with how best to arrange our collective lives, with attention to the necessity for and rights and obligations of "rule," as well as the limits of that important power. Since the time of Socrates, political philosophers have examined and suggested the most defensible approaches to political knowledge as well as the cultural values, political regimes, institutional forms, laws and economic systems that best facilitate "the good life" for human beings.

H1638 Principles of Economics (I) (2/0), H1639 Principles of Economics (II) (0/2): The course will provide students with a sound knowledge of and an ability to apply the key principles of economics to every day events. Within this course, students will look at both microeconomics and macroeconomics.

T2353 Introduction to Globalization (2/0): Globalization in this course will be defined as a set of economic, social, technological, political and cultural structures and processes arising from the changing character of the production, consumption and trade of goods and assets that comprise the base of the international political economy.

M0061 Seminar on Foreign Policy Analytics (0/2): Understanding Foreign Policy Decision Making presents a psychological approach to foreign policy decision making. This approach focuses on the decision process, dynamics, and outcome.

M0310 Statistics I (2/0): This course introduces the basic concepts of random variables, probability, probability densities, mean, variance, covariance, correlation, sample mean, sample variance, etc. It then looks at the Central Limit Theorem and studies the testing of simple hypotheses. Related open source software will be discussed, as well.

M0311 Statistics II (0/2): This course considers the problem of simple and multivariate regression, tests of significance, various types of ANOVA tests, surveys, and the limitations of descriptive and inferential statistics in everyday life. Related open source software will be discussed, as well.

B0130 Intermediate Microeconomics (2/0): This course begins with an introduction to supply and demand and the basic forces that determine an equilibrium in a market economy. Next, it introduces a framework for learning about consumer behavior and analyzing consumer decisions. It then considers the theory of the firm under different types of competitive structures. The labor market is discussed separately.

B0373 Intermediate Macroeconomics (0/2): This course considers aggregate economic behavior including the determination of the national income, employment, inflation, interest rates, and growth. It also considers foreign trade, the balance of payments, and exchange rates.

I0163 Political Economy (I) (2/0), I0164 Political Economy (II) (0/2): Political economy occurs whenever the production and allocation of goods and services is accomplished by non-market forces, such as through collective political action. This course considers such collective action and analyzes the forces that influence political decisions on such production and allocation decisions. In addition, comparisons can be made between countries on how such collective action is undertaken.

I0165 History of R.O.C. Diplomacy (2/0): This course focuses on the diplomatic history of the ROC from 1912 to recent years. But it shall concentrate on diplomatic situations after 1949 when the ROC government moved to Taiwan. The ensuing topics shall include Taiwan's international status after the Korean War and San Francisco Peace Conference, withdrew from the UN, interruption of diplomacy with the USA and other major powers, and adopting pragmatic foreign policy, southward policy in 1993.

I0166 History of Western Diplomacy (0/2): This course provides instruction in diplomatic law and overviews the range of diplomatic and consular agents practicing diplomacy. Specific objectives include distilling the practical meanings and activities within this specialized chapter of Public International Law - Diplomatic Law - in a lucid, succinct and effective manner.

I0167 Public International Law (I) (2/0), I0168 Public International Law (II) (0/2): This course introduces international law broadly defined. It introduces the basic concepts that every lawyer should know about the international dimensions of law in the modern world, and offers a rigorous foundation for advanced courses in this field.

P0064 International Political Economy (I) (2/0), P0065 International Political Economy (II) (0/2): International political economy refers to the mechanisms governing the economic relations between nations. This course first considers the basic theory of economic interaction between countries using trade, capital flows, and the balance of payments. It then turns to a survey of the various governmental interactions between major countries and regions of the world, including trade treaties and FTAs. International economic organizations are also thoroughly discussed.

I0205 Making of Foreign Policy (2/0): This course offers a discussion on the differences between foreign policy options, decisions, behaviors, and outcomes together with the differences between individual, state, and system levels of decision-making analysis. Therefore, it helps students to identify the problems inherent in foreign policy making and to place themselves in the shoes of decision makers.

T0123 International Organizations (2/0): This course provides students with basic understanding of international organizations. We will start with an introduction to the theories and practices of global governance. The course then explores the roles of various international organizations, including IGOs, NGOs, and regional organizations, in global governance. Finally, there will be a discussion of various issues that international organizations work to address in a highly integrated world, ranging from security, economics, human rights, to the environment.

I0169 United Nations (0/2): This course will assess the past, present and future of the United Nations. The first portion of the course will be devoted to looking at the big picture of what the UN has done in the past, what the UN is doing now, and where the UN is going. The primary purpose of this part of the course is to establish a firm foundation of how the UN works and to become fully versed in the intricate bureaucracy.

T1433 Research Methods (I) (2/0) & T1111 Research Methods (II) (0/2): The goal of this course is to provide an understanding of major research approaches and methods of social sciences. Students will be required to complete a research project. This course focuses on both qualitative and quantitative methods, by which we mean the application of historical and statistical methods to problems in political science and international relations. The goal of this course is to teach students to understand and to confidently apply a variety of research methods and research designs that are essential for political science and diplomacy research.

H0142 International Security (2/0): This course involves decisions about priorities. These decisions require an understanding of trends and emerging issues in order to make forecasts about the future. The direction of a society can equally be influenced by a number of disrupters. You will learn to use futures methods in your analysis of international security to make forecasts of your own.

T2118 Selected Readings in International Relations (0/2): This course encompasses historical backgrounds and samplings of the great masterpieces of international relations in the Western World.

T0129 International Etiquette (0/2): This course will provide students with an understanding of the major theories in diplomacy & international relations and to equip students with practical skills and help them become outstanding members of the diplomatic and international relations community.

H0073 Cross-Taiwan Strait Relations (2/0): The goal of the course is to provide students with an understanding of different Taiwan Strait issue. The contents of this course include the theoretical concept of security, U.S. East Asian security strategy, US-China-Taiwan trilateral relationship, U.S.-Japan Alliance, military modernization of China, the role of the US in the Taiwan Strait crises, and U.S.-Taiwan Security ties.

I0200 US–Sino Relations (0/2): This course aims to introduce students with the basic dynamics of strategic thinking and policy-making on both sides, to give an overview of the history of US-China relations, and to discuss a number of key contemporary issues in the relationship in some detail.

A0122 Diplomatic History of Modern China (0/2): This course focuses on the diplomatic history of modern China from the late Qing Dynasty (1840) to recent years. But it will skip over the stage of 1912-1949 during the nation-building of the ROC. The diplomatic relations of the PRC will be included as an important topic for this course. The following topics will include one-side orientation to Soviet Russia, revolutionary diplomacy during great cultural revolution in the 1960s, join the UN, the development of nation-to-nation diplomacy, join ASEAN's dialogue partner and policy toward the South China Sea.

M0216 American Foreign Policy (2/0): This course will introduce students to current U.S. foreign policy towards different geographies around the world (Asia, Africa, Central America, Middle East, Northeast Asia, South America, South Asia, and Southeast Asia)

I0199 Foreign Policy of Mainland China (0/2): The course describes the major elements of Chinese foreign policy today, in the context of their development since 1949. Help students to understand the security-based rationale of policy as well as other factors—organizational, cultural, perceptual, and so on—that influence Chinese foreign policy.

I0198 Russia Foreign Policy (2/0): The aim of this course is to provide students with a basic understanding of Russian foreign policy in the period since the breakup of the Soviet Union in 1991. Students should be able to place Russian foreign policy within its historical, political, economic, and geostrategic contexts. Major themes of Russian foreign policy as well as domestic debates over them will be discussed.

T1064 Comparative Politics (2/0)**:** This course provides the analytical knowledge and practical skills to understand comparative politics worldwide. It's the study and practice of comparing different political units and systems, either in whole or in part. It concerns the different systems and implementations of the United States and other states as well.

B0295 Economic Development (0/2): This course considers the measurement of economic wellbeing, the distribution of income and wealth, as well as the factors that lead to economic development including labor growth, the growth of physical capital, technological progress, the creation of good institutions, education, health and other related factors.

A1092 International Communication (2/0): This course offers an examination of the critical role that communication plays in international political and business relations. Software and hardware technologies which form international messages and channels will be discussed.

M0233 American Government and Politics (2/0): This course explores the structure and dynamics of American federal government, providing a broad-based introduction to the ideas and institutions that shape politics in the contemporary United States.

A0393 Latin American Current Situation (0/2): This course goes in search of an answer resolved in historical, geographical, political, economic, social, and cultural terms. Students will find Latin America in changing frontiers, colonial conquest, indigenous resistance, community structures, family dynamics, social hierarchies, slavery, independence movements, neo-colonialism, nation building, problems of race, political processes, dictatorship, and revolutionary change.

I0273 EU Development (2/0): The European Union is the world most innovative international organization with considerable impact in international relations. It is a sui generis organization with a distinct development path that shall be analyzed empirically and theoretically in this course. Next to EUs politics and policies, also relations with the external environment of EU receive attention. The multiple crises the EU has faced and Brexit as well as its role will be discussed as well.

T1011 Government and Politics of Russia (0/2): This course offers the comprehensive introduction of institutional construction of Russian government and the way it operates.

I0274 Political and Economic Development of Northeastern Asia (2/0): The rapid rise of North East Asia is one of the two or three most critical events of the last fifty years. This course aims to discuss those critical questions including what prospects third world countries have in a competitive world economy; what sorts of policies can most effectively promote growth in third world countries; what led to the breaking up of command socialism and what policies to recommend in the transition away from command socialism.

I0277 Government and Politics of Japan (0/2): The purpose of this course is to investigate the parliamentary cabinet system, the modern state administrative organs and administrative checks and balances on the legislative, judicial independence, constitution and local self-government, political parties and the type of democratic elections, etc.

I0278 ASEAN Development (0/2): This course provides an overview of political, economic and societal development in Southeast Asia including complex interplay of public policy, global competition, and domestic political & economic relationships in different Southeast Asian countries.

I2075 Government and Political Development of China (2/0): This course provides a general introduction to key aspects of Chinese government and domestic policy based on historical and

conceptual perspectives. The course materials will mainly focus on the post-Mao reforms and development since 1978, against the backdrop of historical and political legacies prior to or after 1949. The course texts will be integrated with academic journal readings, videos, and images to enrich students' understanding of political and socioeconomic development in Mainland China. This class will emphasize important topics such as analytical concepts studying Chinese politics, transformation of political and policy-making structures, the development and challenges of political and economic reforms, rural-urban differences, the issue of corruption, state-society relations, and the international consequences of domestic development in Mainland China.

B1103 Mainland China's Economic Development (0/2): This course provides students with a basic understanding of China's economic development. We will start with an overview of the logic of China's political economy. Then we will explore the roles that various relevant economic actors, i.e. central and local governments, state-owned enterprises, private firms, township and village enterprises, multinational corporations, banks, workers, and consumers play in China's economic growth. Finally, we will discuss the impacts that China's economic development on China's politics, society, environment, and the world.

I0276 Political System of Taiwan (2/0): The content of this course includes the introduction to Taiwanese politics and cross-strait relations, Taiwan's governmental systems from the martial law period to democratization era, nation building and competing national identities, and party politics and electoral politics under democracy.

I0279 Social Development of Taiwan (0/2): This course introduces advanced research and perspectives on Taiwan's multi-social development which includes homosexuality, Taiwan aboriginal issues, foreign migrant workers, justice of distribution, and so on.

H0146 Seminar on International Law (2/0): Traditionally, international law expressed the relationship among sovereign nations. The contents of this course include a combination of written treaties, other written agreements, the traditions of war, and of diplomacy, international law placed some limits on the conduct of nations.

T0125 International Negotiation (0/2): This course aims to develop an understanding of the major theoretical approaches in the field of negotiation and how they interplay with political and international relations theories.

P0030 Energy Politics and Diplomacy (2/0): Energy and politics are intrinsically interlinked. A state's ability to access energy supplies and the ways it uses energy crucially determine the state of its economy, its national security, and the quality and sustainability of its environment. For energy exporter's and important energy transit states, energy supply policy is as much a part of the policy arsenal as other economic tools, military power, and diplomatic tactics.

T2706 Asia Pacific Economic Cooperation (0/2): This course examines the development of economic integration among countries in the Asia-Pacific Economic Cooperation, the Association of Southeast Asian Nations, and other regional organizations. Taiwan and major emerging market economies in Asia-Pacific region will also be surveyed, along with the challenges and opportunities these countries may face in this globalization era.

I0294 Seminar on International Politics (2/0): In the fast-changing world with increasing complexity, uncertainty, and volatility, international diplomacy needs to keep up with the pace of change. This course aims to help senior students apply their summative knowledge and skills in international diplomacy in practical cases. Using futures thinking tools and methods, the course seeks to expand students' horizons by extrapolating their long-term vision, challenge their existing assumptions, and consequently develop more holistic and long-term perspectives for international politics.

T1168 Management of International Crises (2/0): This course is designed to explore the intricacies, challenges, and possibilities of international diplomacy during crises between states or within states in a theoretical and applied manner. The international system has experienced crises which have in the past

emanated from the disintegration of the bipolar blocs, from ethnic rivalries, leadership ambitions, power politics, globalization, and economic-strategic interests.

I0296 Taiwan's Foreign Economic and Trade Relations (2/0): This course is primarily initiated to provide students with a guide to the study of international economics & external trade and an understanding of Taiwan's foreign economic and trade relations through lectures, discussion, video showing, and selected books. In addition to Taiwan's foreign economic and trade relations, this course will share the successful story of Taiwan's Economic & Trade development.

I0298 International Trade and Enterprises (0/2): This course covers the theory and practice of international production and trade, aiming at understanding world trade, international factor movements, trade policy, trade agreements, trade conflicts, and case studies of recent patterns of international trade.

I0299 Development of Human Security (0/2): This course will introduce students to a broader, alternative, conception of security, one which concerns not only states and the international system, but also people in their everyday lives. It will examine what the analytical and policy implications would be while looking at contemporary security threats from an individual perspective.

B1390 Cross-Cultural Communication (0/2): Having a highly functional cross-cultural communicative competence (CCC) is essential in an increasingly polarized world. This course aims to expand the awareness of the CCC and its cultivation through a series of critical examinations of not only our own culture but also those of others. To do so, several tools will be introduced, such as Hofstede et al's theories of the five cultural dimensions (2010) – where individualistic vs. collectivistic and big vs. small power distances are some of the most influential ones – and Meyer's eight cultural scales (2014) that address trust building, persuasion style, decision making process and leadership. These concepts will then be explored, analyzed and adopted whereby they will allow us to gain further insight into the myriad values, beliefs and world views that have affected both the verbal and non-verbal communication styles exhibited across a wide spectrum of personal, social, business, and diplomatic interactions in various cultures around the world. Several case studies drawing from current events such as the quality of education, the #MeToo movement, the ongoing COVID-19 pandemic, trade wars, refugee crises and as well as climate change will be approached within this context to provide applicable real-world scenarios where an understanding of the CCC helps in the comprehension of these events. Through this course, students will be equipped with the CCC and the ability to understand different cultures to adjust or change behaviors accordingly. Such a CCC is indispensable to today's global inhabitants seeking solutions to solve the many complex issues we are facing today.

I0525 Academic Writing (2/0) The course 'Academic Writing' aims to develop and sharpen your academic and professional writing skills and strategies in English. We will also devote time to improving your reading, critical reasoning, and research skills. As such, this course will also allow you to develop general communication skills relevant to your future career.

I0526 The Structure and Principles of The World Trade Organization (2/0) The World trade organization, one of the pillars of sustaining the international economic and trade system, establishes a rule-based approach to connect trade relations among 164 member states. To understand the work of international relations, students need to have a sound understanding of the rules and principles of the WTO. The course will provide an overview of the WTO's substantive rules and institutional arrangements. The course will also introduce critical issues of WTO law and challenges the organization is currently facing.

I0527 Model United Nations (2/0) This course provides an educational simulation for the students to learn and understand more about diplomacy, international relation, and the United Nations. This course also provides a practical opportunity for the students to integrate and apply their knowledge on diplomacy and international relations. This course aims to strengthen student's analytical and communicative skills such as research, public speaking, debating and writing skills. Additionally, this course aims to promote student's ability to critical thinking, teamwork, and leadership.

I0584 Understanding Terrorism: Past, Present and Future Challenges (2/0) This course is to provide students with an understanding of the major theories in diplomacy & international relations and to equip

students with practical skills and help them become outstanding members of the diplomatic and international relations community.

I0295 Global Climate Change (2/0) An introductory survey course on the science and policy of climate change for both non-science majors and introductory science students. The course reflects the most recent science from the latest Intergovernmental Panel on Climate Change reports, and many illustrations include new data and political debate over climate change.

I0661 Indian Government and Political Development (2/0) This course is designed to familiarize students with India's governmental and political system, focusing on the considerations and mechanisms involved in formulating its foreign policy. Upon completion of this course, students should be able to: Understand the Indian national system and government operations; Explain the mechanisms of India's foreign policy decision-making; and Recognize the interplay between India's national security and its foreign policy.

Master's Program in European Studies

I0552 European Thoughts and Integration (3/0): The process of the European Integration is based on many ideas deriving from the Western political philosophy. Besides, the problem that the Europe Union currently faces have been investigated and tried to solve by these political philosophical schools. The Graduate Institute of the European Studies focuses on the European integration. Therefore, in order to make the students profound researchers, students should understand the close relationship between the practical integration and these political thoughts.

I0654 The Theory and Practice of Contemporary European Ethnic Issues (3/0): Most countries of Europe are democracies and their economic development is quite good. However, in the past 30 to 40 years, many ethnic movements have erupted one after another, and even caused wars. In the context of globalization, why ethnic separatist movements still rise in so many countries? And why these ethnic conflicts cannot be resolved through democratic consultation? These questions will be explored in this course.

I0656 The Exercises of EU's Soft Power: Cultural Diplomacy (3/0): This course provides a survey and analysis of EU's soft power as it impact on the EU's foreign policies. It presents different theoretical perspectives and case studies to engender an appreciation of the complexity of the EU's external relations. Included are not only the evolution of the EU integration model but also contemporary issues of foreign economic policy, environmental security, and multilateral cooperation for the management of globalisation.

I0657 Relations among EU, China and Taiwan (3/0): The purpose of this course is to introduce the triangle relations among EU, China and Taiwan. Through analyzing the development process, decision-making, policy instruments and specific institutions of the EU, China and Taiwan, the students will understand the Cross-Strait Policy of the EU and enrich the capacity to analyze the triangle relations among EU, China and Taiwan.

I0659 EU's Development History (3/0): The Treaty of Lisbon has enacted on 1.12.2009. The EU has been fundamentally changed and become a supranational organization with legal personality. The EU is currently a quasi state. The course aims at widening students' understandings of the EU.

T1764 The Methodology of European Social Science (0/3): This seminar will introduce the methodologies used in social science research, especially that dealing with EU research.

Master's Program in China Studies

I0635 China-U.S. Relations (2/0): Aims to train professionals in mainland China and cross-strait cultural, educational, economic and trade affairs. In the rapid changer of China and the cross-strait relations in terms of politics. Social and economic, the teaching program combined theories.

I0639 Seminar on Religion and Tourism in Mainland China (2/0): We will explore the following issues: 1. What are the characteristics and phenomena of religious ancestral temples, sacred mountains,

representative historical sites and other tourist attractions in mainland China? 2.How should researchers describe this topic? And make a reasonable interpretation and turn it into a good paper? 3. How to use mainland China's religious tourist attractions to understand Taiwan's religious beliefs and their relevance? Or impact? 4. How to use participant observation records and in-depth interview methods of qualitative research to conduct research on this topic.

I0640 Common Wealth and Social Problems in China (2/0): Under the Chinese mainland political, economic, social rapid changes, there are the various emerging social problems. The course attempted to cultivate professionals to study of Chinese social problems by the combination of theory and practice.

I0643 Xi Jinping's Decision-Making Model (2/0): There are several goals of this course for students to understand the organization and operation of government systems in China such as the Chinese Communist Party (CCP), government, and military, and the changes after Xi Jinping leading. In addition, through reading the study of related papers, students can understand various research methods to analyze the Chinese government system.

T1266 Seminar Cross-Strait Relations (2/0): This course mainly focuses on studying the internal and external factors affecting the relationship between the two sides of the Taiwan Strait and discusses various critical issues of cross-strait interaction. Through various thematic discussions, students can understand the theory and practice of cross-strait relations.

T1620 Particular Research on the Politicale (2/0): This course mainly focuses on studying the internal and external factors affecting the relationship between the two sides of the Taiwan Strait and discusses various critical issues of cross-strait interaction. Through various thematic discussions, students can understand the theory and practice of cross-strait relations.

I0108 Social Science Research Methods and Paper Writing (0/2): This course provides a basic training of social science research methods for graduate students. Students after this class will expect to be familiar with basic concepts about methodology, research design, research approaches as well as data analysis in social sciences.

Executive Master's Program in China Studies

I0634 Research on the People's Liberation Army of the Communist Party of China (3/0): This course aims to conduct an in-depth study of the People's Liberation Army (PLA) of China, including its army, navy, air force, and related military operations. Students will learn about the organizational structure, strategies, tactics, and regional and global military influence of the PLA. Through lectures, case studies, group discussions, and midterm and final exams, students will gain a comprehensive understanding of the operational models and influence of the PLA.

I0636 Financial and Economic Security in China (3/0): The goal of this course is to expect students to understand the current situation of China's science and technology policies and the development of science and technology industries. Through various case studies, this course will compare the advantages and disadvantages and competition and cooperation relations of related technology industries across the Taiwan Strait and countries in the Asia-Pacific region.

I0641 China's Relations with Neighboring Countries (3/0): This course aims to explore the relationships between China and its neighboring countries from historical, political, economic, and cultural perspectives. It covers China's interactions and influences with East Asia, Southeast Asia, South Asia, Central Asia, and Australia. Students will gain a deep understanding of China's role and influence at both regional and global levels. The course aims to develop students' analytical abilities and critical thinking, providing a comprehensive framework for understanding China's relations with its neighboring countries.

T0331 The Research Study of China: Theory & Practice (3/0): This course means to introduce various theories and approaches in China study, and through the actual cases, providing student's understanding in the research of mainland China.

Doctoral Program in European Studies

I0644 Global Regionalization: The EU Paradigm (3/0): This course The undergraduate program explains the regional interactions of different areas from a global perspective, considering international politics and geopolitics. These areas include the EU, the Mediterranean region, the Eurasian Union, Central and Eastern Europe, Mainland China, Southeast Asia, Asia, North America, Latin America, Africa, and the Middle East. In addition to describing the current political and economic situations of each region, the program also analyzes the most important transnational organizations, alliances, and key issues within each area.

I0646 Russia-Ukraine War and Geopolitical Challenge in Europe (3/0): The purpose of this course is to introduce the impact and importance of the crucial crises on the European Integration.

I0648 The Evolution of Internation Trade Trends & Impacts on Globalization & WTO (3/0): The foundation and development of WTO and EU role in WTO and evolution economical trade areas integration (FTA: Free Trade areas, Partnership agreements,...) EU external Foreign Trade policies.

I0651 Political Transition and Informal Governance in European Post-Communist Countries (3/0): The institutional legacies of both the traditional model of CEE and FSU societies in the prerevolutionary period and the political institutions under the Soviet regime continually affected nation building and subsequent development since their independence. Politics in these countries are currently characterized by neopatrimonialism, in which the authoritarian system serves as a formal institution, and behind it an informal, patron–client relationship can be observed.

I0354 EU-Russia Relations (0/3): The new pattern of European security after the Cold War and economic globalization created favorable conditions for the development of EU-Russia relations. However, due to the differences in geopolitical and strategic interests, as well as institutional and cultural traditions, EU and Russia have also encountered many contradictions in the fields of politics, economy and security. This course starts from the discussion of international relations theories, and then the development and challenges of EU-Russia relations.

I0412 Regional Integration and Regional Trade Arrangements (0/3): This course highlights European Integration. It presents different theoretical perspectives and case studies to engender an appreciation of the complexity of European Integration. Included are not only the historical evolution of internal politics and political economics but also contemporary issues of EU commercial policy, economic rivalry, and multilateral cooperation for the management of globalization.

I0455 Greening Cities and Sustainable Development (0/3): Greening Cities and Sustainable Development in Europe-The study of recent green city economic developments -Pollution and consequences of fast urban growth -A must for sustained living in Megacities -Examples with study cases.

DEPARTMENT OF INTERNATIONAL TOURISM MANAGEMENT

Degree Offered: B.B.A.

Chairman: Dr. Pin-Ju Juan (阮聘茹)

The Department

The Department of International Tourism Management is a key component in Tamkang University's (TKU) development. A significant amount of resources has been devoted to its establishment. The decision for this large investment was made after carefully considering TKU's vision for the future. The Department of International Tourism Management was founded in 2006 on Lanyang Campus and steadily developed with the TKU's triple objectives of "globalization, information-oriented education, and future-oriented education"; its alumni's performance has earned recognition for their compelling achievement since then. Prior to the pandemic, the statistics reported by World Tourism Organization shows that tourism industry had been accelerating for a consecutive decade between 2009 and 2019 in both international tourist arrivals and total international tourism receipts. It is expected that tourism will rebound rapidly with the pace of vaccination worldwide. In such a wave of transition, the Department of International Tourism Management is relocating to Tamsui Campus and ensures to continue cultivating practitioners in various fields with all of its courses delivered in English, and a junior year abroad program for all its students.

The Department of International Tourism Management provides international mobility programs; students can choose to acquire internship experiences in branded hotel chains or interdisciplinary learning in prestigious institutions overseas during the junior year. We also emphasize the acquisition of advanced concepts and the importance of innovation in operating tourism businesses, in accordance with the current trend of knowledge economics. The faculty devotes to research on diversified topics and leads students to take part in TKU's USR projects. We firmly believe that our students will be capable of managing tourism businesses with a globalized view.

Faculty

Professor
Chien-Mu Yeh (葉劍木) ; Shu-Chuan Chen (陳淑娟)

Associate Professors
Pin-Ju Juan (阮聘茹) ; Wei-Li Chen (陳維立) ; Chi-Han Ai (艾之涵) ; Shan-Ju Chi (紀珊如)

Assistant Professors
I-Hsuan Shih (施依萱) ; Hsin-Hui Chuang (莊琇惠)

Degree Requirements

Requirements for a degree of B.B.A. in International Tourism Management:
Completion of 128 credits in courses, including 72 credits of required courses, 24 department elective credits courses, and 32 free elective credits of elective courses. Students need to study abroad during their junior year (Optional for international students) and obtain one tourism-related license. Completion of overseas/ domestic of internship is also required.

Course Descriptions

B0302 Economics (3/0): The course introduces the basic concepts and methodology that we use in modern economic analysis. These tools will help students better understand a wide range of phenomena from the standpoint of economics. The course material is structured into Microeconomics and

Macroeconomics. Students will also learn how to apply microeconomics principles to a wide variety of real-world situations in both their personal and professional lives. They will develop a better understanding of national economic performance and the potential and limits of economy policies.

M0405 Management (3/0): The course offers students not only theoretical frameworks that guide managerial activities, but also illustrations and examples of how and when those theories may work. The course will consider both small and large businesses as well as nonprofit organizations.

P0004 Introduction of Tourism Development (3/0): This subject is designed to enrich students' understanding of tourism knowledge, including the tourism industry, tourism marketing, quality service, service providers, transportation, accommodations, hospitality, and destinations. The economic, political, environmental, social and culture impacts on tourism are also discussed.

M0518 Accounting (0/3): The essential purposes of accounting are to report a company's financial conditions, operating results, and changes of financial status. This course design aims at leading students to understand the logics behind accounting, to learn the accounting process, to prepare financial statements, and to capture key concepts of financial analysis.

M0517 Statistics (0/3): The objective of this course is to provide the students with the essential and fundamental concepts of elementary statistics. This course will focus on understanding and applying statistical concepts and techniques to a wide selection of real problems and on interpreting and communicating the results of a statistical analysis. It emphasizes that statistics is used as a tool in decision-making in areas of management sciences.

P0021 Tourism Administration and Law (0/3): This course introduces the laws and policies in tourism and hospitality industry in Taiwan. The students are expected to deeply understand the rationale for these laws, regulations and policies.

V0010 Hotel Management and Operation (3/0): The purpose of this course is to provide guidance to students who are looking for a future career in the hospitality industry. Knowledge of the hotel history leads to a better understanding of the present. The introduction of the function of every department at the hotel, such as front office, housekeeping, engineering, food and beverage, sales and marketing, and human resources, will help students develop an overall perspective of hotel operation. Besides being an introduction to the hospitality industry, managerial skills such as communication and interpersonal skills will also be discussed.

P0025 International Tourism Marketing (3/0): This course aims at introducing the principles and case studies of marketing for hospitality and tourism industries to students. By the end of this semester, students need to apply theories into production of marketing strategies for assigned hospitality and tourism sectors.

M0271 Financial Management (3/0): This subject is designed to teach the main concepts of financial management, such as financial statement analysis, time value of money, interest rate, risk, return and investment decision making. Students are expected to have abilities to manage finances of firms and individuals.

V0096 Tour Planning and Design (3/0): With growing potential in the community-based tourism, the task of maintaining cultural and environmental integrity in small, fragile communities has never been more critical. This course will provide an in-depth knowledge of tourism planning, design and various aspects of planning in Taiwan and the rest of the world. It will provide students with the ability to analyze the economic, socio-cultural, environmental and geographical factors that affect tourism, and how this knowledge can be used to provide appropriate plans for sustainable tourism development.

P0020 Consumer Behavior in Tourism (0/3): The purpose of this course is to introduce consumer behavior theory and practice. Major contents include the following are describing consumer decision process model, understanding what major psychological processes to the marketing program, understanding how consumers make purchasing decisions, and learning how marketers analyze consumer decision making.

M0003 Human Resources Management (0/3): This subject is designed to introduce main concepts of

human resource management in the tourism sector. It begins to discuss the current trend of workforce and strategic human resource management. Then, the focus is on personnel planning, recruitment, selection, training, performance management and compensation respectively. Issues related to occupational safety, human resource in entrepreneurial firms and managing human resource globally are also covered. Students are expected to have abilities to identify and handle HR issues when facing HRM challenges.

P0051 International Tour Lead and Guide Application (3/0): This course is a preparation for tour managers and guides. It provides students an in-depth background on tour operation management. The course explores the different faces of a tour operator, the essentials of being a good tour manager, and the interrelationship between resource management and tourism planning and development. The goal of this course is to prepare students with skills, knowledge, and leadership that is useful in the real world.

T3200 Junior Abroad (0/0): This course is one of the graduation requirements for students in the Department of International Tourism Management. It is mainly used to check the students' overseas status. Students can pass the course by completing and submitting assignments such as reflections and credits transfer.

A1937 AI and Thematic Writing (3/0): This course primarily teaches students how to complete a project, and students are free to choose between two types of projects: research or video. Throughout the project development process, the teacher will guide students on how to present their work, using AI as a supplementary tool to enhance the quality of the final product. This course is meant as preparation for student's Bachelor project.

P0052 Tourism Project (0/3): This course is for students to demonstrate and consolidate their knowledge and skills of their four-years of hard work. It provides students the opportunities to choose from various projects which include but are not limited to: (1) marketing video project; (2) board game design project (3) hotel project; (4) musical instruction; (5) research project, and (6) other project. During the semester, students need to regularly meet with their mentoring professor to accomplish their final project. Students are expected to have a comprehensive insight in the field of hospitality. The project will transform students into strategic business leaders or planners.

P0050 Tourism Industry Internship (0/3): “Learning from doing” is a good method to combine both theory and practice. This course allows students to experience tourism and hospitality related industries including hotels, restaurants, travel agencies etc. from a practical standpoint. Students can bring those skills which they learn in class, and put it to practical use in the field. In class, discussions will examine the differences that exist between theory and practice. The practical experience will be helpful for future career prospects within the tourism and hospitality industry.

P0070 Certificate in Tourism (0/0): One of the graduation requirements for students from the Department of International Tourism Management to obtain one tourism related certificate. The major purpose of this course is to check whether students obtain one of the recognized certificates.

DEPARTMENT OF GLOBAL POLITICS AND ECONOMICS

Degree Offered: B.S.S.

Chairman: Ying-Lung Chou (周應龍)

The Department

The Department of Global Politics and Economics was established in 2005. It offers integrated courses on international political economy and regional political and economic developments. The department has since expanded to include a post graduate program in 2022 offering MA degrees in Latin American studies as well Japanese politics and economics. In implementing TKU's policy of globalization, all the courses in the undergraduate degree are taught in English. All faculty members possess doctoral degrees and are qualified to conduct lectures in English. Among them, 28.6% are foreigners, coming from Japan, Malaysia, Germany, and Poland.

Apart from a junior year abroad scheme, the Department also has an overseas internship program called "Global Service Internship Program" (GSIP). The Department will select and send qualified students to NGOs in Southeast Asian countries to have a four-week internship. Through this program, we make our students knowing more about Southeast Asia.

The predecessor of the master's program in Latin America Studies was the one founded at the Graduate Institute of Latin American Studies in August 1989. This program is the first and the only academic program in the field of Latin American studies in Taiwan. The program is devoted to the training of professionals and scholars, while also playing an important role in promoting Taiwan's research into Latin American affairs. The program provides our MA students with intensive and varied courses in the field of Latin American Studies, including history, philosophy, politics, international relations, economics, social issues, as well as training in diplomatic and trade affairs.

The predecessor of the master's program in Japanese Political and Economic Studies was the one based at the Graduate Institute of Japanese Political and Economic Studies established in 2016 to succeed the older program which ran from 1983 till 2009. Drawing on its rich heritage, the program is currently focused on expanding its strong knowledge base in Japanese politics and economics to advance the areas of education, research and community services. In the face of rising constitutional conflicts, political regimes, geopolitics, diplomatic relations, environment, food security, international human rights, economics, health, and energy use in the 21st century, a new paradigm is needed to better handle these problems both regionally and globally. The principal goal of the program is to create and maintain just such an academic environment leading to greater knowledge, wisdom, and nurturing of a new paradigm in the sphere of Japanese Studies.

Faculty

Professor
Hsiao-Chuan Chen (陳小雀) ; Cheng-Hao Pao (包正豪) ; Ching-Shan Hu (胡慶山) ;
Hsi-Hsun Tsai (蔡錫勳) ; Reinhard Biedermann (雷納德)

Associate Professors
Kwo-Wei Kung (宮國威) ; Naonori Koyama (小山直則) ; Anna Rudowska (安娜) ;
Ying-Lung Chou (周應龍) ; Fu-Chuan Huang (黃富娟) ; Wei-Hsiu Lin (林偉修)

Assistant Professors
Hong-Hsin Hsu (徐浤馨) ; Kim-Yung Keng (何景榮)

Professor Emeritus
Ching-Hsiung Hsu (許慶雄) ; Francisco Luis Pérez (白方濟) ; Hung-Hui Juan (熊建成)

Degree Requirements

English-Taught Program
Requirements for a degree of B.S.S. in the Department of Global Politics and Economics:
Completion of 128 credits of courses, including 60 credits of required courses, minimum 30 credits of elective required by the department and 36 credits of elective courses, and one-year study abroad for English and professional training.

Master's Program in Latin America Studies
Requirements for a Master's degree in Social Sciences:
Completion of 32 credits of courses. Students are also required to submit a written master's thesis completed under the supervision of a faculty member and pass an oral examination.

Master's Program in Japanese Political and Economic Studies
Completion of 32 credits of courses: and students are required to submit a written master's thesis completed under the supervision of a faculty member and to pass an oral examination.

Course Descriptions

Undergraduate Courses

T0130 International Relations (3/0): The general scope of this introductory course will primarily focus on the consideration of both basic concepts and key issues in the field of international relations. Critical subjects such as power politics, foreign policies, international conflict, the role of force, trade, money and business, integration, environment will be examined accordingly throughout the semester

B0305 Principles of Economics (3/0): Economics is the study of how society manages its scarce resources. Economists study how people make decisions and interact with one another, but they also analyze forces and trends that affect the economy. There are many reasons you should embark on the study of economics. Let's just mention the three main ones:

- Better understand the world in which you live
- Become a more astute participant in the economy and make better decisions
- Get a better understanding of both the potential and the limits of economy policy

A2844 Quantitative Research Methods (0/3): This course will introduce research methodology and a basic framework to critically evaluate social and behavioral science research. Students will be exposed to and tested on the major concepts and methods for generation hypotheses and designing a multi-measure study. This course should enable students to do social science research.

H0136 Politics I (2/0): This course introduces the study of political life by providing an overview of a discipline described variously as political studies, political science, government, or politics. We will also examine essential concepts such as governments and governing, political systems, regimes, political ideologies, democracy, and political parties. Since politics affects almost everything we do, the purpose of this course is equally broad: from the socio-political world around us, to clarifying students' political beliefs and attitudes.

P0023 Politics II (0/2): The objective of this course is to offer the fundamental understanding of political concepts and theories together with some relevant experimental lessons. It has been designed to focus on the insight of Nations and Nationalism, Global Politics, Representation, Elections and Voting, Parties and Party Systems, Constitutions, the Law and Judiciaries.

M0310 Statistics (I) (2/0): This course intends to introduce some basic knowledge of statistics to the student of Dept. of Global Politics and Economics.

M0311 Statistics (II) (0/2): This course provides a basic understanding of statistics, with particular emphasis on practical training in SPSS.

H0154 Introduction to International Law (0/3): The purpose of this course is to equip students with essential knowledge on international law. Subjects such as the law of nations, law of the international system, subjects of international law, recognition of states and governments, state responsibility, human rights, jurisdiction, dispute resolution, territory, law of the sea, international agreements, and diplomacy

will be dealt with throughout the semester. Students are strongly encouraged to get familiar with reading assignments before attending classes. Students' active participation will be noted as a plus in their final grades.

P0065 International Political Economy (0/3): International Political Economy is the study of relations between international politics and international economics. The main objective of this course is to familiarize students with the dynamic connections between states and markets in a regional and global context. This course mainly focuses on analyzing the concepts, theories and approaches in the study of International Political Economy.

H0093 Political Philosophy (3/0): This course is an introduction to philosophy which would encompass three periods which would encompass the ancient, modern and contemporary. Students will be exposed to texts written by different political philosopher and will be asked to engage with these ideas even as we tackle contemporary issues in today's world. Student will also be given an opportunity to delve into non-western systems of thought to compare and contrast with what we would deem as 'traditional'. This is meant also expose students to the basis of politics as we understand it today through political philosophy.

H0021 Qualitative Research Methods (3/0): This course combines didactic, interactive, and applied techniques to teach students qualitative research methods. It starts with the introduction to the epistemological and ontological basis of qualitative research. Next, it turns to research problem and questions. Then, it looks at research design, data collection, and organization. Finally, students will receive training in data analysis.

T2353 Introduction to Globalization (2/0): This course explains the economic, political and cultural developments, which lead to the transformation in the spatial organization of social relations across various communities around the world. It allows students to understand the origins and consequences of globalization, including the controversy surrounding the process in the context of the globalization and anti-globalization movements.

T0070 Sociology (0/3): Sociology is a study of RELATIONSHIP: how you related to others, to those in your family, school and workplace, as well as to the society as a whole. Thus, this one-semester course will be divided into two phases. In the Phase I, we will focus on how individual related to each other (group to group). In the Phase II, the focus will be on the relationship to the society (individual to society). The classes in each Phase can be further categorized into three sections: APPROACH (how sociologists think), THEORY (how we generalize phenomena) and CASE (how real-world phenomena be explained by theories). Due to the practical characteristic of our Department of Global Politics and Economics, this course will mainly adopt the Weberian approach of economic sociology, treating relationship as a kind of CAPITAL, of which the accumulation transfers to the economic capital that you possess and decides your status within the social strata. Therefore, in the first half of the semester (Phase I), we will adopt the perspectives of Max Weber, Pierre Bourdieu and Mark Granovetter, discussing how social relations being utilized in daily life and to influence one's class status. In the remaining part of the course (Phase II), we will discuss how one's actions shape your role in the society and, in return, the society shapes your role.

Master's Program in Latin American Studies

I0568 The Cultural Development of Latin America (0/2): This course introduces the major theories and movements of Indigenism in current Latin America. To explore the cultural development of Latin America from the Prehispanic era to the modern time.

I0160 Latin American Economic and Social Development and SDGs (2/0): This course is to introduce how countries in Latin America: (1) select economic development strategies based on different international environment and background; (2) interact with their major trade partners; (3) attract ane employ the foreign direct investment. (4) confront the economic impact of the covid-19. (5) Challenges and Strategies for Sustainable Development in Latin America.

I0323 Latin American Research (1/0): In this course, we will present and analyze the role of the State in industrial development. The course is designed by presenting an overview of a state's natural endowment, comparative advantage, and international division of labor in the world economy. Followed

by an analysis of the industrial chain, industrial characteristics, as well as the state's role, policies and instruments and relevant institutions of production to forging industrial development. The objective of the course is to help students understand the correlation of the state and industrial development in Latin America.

I0679 Seminar on Latin American Politics and Economics (2/0): In this course, we will present and analyze the role of the State in industrial development. The course is designed by presenting an overview of a state's natural endowment, comparative advantage, and international division of labor in the world economy. Followed by an analysis of the industrial chain, industrial characteristics, as well as the state's role, policies and instruments and relevant institutions of production to forging industrial development. The objective of the course is to help students understand the correlation of the state and industrial development in Latin America.

Master's Program in Japanese Political and Economic Studies

I0324 Japanese Constitution and International Human Rights Treaties (I) (2/0): As for liberty rights in the human rights law is the International Covenant on Civil and Political Rights, shortly called ICCPR. This lesson is to promote the standard of ICCPR in Taiwan, through examining the ICCPR and the practice and theory in Japan.

I0325 Japanese Security Protection (I) (2/0): Japan's security is closely related with the security of Taiwan, given the importance of this, the course will examine these issues on the security of Japan.

I0433 Japan's Research Method of Politics Diplomacy (2/0): This course introduces the evolution and development of Japanese diplomatic in the post-war era. The main topics being covered range from the Japanese "diplomacy" under the rule of GHQ to new diplomacy issues in the twenty-first century. By the end of the course, students are expected to have a systematic understanding of Japanese diplomatic in the post-war era, as well as an ability to think critically, independently and internationally.

I0437 Globalization and Japanese Economy (I) (2/0): The current issues of developed countries and the Japanese economy can be summarized into the following four points: 1. The problem of declining birthrate and aging population 2. The problem of globalization 3. The problem of innovation and economic growth 4. The problem of global environmental issues Textbooks and papers related to these issues will be introduced during the classes.

T2477 Japanese Strategic Management (I) (2/0): Japanese MBA.

T2520 The Strategic Management df Japanese Companies (I) (2/0): Japanese MBA.

T2762 Japanese Foreign Policy (2/0): This course introduces the evolution and development of Japanese diplomatic in the post-war era. The main topics being covered range from the Japanese "diplomacy" under the rule of GHQ to new diplomacy issues in the twenty-first century. By the end of the course, students are expected to have a systematic understanding of Japanese diplomatic in the post-war era, as well as an ability to think critically, independently and internationally.

THE CENTER FOR JAPAN STUDIES

Director: Ching-Shan Hu（胡慶山）

Although Japan and Taiwan severed official diplomatic relations in 1972, both countries still enjoy frequent and close exchange and interaction, both economically and culturally. However, despite their amicable relationship, Taiwanese have a very limited understanding of Japan and require more experts in the field of Japan Studies. The Center for Japan Studies established in 2010, will not only extend the tradition of excellence in personnel training of Japanese studies, but also will work to generate closer academic relations between Japan and Taiwan.

THE CENTER FOR ASEAN STUDIES

Director: Mateus Lee (李文基)

The Center for ASEAN Studies at the College of International Affairs at Tamkang University was founded on March 15, 2013. Since 2016, in response to Taiwan government's New Southbound Policy, the Center aims to strengthen cooperation and interaction with Southeast Asian countries. Combining TKU’s resources, the Center engages in the research and teaching of domestic and international affairs in Southeast Asia. The Center also provides consulting and training services for the government agencies regarding second-track diplomacy. Furthermore, the Center promotes Industry-university cooperation in conjunction with industry needs. The Center also collaborates with companies from Southeast Asia to provide internship opportunities for students. The Center has hosted a number of academic international conferences, such as the 2019 annual meeting of Taiwan Association of Southeast Asian Studies.

THE CENTER FOR CROSS-STRAIT RELATIONS STUDIES

Director: Wu-Ueh Chang（張五岳）

The Center for Cross-Strait Relations (CCR) was established on August 1, 2018. Cross-Straits relationships between the Taiwan and Mainland China are among the most critical issues in today's East Asia. CCR engages in regular and sustained dialogue with officials and scholars on both sides of the Taiwan Strait. Our aim is to enhance understanding between Taiwan and Mainland China through in-depth academic dialogue, regular public and private events, and research projects on Cross-Strait relations.

INSTITUTE OF CHINA STUDIES

Director: Chien-Fu Chen（陳建甫）

Tamkang University’s Institute of China Studies (ICS), part of the College of International Affairs, operates as a secondary-level unit. The institute aims to foster connections among international scholars focusing on China and specializes in key areas such as Chinese Communist Party policies, economic development, social issues, cross-strait relations, and international diplomatic affairs. It also studies the global impact of China’s Belt and Road Initiative. The Institute is led by Dr. Chien-Fu Chen, Associate Professor in the Department of Diplomacy and International Relations. He is supported by Dr. Yao-Nan Hung, Deputy Director, and Dr. Tu-Huan Hsiao, Executive Director. ICS offers both master’s degree programs and in-service master’s programs through the Department of Diplomacy and International Relations. Additionally, it publishes the journal Tamkang International and Area Studies Quarterly.

THE CENTER FOR LATIN AMERICAN AND CARIBBEAN STUDIES

Director: Kwo-Wei Kung（宮國威）

Since the 1980s, Latin America and the Caribbean have been the most densely populated areas of our diplomatic countries, and they are also the targets of the world's powers vying to expand their influence. The political and economic situation is volatile. To deepen the mutual understanding between Taiwan and Latin America and the Caribbean and to strengthen academic interaction, the research manpower and energy of Tamkang University were combined to establish the Latin American and Caribbean Research Center.

COLLEGE OF EDUCATION

COLLEGE OF EDUCATION

Dean: Kuo-Hua Chen（陳國華）

Brief History

Established in 2000, the College consists of the Department of Educational Technology, the Department of Education and Futures Design, the Graduate Institute of Educational Psychology and Counseling, the Center for Teacher Education, and the Center for Futures Intelligence and Research. Features of the College are: to create and disseminate new knowledge through future-oriented education and forward-looking programs as well as through the integration and practice of education studies; to promote indigenous and globalized model practice of education and research outcomes so as to provide the educational administrative institutions as well as the primary and secondary education with guidelines and suggestions for development; to provide on- and off- campus educational institutions with information regarding the management of educational quality by incorporating academic manpower of TKU for research execution; to advance the capacity of the overall education systems by establishing partnership with all levels of schools and institutions.

Motto and Goals

1. To generate and transmit knowledge through future-oriented education and forward-looking programs while integrating educational theories with practice.

2. To promote local and global “role-model” education measures and research so as to provide educational administrative institutions as well as primary and secondary educational institutions with guidelines for practice and development.

3. To provide consultation on quality education management, establish partnerships with all-levels of schooling and educational institutions, and enhance the overall capacity of education through research collaboration of university academics.

Values

1. Goodwill: The essence of education is to guide learners to develop the good side of human nature. To accomplish this, educators must think positively of their learners.

2. Perseverance: Educational ideals have never been realized easily. Therefore, educators must be persistent to fully realize these ideals.

3. Creativity: In the face of rapid social change and keen competition, educators must pursue creativity to lead and contribute.

Future Development

Faced with globalization and international competition, the College will continue its devotion in the following aspects:

1. The enhancement of student capabilities, including professional competencies, employability and global perspectives.

2. The enrichment of faculty capacities, including academic promotion, research grants acquirement, interdisciplinary collaboration, as well as international research and teamwork.

3. The reengineering of organizations, including the repositioning, redesign or merger of departments and programs, as well as the integration of human resources, equipment and facilities to enhance efficiency and effectiveness.

Course Descriptions

Undergraduate Courses

A2176 Performance Technology (0/2): This course aims at facilitating the learner to understand the four roles of human performance practitioners, including analyst, specialist, change manager and evaluator. The course content includes the fundamentals of human performance improvement (HPI), the definitions of the four roles, the relationship between the roles and HPI process, the HPI practitioner's competencies, and trends implications for HPI. In addition, to integrate theories into practice, this course also includes individual assignments for the learner to practice human performance improvement projects.

D0283 Seminar on Textbook Design (2/0): The goal of this course is to design textbooks, from the concept, model and structure of textbook design, as well as the final course evaluation, from the discussion of the design principles of textbooks, including gamification and interactive course design methods, and guide student groups to jointly produce textbooks, and finally form a self-assessment vision of the good and bad textbooks.

D0284 Lifelong Learning Design (2/0): This course focuses on the design philosophy and practice of lifelong learning. Students will learn self-directed learning theories and apply these theories to set self-learning goals, plan strategies, implement them in real life, and evaluate and reflect. In other words, this course not only involves theoretical learning but also emphasizes students' practical execution, trying to change their habits to achieve personal goals.

D0778 Future Learning and AI (2/0): This course aims to introduce the application of Artificial Intelligence in the field of education, and use a problem-oriented learning model to enable students to understand the concepts related to future learning and Artificial Intelligence, and present them in an easy-to-understand manner so that students can be familiar with the practical application of Artificial Intelligence in future education, and then be able to enhance their future learning abilities in the future.

TBC Futures Thinking for Thinking Critically about Social Issues (0/2): The effects of Covid-19 have caused massive changes on our society. The new normal states a stage which economy and society settle after this crisis. This course provides, firstly, topics for students to think critically about how we understand the society during the time of pandemic and after and how we use the tools of future literacy to change our society to become more resilient. The second part of the course will follow independent study projects and workshops to design a better future for post-pandemic society.

TBC Technology and Mental Health (0/2): This course hopes that students can acquire mental health-related knowledge and reflect on the impact of modern technology on mental health through interdisciplinary and self-directed learning; they can develop feelings for civic consciousness, and have the value of using technology and promoting sustainable mental health as their own responsibility; Able to transform experience and knowledge into design thinking mode into action plan, practice and reflect.

Master's Program

D0037 Qualitative Research (3): This course is designed for beginners to acquire fundamental knowledge for conducting qualitative studies in educational settings. It will briefly compare philosophical assumptions regarding different research paradigms. Different approaches to qualitative studies will also be discussed. An emphasis will be placed on each aspect of the research process, namely formation of research problems, data collection techniques, data analysis and interpretation, standards of trustworthiness and research quality, as well as research ethics. Students are expected to learn to write a research proposal and conduct a pilot study in real educational settings.

D0210 Statistic Methods and Application (0/3): The main purpose of this course is to help students to understand the meaning of statistics in educational research. The content of the course includes the t-Test, one-way ANOVA, ANCOVA, correlation, regression, etc. The course also familiarizes students with the statistics software SPSS. It is expected that through the course, students can apply appropriate statistical methods to solve educational research questions.

D0364 Theory and Application of Emotional Management (3/0): This course aims to familiarize students with theories and applications of emotional management. It covers the psychology of emotions, and strategies and skills related to emotional management, etc.

D0542 Emerging Issues in Educational Policy (2/0): This course focuses on emerging issues in educational policy. The topic will cover all levels of internal and international education policy. By addressing and discussing policy issues, students can realize the education development deeply.

D0606 Studies in Adolescence Development and Learning Behaviors (0/3): The goals of this class are to prepare student teachers with knowledge and skills in youth psychology, including physical, cognitive, social, and emotional development in adolescence. Also, how teachers can apply learning theories in daily school teaching and learning guidance for middle school students are discussed.

DEPARTMENT OF EDUCATIONAL TECHNOLOGY

Degrees Offered: B.Ed., M.Ed.

Chairman: Ching-Fan Chen (陳慶帆)

The Department

Established in 1997, the Department of Educational Technology focuses on the integration of instructional development, media production with digital processing, and human resources development. The curriculum consists of two major areas: (1) educational theories (including instructional development, human resource development and research methodologies), and (2) applications of current technology (including digital and analogue media productions).

To ensure teaching quality and help students acquire hands-on experience in multimedia production, the Department has its own web server, accompanied with three computer laboratories, an audio recording lab, a user experience Lab, a virtual studio, a multimedia lecture room, as well as sufficient hardware and software for digital image processing, animation production, and audio-visual production. The curriculum prepares students for a variety of careers, such as Web-based instructional designers, multimedia producers, and corporate trainers.

Faculty

Distinguished Professor
Hsin-Yih Shyu (徐新逸)

Professors
Chiung-Sui Chang (張瓊穗) ; Li-An Ho (何俐安) ; David Ta-Wei Ku (顧大維) ;
Yi-Hsuan Wang (王怡萱)

Associate Professors
Ching-Fan Chen (陳慶帆) ; Chun-Yi Shen (沈俊毅) ; Yi-Chia Cheng (鄭宜佳) ;
Ting-Ling Lai (賴婷鈴) ; Chih-Hung Chung (鍾志鴻)

Assistant Professors
Sen-Huei Tsai (蔡森暉) ; Yi-Lung Lin (林逸農)

Degree Requirements

1. Requirements for a Bachelor in Educational Technology (B.Ed.): Students must complete at least 128 credits of course work, including university required general education (24 credits) and professional education (73 credits) of Educational Technology. Professional education provided by the Department includes required courses (53 credits) and elective courses (20 credits). These professional courses include educational theories, instructional material design, digital media production, training and evaluation.

2. Requirements for a Master's degree in Educational Technology (M.Ed.): Students must complete 27 credits of course work, including 12 credits of required courses and 15 credits of elective courses. Students are also required to submit a written master's thesis completed under the supervision of a faculty member and pass an oral examination.

Course Descriptions

Undergraduate Courses

D0368 Introduction to Educational Technology (3/0): This course covers the fundamentals of educational communications media and technology, including characteristics of media, the teaching-learning process, technology evaluation and utilization of media teaching.

D0370 Introduction to Human Resource Development (0/2): This course covers basic knowledge and skills in HRD. Topics include values and positioning of HRD, roles and responsibilities of HR specialists, and major HRD functions, such as training and development, organizational development, as well as career development.

A1627 Instructional Design (0/3): This course introduces concepts, models, steps, and functions of instructional design. Students are expected to understand the above knowledge and apply them to team projects.

A1635 Educational Measurement & Evaluation (3/0): This course discusses the principles of sound assessment as well as methods of testing and measurement in education, including critical roles of assessment, varied assessment methods, and assessment applications.

A1719 Needs Analysis (0/3): This course provides models and techniques for conducting needs assessment. Case studies from various contexts will be discussed in the class. Students will also use newly-learned knowledge to work on need assessment projects during the semester.

A1725 Special Project in Educational Technology (3/0): This course introduces current trends and issues in educational technology. Students cooperate with their instructor to produce a series of training sessions and products.

A1997 Adult and Lifelong Education (0/3): The major focus of the course is the concept of individual differences, what they are, and how they affect the learning and teaching of adults.

A2019 Educational Statistics (0/2): This course focuses on statistical methods for acquiring and analyzing research data, emphasizing empirical methods and experimental designs. Basic statistical concepts are a prerequisite to this course.

A2176 Introduction to Performance Technology (0/2): In this course, a systematic process linking business goals and strategies with the workforce responsible for achieving the goals will be introduced. The human performance technology model includes stages such as performance analysis, cause analysis, intervention selection and design, and intervention implementation and change will be explored and discussed in class through various learning activities.

A2178 Organizational Development (2/0): This course presents a process that employs behavioral science knowledge and practices to help organizations achieve greater effectiveness, including increased financial performance and improved quality of work life. Moreover, concepts like change management and knowledge management will also be discussed.

A2277 Graphic Design (0/3): This course provides basic knowledge and skills in the art and science of visual communication for students. The field of graphic design combines the human factor and technology with aesthetics in the production of type graphics, signage, publications, identity systems, packaging, film graphics, posters, computer interface design, and other forms of communication.

A2340 Human-computer Interface Design and Development (3/0): In this course, students will apply fundamental principles to design, implement, and evaluate user interfaces for interactive and web-based courseware. Topics will include user and task analysis, low- and high-fidelity prototyping, usability testing methods, iterative design, and research topics such as learning modules, multimedia courseware interfaces, and web learning management systems.

A3593 Adult Learning (0/2): Adult learning is examined from young adulthood to later adulthood. Emphasis is given to understanding the effect this knowledge has on the teaching-learning process in adult education and to how adult education programs are designed to serve the uniqueness demanded by adult learning situations.

D0044 Digital Image Processing, Production and Application (2/0): This course provides solid concepts of digital processing and utilization skills of Photoshop software. Based on the application of

this software, students will learn how to accomplish different tasks, from retouching photographs to websites, and the competence of evaluating digital images.

D0045 Computer Programming (I), Production and Applications (3/0): This course focuses on the basic training of programming language, and writing for the programs of simple computer games, so that students can write programs to implement instructional materials.

D0046 Computer Programming (II), Production and Applications (0/3): This course focuses on the writing applications of database and programs of computer games, such that students can write programs to implement instructional materials.

D0130 Digital Audio Editing and Practice (3/0): This course covers the fundamental elements of audio for digital multimedia production. A large component of the course is the "hands-on" operation of audio production equipment. Experience will be gained in the use of audio equipment and software in the design and production of courseware for e-learning.

D0139 Digital Video Editing and Practice (3/0): This course provides basic knowledge and skills in digital video editing and video production for students. Through project-based individual/group teamwork, the course allows students to practice techniques of video production, including storyboard creating, nonlinear video editing, and other specialized professional techniques for electronic video materials.

D0141 2D Graphics Design and Animation Production (0/3): This course is concerned with the fundamental context of 2D animation production which includes the basic tools of animation production, the skills of painting, chromatology design, and other theories of 2D graphical design.

D0142 3D Animation Production (0/3): This course introduces software used in 3D animation: 3D Studio Max. Students can learn from this course how to create models and scenes, set the lights and objects of material, key frames of animation, and other fundamental skills in 3D animation production.

D0166 English for Educational Technology (0/3): The purpose of this course is to enhance students' English ability through engaging in activities designed for the field of educational technology. Students will work individually and cooperatively to practice their reading, writing, speaking, and listening skills on various educational technology topics.

D0167 Design and Practice of Interactive Courseware (3/0): This course reviews basic courseware features, analyzes methodologies for multimedia-based learning, and discusses activities relevant to designing and developing multimedia projects. Students are required to evaluate multimedia courseware and integrate the courseware into a lesson plan.

D0200 Training Practice in Industry (0/2): This course emphasizes analyzing, designing, developing, implementing, and evaluating training for business and industry.

D0262 Web Page Design and Development (3/0): This course covers webpage design and development using an instructional design model. Specific webpage design principles will also be covered. Students will create a course website and conduct usability testing during the evaluation phase. Revision of the website based on results of usability testing is required.

D0297 Rapid E-learning Tools Application and Production (2/0): This course introduces various multimedia e-learning courseware builders. Students must understand the characteristic of various software and use them in the most effective situations. Students must also integrate instructional theories to establish an ideal e-learning course.

D0298 Basic Training of Digital Content Production (0/3): This course introduces several multimedia authoring tools. Students are required to master the major functions and use them to accomplish multimedia projects.

D0299 E-Learning Program Adaption and Management (3/0): The aim of this course is to help students understand the model and process of e-learning adoption and management. Topics include platform selection plan, course development strategy, project team management, diffusion strategy and

project proposal writing. Real cases selected from local companies and educational settings will also be discussed in this course.

D0300 Digital Education TV Program Production (3/0): The aim of this course is to help students understand the process of basic TV production, including pre-production, production, and post-production. Students will learn to incorporate lighting, audio, camera movements, camera operation, and picture compositions skills to produce an educational program.

D0304 Interactive Learning Materials Design (0/3): The goal of this course is to help students understand Flash and write interactive action scripts. Through the Internet, students will implement dynamic multimedia information systems presented on the Internet.

D0305 Instructional Principles and Strategies (0/3): This course explores the basic concepts of instruction, including learning theories, factors of instruction, teaching strategies, evaluation of learning effects, and instructional design. Students learn to apply both theory and practice through group discussions as well as group projects.

D0331 Practicum in Educational Technology (0/2): This course gives students an opportunity to apply the knowledge, skills and expertise acquired in the course 'Educational Technology' to industrial, business or government contexts. During the internship, students will apply academic principles to the solution of practical problems in the various areas of Instructional Technology. The intern is responsible for planning, carrying out, and reporting on projects assigned.

D0749 User Experience Innovation Design and Marketing Planning (0/3): This course will introduce the concepts and techniques of user experience and design thinking, deeply explore the needs of users, and explain the concepts and strategies of marketing planning, and allow students to use the findings of user experience research to write innovative marketing plans.

T0081 Survey Method (3/0): This course provides a broad overview of identifying research questions, designing research strategies, retrieving and organizing literature, determining research methods, and examining the theory and practice of both quantitative and qualitative research. Students will have opportunities to clarify their own research questions and write research proposals with relevant research designs.

T0145 Educational Psychology (0/3): This course describes theories of human developments, learning processes, behavioral changes, and cognitive psychology by introducing several psychologists. Through case studies and class activities, students will learn to observe and analyze educational problems from aspects of individual differentiations, learning motivations and conditions, and knowledge-related factors. They will also learn to provide possible solutions by initiating educational strategies using principles taught in this course.

T0994 Key Issues in Career Planning (2/2): This course requires students to integrate their educational technology knowledge and skills, follow the process of the ADDIE model, and produce a product of professional level in the training area.

M1103 Knowledge Management (0/2): This course aims at introducing how organizations adopt knowledge management (KM) through strategic planning and change process to enhance organizational functions and performance. Course content includes: (1) the background and culture of KM, (2) technologies and strategies of KM, and (3) the theory and practice of knowledge services and developments.

D0500 Photography and Visual Identity (2/0): This course provides basic photography knowledge, skills and appreciation of visual identity. Through project-based hand on practice such as focusing, depth of field, golden ratio, and photo essay, the course allows students to master the knowledge and skills of photography and appreciate the various visual design styles and principles.

D0533 Project Management for Educational Technology (2/0): This course aims to equip learners with a theoretical and intellectual foundation of general project management skills, methods, and techniques. It also provides the opportunity for the learners to occupy many roles in educational technology projects within a company or organization; assessing performance goals, developing learning objectives, designing instructional materials, delivering curriculum in classrooms, online or in blended

environments, and using new and ever evolving technologies to improve human performance and reduce costs.

D0534 Educational Game Design (0/3): The objective of the course is to introduce some simple computer game programming software to be implemented on different devices. Students will design and develop interactive learning games based on related theories of teaching materials.

D0535 Design and Development of Instructional eBooks (2/0): The primary focus of this course is to develop skills in designing, developing and evaluating instructional eBooks and the use of these materials to enhance the learning environment. Students will complete several projects to develop instructional eBooks, while maintaining compliance with the copyright laws. This course uses Apple iBooks Authors and other interactive programming authoring system to design and develop instructional eBooks.

D0613 Curriculum Development And Evaluation (0/3): The course is focused on the methods and techniques of instructional evaluation. In addition to explore the definition and functions of instructional evaluation, theories and approaches will also be discussed. Procedures and elements of consideration will be practiced. Trends and issues will be presented.

D0666 The Design of Digital Story Telling (3/0): This course provides students to understand the narrative power, story archetypes, discourse structure, and story's transmission and communication purposes, and then make good use of digital media presentations and vividly interpret stories to enhance the effective communication and learning for students.

D0685 Mobile Learning and Teaching Strategy (3/0): The goal of this course is to select and use mobile app strategy tools in educational training or teaching situations. Major curriculum is to transform various types of teaching methods into mobile learning. In the course, 6 groups of learners use 36 ipads and 6 LCD projectors to engage teaching exercises to cultivate the learner's ability to use the basic teaching strategies of the app.

D0686 Introduce to Ai Data Mining Technique (3/0): This course introduces the basics of educational AI data mining. It uses education and human resource training development cases as examples to allow students to understand and apply AI data mining software, and present them in an easy-to-understand way to familiarize students with the actual application of data mining.

D0689 Introduce to Ai And Learning (3/0): The purpose of this course is to introduce the application of artificial intelligence in the field of education. This course also uses a case study and gamification-based learning to help students understand and apply artificial intelligence-related software. Students can further enhance their AI ability to apply human resources education and training projects in the future.

D0650 Workplace Ethics and Attitudes (0/2): Ethics and attitudes are the key qualities that determine one's successes in workplaces. This course aims to shorten the gap between students' knowledge and behavior in work ethics and attitudes. Through a series of learning activities, this course not only enhances the understanding of workplace ethics and attitudes but also the ability to differentiate proper professional conduct via case discussions.

D0748 Presentation skills and oral communication (2/0): This course is to explore the concept and practice of presentation skills, and oral communication skills. This course enables learners to apply their communication skills in work and life through stimulation and practice in different situations.

D0820 Character Animation Design and Applications (0/3): This course focuses on practical instruction in 2D and 3D character design for digital educational materials. In addition to hands-on software training, The course will also teach the practical process of integrating character animations into digital material production.

D0795 X R Technology Implemented Into Education (0/3): This course introduces the development trend and current application of 3R immersive technology, uses the existing APP to develop and discusses the potential and limitations of them.

D0822 Introduction to Human Resource Management (0/3): An enterprise starts with people and ends with people. It is useless to have good strategies without talents to implement them, or to have talents to think about the future strategies. This course can help learners to have a comprehensive

understanding of the scope of work of a company's human resource management, and through various corporate cases to understand the human resource management solutions proposed by different industries in different environments, and to understand the ADDIE model at a higher level meaning.

D0862 Introduction of Labor Practice In HR (2/0): This course aims to establish students' understanding of basic labor regulations. By studying common labor-management dispute cases, students will develop a proactive approach to work and learn effective conflict resolution procedures. Upon completion, students will be prepared to take the "Employment Service Technician, Level B" certification examination offered by the Ministry of Labor, enhancing their competitiveness in the job market.

D0XX Planning and Practices for Educational Curation (3/0): This course trains students to distinguish between different types of curation, understand the steps involved, and acquire relevant skills such as proposal writing, budgeting, contracts, and exhibition preparation.

Master's Program

A1121 Learning Psychology (3/0): This course addresses different aspects and processes of how people learn, including behaviorist views, social learning theory, cognitive views, memory, transfer, problem solving, motivation, etc.

A1384 Qualitative Research (0/3): This course is designed to have 18 units divided into three big categories, namely the research process, research methodologies, and research methods. The research process section involves a brief introduction to research design, research ethics, validity and reliability, data collection, data analysis, and report writing. In the research methodology section, topics discussed include theoretical paradigms such as biographies, case studies, action research, phenomenology, ethnography, and grounded theory. In research methods, students learn how to conduct field studies, participant observation, in-depth interviews, focus groups, questionnaires, and content analyses.

A1605 Human Resource Development (3/0): This course covers the entire field of HRD, from orientation and skills training to career development and organizational development. In addition, related concepts, processes, and practices that form the basis of successful HRD will be discussed.

A1606 Diffusion of Educational Innovations (3/0): This course focuses on several aspects regarding the implementation of educational innovations. Models of diffusion of educational innovations will be investigated. Particularly, elements relating to the innovation decision process including knowledge, persuasion, decision, implementation and confirmation stages will be discussed comprehensively. The Concern-Based Adoption Model and change management will also be studied.

A1627 Instructional Systems Design (0/3): In this course, models and theories of instructional design will be introduced and discussed for planning and developing instructional （training） programs. Completion of an ISD project using ISD models is required to ensure that students acquire the knowledge and skills essential to performing procedures of ISD.

A1719 Needs Assessment (3/0): This course is concerned with the theory and practice of needs assessment. Case studies are employed as a learning method. Students also conduct needs assessment projects in groups.

D0111 Practicum in Educational Technology (3/0): This course provides graduate students with experiences in applying instructional technology principles and techniques. Graduate students gain practical experiences in all phases of the day-to-day operation of learning technology cooperation or training company.

D0367 Topics on Educational Technology (3/0): This course covers various issues concerning educational technology. Each week a new topic is introduced and discussed. Students will reflect on the issues and conduct a presentation at the end of the semester.

D0705 Theory and Practice of Educational Technology (3/0): This course covers the present, past, and future of educational technology, while helping students to understand the basic concepts of this field.

A1785 Educational Statistics (0/3): This course focuses on basic statistical concepts and applications. Important concepts include: population and sample, random sampling, normal distribution, and standard scores; applications include correlation and regression, the idea of hypothesis tests, t-tests, Chi-square tests, and analysis of variance.

A1870 Message and Interface Design (0/3): The goal of this course is to advance students' message development knowledge and skills of graphics, text, sound and animation. This course also introduces the concepts and technology necessary to design, implement, and evaluate user interfaces.

A1999 Design and Development of Multi Media Web-Based Environments (0/3): This course provides students a basic knowledge of designing and developing web-based multimedia courseware. Aspects of theory include psychology principles and research in multimedia learning. Students will have the opportunity to apply knowledge and skills to design and develop their multimedia courses.

A2018 Web-Based Instruction and Learning (3/0): This course presents an introduction to instructional computing via the World Wide Web. Special emphasis is placed on using the internet and learning "with" technology, as well as using cognitive tools and constructivist learning environments. Literature reviews, e-course evaluations, and e-learning activity designs are major tasks in this course.

A2075 Project Management and Evaluation (0/3): This course examines project organization, planning, and management and provides practical knowledge on managing project scope, schedules and resources. Topics include project life cycles, work breakdown structures and Gantt charts, network diagrams, scheduling techniques, and resource allocation decisions. Concepts are applied through team projects and tutorials using project management software.

A2176 Performance Technology (3/0): This course encompasses the theory and practice of analyzing, designing, implementing, and evaluating instructional and non-instructional solutions for all levels of human learning and performance problems. In this course, students will be able to define the purposes and functions of performance technology, analyze organization's performance problems and identify their causes, select the most appropriate performance improvement interventions, define the steps and critical components of the implementation plan, and evaluate the effectiveness of performance improvement interventions.

A2211 Distance Education (0/3): This course deals with the fundamental themes of distance instruction, with an emphasis on knowledge relevant to web-based instructional design. Planning, analysis, design, development, implementation, and evaluation of distance instructional systems in an educational setting will be discussed in this course.

D0076 Production of Instructional Web-based Materials (3/0): In this course, students will explore several software and e-learning platforms of open source to construct an integrated environment in which students can design and implement e-learning contents. Students will also create learning contents through Flash and other screen video capture tools, and build theses learning contents in e-learning platforms.

D0110 E-Learning Theory (0/3): This course addresses learning theories appropriate for the e-learning environment. Students will have the opportunity to illustrate various perspectives represented by these theories and apply them to analyze and solve e-learning problems.

D0206 Educational Evaluation (0/3): This course introduces issues regarding the evaluation of educational contexts. Topics for discussion include the philosophy, purpose, models, and procedures for evaluation, as well as standards of evaluation. The course focuses specifically on the evaluation of instructional design, instructional resources, instructional behavior (teaching evaluation), curriculum （program） evaluation and educational system evaluation.

D0207 Interaction Design of E-Learning (0/3): This course covers the study of principles and applications of human-computer interactions within the context of a rich constructivist learning environment. The topics discussed in this course will focus on interaction between (1) learner and learner, (2) learner and teacher, and (3) learner and e-learning material.

D0234 Instructional Design in E-Learning (3/0): This course aims to introduce the essential elements of Instructional Design (ID) in e-learning, and provide an overview of the fundamental principles,

processes and practices that currently shape and define ID. Students are expected to apply the major steps of the ID model to develop e-learning courseware.

D0235 Design and Production of Instruction Web-Based Materials (0/3): Students will explore open source software and e-learning platforms to construct an integrated environment in which our students can design and implement e-learning material. Students will also create learning material through Flash and other video capture tools, and create teaching material for the already-established e-learning platforms.

D0236 E-Learning Courseware Design (3/0): This is an asynchronous online course that teaches about the creation of web-compatible resources using current web technologies.

D0269 Corporate Training Practices (3/0): This course focuses on practical skills and knowledge required for students aspiring to become training specialists in the corporate setting. Course topics include corporate value chains, roles and responsibilities of a training specialist/trainer, and ways to design and evaluate a training program. It also introduces three types of computer software widely applied in the corporate setting: MS Project, MS Excel, and MS Access.

T0081 Research Methods (3/0): This course discusses the procedures and methodology for conducting research in education, including research questions, defining variables, hypothesis testing, literature review, research design, writing a research proposal and paper.

D0624 Seminar: Creative Learning Technology (0/3): In-depth discussing the important current issues in e-learning and applying the theories, methods and problem-solving strategies to complete the related projects.

D0863 Advanced Educational Statistics Methods (3/0): Practical course covering t-tests, ANOVA, MANOVA, regression, cluster analysis, PLS-SEM. Emphasis on hands-on application using Orange data mining software for statistical analysis and data mining in education.

M0115 Multivariate Analysis (3/0): Statistical analysis has always been one of the disciplines that most graduate students are afraid of. In the past, statistics courses mainly emphasized the principles of statistical analysis. However, postgraduate students must understand the correct operation of statistical analysis and write the paper. Most importantly, this course simplifies the operation mode, guides students step by step to operate the most commonly multivariate statistical analysis methods, and helps students to analyze statistical results smoothly.

DEPARTMENT OF EDUCATION AND FUTURES DESIGN

Degrees Offered: B.A., M.A., Ph.D.

Chairman：Jian-Bang Deng (鄧建邦)

The Department

The Department of Education and Futures Design (DEFD) was established in 2021 and it aims to develop the knowledge and understanding that ensure students can (1) build their futures thinking skills, (2) learn project design and project management skills for education, (3) develop their leadership skills, (4) gain instructional design skills, (5) learn skills for social design and preparing to be a creative Change-Maker.

The core program structure of the Department of Education and Futures Design is comprised of three carefully selected course types including “futures and foresight”, “leadership management” and “instructional design” to initiate students into their journey to becoming interdisciplinary talents and innovative Change-Makers. Besides the undergraduate program, the DEFD offers three Master’s programs, one Executive Master’s programs and one doctoral program: Master’s Program in Leadership for Learning and Educational Development, Master’s Program in Futures Studies, Master’s Program in Curriculum and Instruction, Executive Master’s Program in Curriculum and Instruction, as well as Doctoral Program in Foresight for Educational Leadership and Technology Management.

Faculty

Honorary Professor
Flora Chia-I Chang (張家宜)

Chair Professor
Ching-Ji Wu (吳清基)

Professors
Kuo-Hua Chen (陳國華) ; Li-Hua Chen (陳麗華) ; Jian-Bang Deng (鄧建邦) ;
Ru-Chieh Huang (黃儒傑) ; Hui-Ling Pan (潘慧玲)

Associate Professors
Y Yueh-Hsia Chang (張月霞) ;-Shun-Jie Ji (紀舜傑) ; Abdullah Nur Anisah Binti (陳思思)

Assistant Professors
June S. Chen (陳錫珍); Chunta Chiu (邱俊達); Li-Hui Peng (彭莉惠)

Visiting Research Fellow
Inayatullah Sohail (蘇哈爾)

Degree Requirements

1. Requirements for a Bachelor in Education and Futures Design (B.A.): Students must complete at least 128 credits of course work, including university required general education (26 credits) and professional education (72 credits) of Education and Futures Design. Professional education provided by the Department includes required courses (52 credits) and elective courses (20 credits).

2. Requirements for a Master’s degree in Leadership for Learning and Educational Development (M.A.): Students must complete 30 credits of course work, including 9 credits of required courses and 21 credits of elective courses. Students are also required to submit a written master’s thesis completed under the supervision of a faculty member and pass an oral examination.

3. Requirements for a Master’s degree in Futures Studies (M.A.): Students must complete 28 credits of course work, including 6 credits of required courses and 22 credits of elective courses. Students

are also required to submit a written master's thesis completed under the supervision of a faculty member and pass an oral examination.

4. Requirements for a Master's degree in Curriculum and Instruction (M.A.): Students must complete 30 credits of course work, including 6 credits of required courses and 24 credits of elective courses. Students are also required to submit a written master's thesis completed under the supervision of a faculty member and pass an oral examination.

5. Requirements for an Executive Master's degree in Curriculum and Instruction (M.A.): Students must complete 32 credits of course work, including 6 credits of required courses and 26 credits of elective courses. Students are also required to submit a written master's thesis completed under the supervision of a faculty member and pass an oral examination.

6. Requirements for an Executive Master's degree in Department of Education and Design (M.A.): Students must complete 24 credits of course work, including 6 credits of required courses and 18 credits of elective courses. Students are also required to submit a written master's thesis completed under the supervision of a faculty member and pass an oral examination.

7. Requirements for a Doctoral degree in Foresight for Educational Leadership and Technology Management (Ph.D.): Students must complete 30 credits of course work, including 6 credits of required courses and 24 credits of elective courses. Passing the qualifying exam is another important requirement to be a candidate. Fulfilling the qualifying exam may include passing two written exams or publishing two articles in SCI, SSCI, A&HCI, EI, TSSCI, THCI journals. The dissertation is final key requirement in the program. The dissertation should satisfy the requirements of the final oral defense.

Course Descriptions

Undergraduate Courses

A1121 Learning psychology (0/2): This course aims to introduce educational learning theories such as behaviorism, social-cognitivism, and constructivism. Students will learn about the pedagogical application based on these learning theories in Western and Easter countries.

D0012 Social Research Methods (2/0): This course deals with the social research methods. It will introduce both the quantitative and quantitative methods for social research.

D0150 Educational Leadership and Administration (2/0): This course aims to help students get familiar with theories and current issues related to the field of educational leadership and administration. Students will be able to have the reflective skills and attitudes required to solve practical problems for educational organizations.

D0706 Introduction to Education and Futures Design (2/0): Education plays not only an important role to shape the character of individuals. During times of rapid change and uncertainty, it would be a major instrument for social change. With the tools of foresight education, this course intends to give all class participants a deeper understanding of the core curriculum/skills framework of the Department of Education and Futures Design. It includes futures literacy, design thinking as well as skills for leadership, instructional design and social design. The aim of this course is to help students learn how to innovate long-term solutions.

D0707 Introduction to Education Sciences (2/0): This course introduces the basic concepts of education. In the class, students learn to think critically regarding fulfilling individuals' potential and embodying social justice.

D0708 Statistics for Social Science (0/2): This course introduces the concepts and operations of important statistical methods for Social Science. Students are expected to understand these methods and apply them in the data analysis of needs assessment and market survey.

D0709 Educational design foresight projects (0/2): This course aims to develop students' problem awareness and problem-solving ability to deal with the social and industrial problems and trends in the 21st century. The course activities include seminars, workshops, and project presentations.

D0710 Educational design foresight practice (0/2): This course aims to lead the students to observe and analyze the main and emergent issues, and then to establish their practical ability through developing problematic, fieldwork, sympathy, plan, and project presentation. The course activities include seminars, workshops, and project presentations.

D0711 Learning Design Theory (2/0): This course focuses on the design principles for learning. The principles will be introduced based on ADDIE mode for students to design an effective program to facilitate learning. Using the model, students will learn how to analyze learning problems, design and develop learning activities, and evaluate the effectiveness of the developed learning program. The learning outcomes of this course include a problem analysis report and a proposal of a learning program.

D0713 Education Foresight Project: Event Planning (2/2): The goal of the course is to design an activity proposal related to an educational issue through a collaborative group learning approach. The explore site will be located first on the school campus or educational organization, and then further investigation will be expanded to include the community area of the selected school/educational organization. The course is designed, from defining problems to developing project proposals, to integrate theoretical and practical experience that students have learned and lead students to explore social, cultural, economic, and industrial structural phenomena and trends related to education and learning. The course also develops students' ability to communicate with others and work in teams. Learning activities include lectures, seminars, surveys, interviews, group discussions, activity planning, and presentation of reports.

D0714 Educational Design Foresight Practice: Event Planning (2/2): This is a practicing course in collaborating with the thematic course of Education Foresight Practice. In this course students learn about how to apply the skills of graphic thinking and tools of environmental study to visualize the designing process in a real context, thus leads towards a sensible and creative design product.

D0716 Theories and Methods of Futures Research (2/0): The course focuses on how to create the future. Design implications in created preferred futures are explored. What is the difference between the good and the prefect society? How can one ensure that one's political and social design is robust and does not close the future.

D0717 Program Management and Evaluation (2/0): The course aims to explore related theories of program management and evaluation, applied examples, and practical operations in society. The content includes knowledge skills from program planning to implementation and from implementation to evaluation to support a sustainable development mechanism. The course requirements are realized, participation, teamwork, implementation, and application.

D0718 Educational Design Foresight Project: Curation Project (2/2): This course is a junior capstone project. The purpose of the course is to develop students' real-world insight and problem-solving skills. Students will choose a problem area of interest, observe and analyze it, and solve it through learning design or social design. In the first semester, students will develop a research topic, problem analysis, fieldwork, literature research, data collection, proposal writing, and program design. In the second semester, the process of project production is prototyping, testing and revision, and finally the final project curation.

D0719 Educational Design Foresight Practice: Curation Project (2/2): This course is a junior capstone project. The purpose of the course is to develop students' real-world insight and problem-solving skills. Students will choose a problem area of interest, observe and analyze it, and solve it through learning design or social design. In the first semester, students will develop a research topic, problem analysis, fieldwork, literature research, data collection, proposal writing, and program design. In the second semester, the process of project production is prototyping, testing and revision, and finally the final project curation.

D0xxx Social Design (0/2): This course focuses on understanding the concepts, methods, and examples of social design. Students will learn how to discover problems, define problems, research problems, and solve problems.

D0750 Design on Sustainability (2/0): This course is to introduce the origin and development of the discourse of sustainable development. The major goals are to lead students to understand the true

meaning of sustainability, recognizing the basic and alternative elements of sustainability, then able to apply all elementary principles to real life domains.

D0751 Philosophy of Education and Social Thoughts (2/0): The content of this course is to lead students to understand various educational philosophies and social thoughts that affect current and future learning and educational development, and to establish the mental habits of students to understand and connect philosophy and social thoughts in life, and lay the foundation for future education and future thinking. The foundation of practice, reflection, and action.

D0752 Design Thinking and Communication techniques (2/0): This course aims to lead the students to learn the basic skills of design thinking and communication. Through brainstorm based on the fieldwork, analysis and sympathy, students try to explore the multi-layers of each issue and try to make a prototype to present their ideas and problem-solving ability. The course activities include seminars, workshops, and project presentations.

D0753 Professional English for Design Communication (2/0): This course is designed to introduce you to effective writing for careers in design. It will focus on strategies for researching and writing correspondence and reports. Emphasis is on understanding and responding to a variety of communication tasks with a strong purpose, clear organization, and a professional style.

D0754 Computer-aided Design for Visual Communication(2/0)： This course focuses on the application of computer-aided design (CAD) tools for visual communication. Students are expected to be able to use graphic design software to present their ideas and concepts through visual materials. Through selected case studies, this course aims to equip students with the ability to transform textual knowledge into visual representations.

D0755 Analysis and Application on Trend Issues (2/0): The teaching goal of this course is to assist students in insight, thinking and analysis of various future trends, and through design -thinking workshops to allow students to design different aspects of Taiwan's future and their own future. The course focuses on trend-oriented discussion and analysis of trend topics including technology, society, economy, politics, education, work, marriage and family. Teach students from trend insight, trend analysis, trend design and application, and help students lay a foundation for future trend analysis and application skills in academic and practical aspects.

D0791 Visual Design and Aesthetics (2/0): Visuals have always occupied a dominant position among all kinds of human perceptual activities, constituting both rich perceptions and thoughts, and therefore the visual culture and aesthetic corresponding to visual design have become more and more critical. This course will first explore visual design's cognitive, communicative, and cultural connotations by using visual experiences/objects of daily life, and further lead students to understand the practices of visual design in order to train visual communication and expression skills.

D0792 Design and Application of Digital Instruction (2/0): This course focuses on the design and development of online courses. Students will identify the key elements and principles to integrate technology into online courses and traditional classrooms. A variety of learning technologies will be introduced to students. Students will be use the technologies to design online courses comprising support synchronous and asynchronous learning as their final learning outcomes.

D0796 Script Design and Video Production (2/0): This course is to help students get the knowledge for video production and script design. In addition to acquiring the theory and skills of film and television production, students will also be able to match them with practice, adding a lot of practical experience**.**

D0715 Program Planning and Development (0/2): The course provides students with an understanding of the purpose, type, and value of program planning, and the knowledge and skills needed to address for program development, design, implementation, and evaluation in a wide range of topics. Through hands-on program design, this course will help students to enhance their understanding of social change in human behavior/service and social adaptation/adjustment. This course will be of professional benefit to students pursuing careers in human services, education, community development, and non-governmental organizations.

D0712 Theory and Practice of Content Curation (0/2): The main axis of the course is curatorial practice, from the history of contemporary curatorial and content design in different fields, including

planning, writing, visual narrative, use of display media and display space design, etc. This course combined with the study of urban art and culture festivals and visits to professional cultural institutions and exhibitions to lead students to develop practical training.

D0793 Communication and Storytelling (0/2): Storytelling connects the audience's life experience, resonates and moves them, and thus makes communication more powerful. This course aims to study the concepts and principles of communication and storytelling, and provides three aspects of observation and hands-on learning to cultivate students' skills, including: (1) conveying ideas and exerting influence through personal storytelling; (2) Expanding marketing and profits through storytelling of selected local products or brands; (3) Using digital narrative tools and techniques to further present local products, brands or issues in digital videos, to create value and interests for the locality or to speak for the locality.

D0794 Experiential Education and Innovation (0/2): This course intends to explore main theories and practices for seminar on global alternative and experimental education as applied to schools. Literatures and cases will be analyzed and discussions will focus on their methods, strategies, and efforts for learning practices.

D0817 Learning Environment and Teaching Design (2/0): The course firstly to explore the nature of cognition and learning and their relationship with the environment. Secondly, the cognition and learning design in the embedded environment in various learning institutions are analyzed. Finally, the concepts and practices of teaching design using the learning environment are explored. Students are required to make a learning design plan to summarize and apply what they have learned in this course.

D0819 Corporate Social Responsibility (2/0): Through this course, we hope to cultivate business leaders and practitioners with corporate ethics and social responsibility thinking. Learning about corporate social responsibility and ethics helps students master sustainable and ethical thinking for decision-making analysis when facing various corporate decisions in the future, thereby strengthening corporate risk management and enhancing long-term competitiveness. Enterprises attach great importance to ethics and sustainable development, and can integrate economic, social, and environmental aspects through the business model to achieve business sustainability, create a better business environment for the society, and enhance national competitiveness.

D0816 Service Design and Management (0/2): This course will be divided into upper and lower modules, with design thinking running through "service design" and "service management". First of all, the first module helps students to understand the essence of service, and to think about problems with the first diamond of design thinking. The second module cuts in from the perspective of "service implementation", designs a set of actionable micro-services in a practical way, and exercises the tools of design thinking.

D0818 Lectures on Social Innovation and Future Enterprise (0/2): This course focuses on the angles of history, politics, economy and society, and explores the past, now, and the future of the major issues for the Enterprise.

D0xxx The Management of Educational Industry (2/0): This course is to give students overview of the educational Industry through the introduction and discussion of the operation and development of various cultural and educational institutions, organizations, foundations and associations. By contacting and interacting with the core figures of the educational industry, students could link some possibilities to enter the industry or start a business in the future.

D0xxx Design on the Future Longevity (0/2): This course uses futurology-related theories and analytical tools such as design thinking to guide students to observe and analyze important issues under the aging trend of the population structure. And to examine and design the feasible proposals for elderly society participation in The New Map of Life from a forward-looking perspective. The teaching scope of the courses includes: longevity trends, senior learning, age-diverse society, the age of no retirement and other issues. This course will enhance students' grasp of the development of the aging society, the trend of the aging industry, and the ability to communicate and collaborate.

D0xxx Introduction on Social Studies (0/2): This introduction course is aimed to give students interdisciplinary thinking and analysis. The method used is combined with traditional social science and foresight approaches. The issues will include current and emerging ones to be examined.

D0xxx Social Organization and Education (0/2): Social Organizations refer to the networks of relationships in a group and how they interconnected. In our daily lives, we find various types of social organizations such as educational, industrial and governmental organizations etc. This course focuses on 1) social organizations and their relationships, 2) the patterns of educational industry, 3) new trends on social organization and educational industry, and the future design about social and educational organizations.

D0xxx Big Data Analysis and Application (0/2): This course introduces the concepts, theories, methods and applications of big data analysis for needs assessment and market survey. The big data analysis methods introduced in this course include: decision tree, association rule, naive Bayes classification, neural network, data mining, etc.

D0xxx Technology and Our Futures (0/2): The course provides you with an understanding of the impacts and implications of technology on the society from a futures studies perspective. The class introduces key futures concepts as methods/tools to explore alternative futures and to study the images of the future. The objective of this course is to have students apply futures tools and methodologies to understand, challenge and develop images of the technology that are more sustainable, equitable, fair & just for the society.

E617 Field Work Methods (2/0): This course deals with anthropological filed methods. Anthropological fieldwork was and is a major way for anthropologists to collect data from their research filed. But today, Anthropological skills and perspectives are of use in many professional contexts, including for the use of instructional designers and social designers. This course, therefore, introduce methods of observation, interviews and other anthropological techniques for fieldwork. The participants can through training to obtain systematical knowledge on getting access to a field, selecting effective ways to get qualitative data as well as writing a comprehensive in-depth report.

T0070 Sociology (0/2): This course is designed to develop student's global sociological imagination. One of the characteristics of this society is that popular explanations for human behavior hinge on psychological or economic logic and causality. A sociological imagination, in contrast, relies upon explanations of human behavior based on situation, context, social structure and socialization. The introduction to sociology includes debunking of popular myths about our culture, history, and the structure and organization of the world economy, politics, and society.

Master's Program in Education and Futures Design

D0585 Ures Theory & Methodology (3/0): This course offers a theoretical analysis on the different aspects of futures research. It includes four main topics: (1) Why Futures Studies (2) From Utopia to a New Discipline (3) Classic Works on Futures Research, and (4) Selected Issues on Futures Research.

D0551 Emerging Issues On Educational Leadership (3/0):

D0860 International Trends and Educational Development (3/0):This course will introduce the basic concepts the theories of comparative education as well as issues related to international trends. Students will learn the educational systems and policies of major countries in the world and reflect on the educational issues in Taiwan.

D0012 Social Science Research Method (3/0): The main purpose of this course is to focus on research methods in the field of social science. Students will be able to learn both quantitative and qualitative research methods and apply them to their research.

D0333 Field Practices in Education (2/0): This course, which involves field practice, provides an opportunity for students to improve their practical competence in educational administration by arranging for an internship for 14 working days in governmental offices in educational administration both at central and local levels. (This course is exempted for students currently working in educational institutions).

D0728 The Theory and Practice of Leadership for Learning (0/3)：This course will introduce the basic concepts, theory, development and practice of leadership for learning. Through practice and

practical problem-solving exercises, students will fully experience the use of leadership for learning in various areas of life and work communities.

D0729 Educational Policy and Development (3/0): This course covers two main themes: policy and development in education settings. The discussion will focus on national and international education policy and development practices in different levels of education. Students will be asked to read related policy document or journal papers and engaged in the discussion.

D0740 Cultural and Educational Industry And Its Trend Analysis (3/0)：This seminar hopes to open students' understanding of the overall cultural and educational undertaking and organization through the introduction and practice of various cultural and educational institutions, organizations, foundations and associations, etc., and through the contact with social culture and education institutions, and the core members of the organization understanding to link their own future into the possibility of various organizations or entrepreneurship.

D0741 International Trends and Comparative Education (0/3)：This course will introduce the basic concepts the theories of comparative education as well as issues related to international trends. Students will learn the educational systems and policies of major countries in the world and reflect on the educational issues in Taiwan.

D0742 Instructional Leadership and Shared Leadership (0/3)：This course will introduce the basic concepts, theory, development and practice of teaching leadership and shared leadership. Through practice and practical problem-solving exercises, students will fully experience shared leadership in all areas of life and work communities.

D0743 Study on Organizational Change and Development (3/0)：This course will focus on diagnosis, theories, and interventions of organization development (OD) and change. It emphasizes the OD process, OD diagnosis and analysis, OD definition, and OD theories and interventions. Upon completing the course, students will be able to understand methods for diagnosing OD problems, solve the OD problems by applying OD intervention theories, identify research topics based on the OD theories learned in the class, analyze assigned OD cases individually and in group, and present the analyzed results and interventions in class.

D0744 Strategic Planning and Project Management (3/0)：This course focuses on the concepts/theories and techniques of strategic planning and project management. Students will learn how to utilize the concepts and techniques to help their organizations obtain comparative edge.

D0745 Leadership Theory and Issue Trends (3/0)：This course introduces the new visions of the philosophy of the leadership of public administration, the concepts of leadership of public administration of the tradition China and western countries by systematic analysis, and analyze the new concepts of leadership of educational administration in modern schools and the research development of the leadership theories of educational administration.

D0746 Learning Organization and Learning Community (3/0)：This course intends to explore main theories and practices for learning organization and learning community as applied to schools. Literatures and cases will be analyzed and discussions will focus on their methods, strategies, and efforts for managing leadership for learning practices.

A2033 Issues in Futures Studies (2/0): This course explores problems, trends and emerging issues in futures studies. These include: health futures, developments in genetics, innovation in technology particularly artificial intelligence, demographic changes, military futures, and gender futures.

D0010 Theoretical Approaches to the Future (3/0): This course develops the academic basis for futures studies. The origins, approaches, philosophical foundations for the field are explored, as well as questions about the future of futures studies.

D0011 Macrohistory and Macrohistorians (2/0): This course examines various perspectives on individual, social, and civilizational change. Macrohistory is the study of social systems, along separate trajectories, in search of patterns.

D0012 Social Science Research Methods (3/0): This course aims at equipping students with the capability of conducting interdisciplinary research independently.

D0013 Organizations and Movements in Futures Studies (2/0): This course aims to discuss: Which organizations support the work of futurists? Where are they located? What case studies exist on the successful use of the futures studies approach? Which movements are future oriented (or are they all single issue present based)?

D0014 Technology, Innovation and Learning (2/0): This course aims to discuss: What are the trends in pedagogy? How can educational systems be more future oriented? What are the case studies to support innovation in education? What will the education system of the future look like?

D0015 Regional Development and Globalization (2/0): This course examines the impact of globalization on regional development, including its effects on the national level, the Asia-Pacific region, and the world. Globalization will be emphasized with regards to the impact of multi-national enterprises, labor force migration, industrial clusters, capital interventions and technological innovations.

D0016 & D0017 Proseminar (I & II) (1/1): This introductory seminar will serve as a thorough academic orientation for postgraduate students. It provides students with the skills needed to become professional futurists.

D0018 Change and Development (0/3): Theories of social change are based on organizational traditions that emphasized innovation, control, planning and management. This course employs change and development theories to explore the futures of business organizations and nations, particularly on the impact of globalization and post-colonial societies.

D0019 Futures Studies on Sustainable Development (0/2): This course defines sustainable development, a term which has been misused and misinterpreted by several professions, in a comprehensive manner. Since its being introduced in 1987 for the first time, Sustainable Development has become the most politically correct slogan for some superficial purposes. Therefore, exploring the true meaning of Sustainable Development is a good starting point for finding out its implications and practices. Sustainability is intergenerational in nature. That is, the major concerns of Futures Studies are linked to the past, present, and future.

D0020 Leisure and Working Society (0/2): Leisure gradually replaces traditional working patterns and becomes a new lifestyle for upcoming generations. Will leisure replace traditional working patterns? Will leisure create more work opportunities? Is leisure simply another form of work? These questions will form the basis for discussion in this course.

D0021 Multiculturalism and Population Change (0/2): What is multiculturalism? Through the global village or local Taiwanese perspectives, this course leads students to explore problems of multi-ethnics, and conflicts of the majority and minority. Meanwhile, students will discuss with the result of the coming elderly society and complex patterns and relations of families.

D0023 Research Methodology in Futures Studies (0/3): This course is part of the core curricula of the Graduate Institute of Futures Studies. It has been designed for graduate students to understand the methodology of future studies and to apply these methods to analyze future issues, including those relating to society, technology, the economy, the environment and politics.

D0066 Global Change and Development (0/2): This course explores the complex process of social change and development. Its main objectives are to enhance students' learning capacity in identifying central arguments (learning to pick out what's important), cultivating skeptical pragmatism, and practicing critical reasoning. The course incorporates four thinking exercises that focus on the following questions: what are the main point(s) of the theories explored? How does that point appear in historical, contemporary or future social changes? What part of the theory doesn't make sense or might even be wrong? What does this theory assume that distinguishes it from other theories?

D0073 Philosophical Elements of Futures Studies (2/0): This course is designed to discuss the traditions of Futures Studies, including economic trends and predictions, sociological context analysis, the origin and result of change and development, and construction of time and space by philosophical perspectives.

D0075 Trend Analysis—Exploring the Long-Term Future (2/0): This course aims to discuss: what is the long-term future of humanity? What are the critical factors necessary for survival? Can the long-term future be forecasted?

D0076 Designing the Future (0/2): This course focuses on how to create the future. Design implications in creating preferred futures are explored. What is the difference between a good and a perfect society? How can one ensure that one's political and social design is robust and does not close off the future?

D0077 Cultural Innovation and Apprenticeship (2/0): This course provides you with an understanding of organizational and societal change and developing innovation capability through the lens of futures studies. In this class we will explore key futures concepts, tools and methodologies and apply them to real-world situations. You will use strategic foresight tools to lead to better decision frameworks and additional time to develop organizational readiness for change and social action.

D0078 Globalization and International Migration (0/2): The term "migration" might have nothing to do with you, if we do think migrants only refer to those who want to get a green card in the US or those who have married to Taiwanese people. The fact is, however, where there are people, there is migration. Migration is so fundamental a phenomenon that affects modern society in many ways, especially in the current era of globalization. This seminar invites all participants to explore the phenomenon of migration. In the first part of the seminar we discuss the reasons why people migrate, the history of migration in Europe, emerging issues of migration and new models of future migration. The second part of the seminar focuses on a specific type of international migration: professional migrants. "Modern capitalism," "work," "mobility," "flexibility" and "transnational lives" are some key concepts which will help us to understand this new type of migration.

D0079 Biotechnology and Risk Society (2/0): Adopting theoretical perspectives from risk society, this course intends to explore the level of social awareness regarding genetic engineering. Public interest, value orientation, and associated attitudes are among the focus of issues.

D0080 Network and Information Society (2/0): Questions and discussions will be the focus of this course. Who are the characters in the segmented polysepalous network? What are the learning networks? How will bureaucracy change in the future? How are social networks good for the development of globalization?

D0081 Religion and Civilization Conflicts (0/2): This course starts with the intertwined relationship between technology and religion. What form will religion and global consciousness take in the future? What values do New-Thought churches advocate? What are scenarios for adherents of world religions? What is the religion of humanity?

D0087 Vision and Alternative Futures of Public Policy (2/0): The evaluation of governmental policy usually focuses on its implicit and explicit goals. It is not unusual seeing policies used to achieve political

interests that are implemented without comprehensive consideration. A wrong policy imposes great cost on every aspect of the society and should be avoided. This course uses the methodology of Futures Studies— "Vision-Picture-Strategy"—to build appropriate models for policy making and evaluation.

D0090 Practical Uses of Futures Knowledge (2/0): This seminar will invite all participants to combine theory with practice in futures studies. Every seminar participant should share his/her experiences during practicum in summer 2011.

D0103 Futures Thinkers and Futures Thinking (2/0): Futures thinkers and futures thinking approaches the study of the future by analyzing futurists. These include academics and activists in the field. The following questions are asked of leading futurists. (1) What are the influences in your work? (2) What methods do you use in your futures studies? (3) What trends do you see creating the future? (4) What is your vision of the future? (5) References. The purpose of these questions is to gain insight into each scholar's story in futures studies. The purpose of this course, thus, is to better understand the theories, values and methods of futures studies by understanding the actors in the field.

D0119 Trends in Human Resource Management (2/0): This course elaborates the futures issues in terms of human resource management. It will also focus on how globalization and globalization impact the issues in selection criteria, and developing effective global managers.

D0120 China's Economic and Political Change (0/2): This course aims to help students inquire into the structural elements underlying Chinese society. It covers political, economic and social issues that have been long debated. The course depicts the difficulties and opportunities China encounters in the process of modernization.

D0121 Seminar on Global Trend Watch (0/2): The purpose of this seminar is to provide students with an understanding of those mega trends or future topics of the new era. It focuses on regional development, global governance, knowledge-based economy, innovation and social change. This course involves both theoretical lectures and practical visits.

D0122 Multicultural Studies & Organizational Change (2/0): This course covers multicultural issues in changing and developing organizations. Organization development inspires the talents of individuals within the organization. Such individuals pursue their own self-interests, which involve making the organization more successful and making their quality of working life more satisfying.

D0123 Globalization and Transnational Migration (0/2): The national state is usually understood as an imagined community with a single people who have an undivided loyalty to a common government and a shared past. Hence, in the past, immigrants were forced to abandon or deny their ties to their societies of origin. Globalization and transmigrants, however, have greatly changed this situation. Transmigrants construct their identity in more than one society and preserve the culture and identity of the societies from which they emigrated. This course attempts to discuss this new phenomenon from various viewpoints, such as transnationalism, citizenship, methodological nationalism and multiculturalism, etc. Some case studies in Taiwan are also included.

D0126 Organization Vision and Innovation (0/2): With the dawn of the 21st century, there is an emerging and exponentially accelerating force for global societal and organizational change. Organizational environments in the new century are chaotic and require rapid response from highly committed, productive, intrinsically motivated organizations with self-directed and empowered teams that are flexible, networked, diverse, and global**.** The organization must break through traditional strategic thinking but see clearly and thoroughly the possible change of the environment. Additionally, it also needs to propose a long-term sustainable vision, to develop sustainable visions, and to recommend actions to move towards the vision to achieve continuous breakthroughs in organizational development and industrial competition. This course attempts to explore the relationship between organizations and the future environment by examining theories of innovative management and futures studies; and further,

to discuss the creation, development, promotion, sustainability, and change of innovative vision and its related managerial creative issues.

D0136 Population and Aging Society (2/0): This course presents emerging issues of aging from a futures perspective as well as a transdisciplinary approach. One of the major goals of this course is to encourage whole-of-government and community debate on the structural aging of the population and the interconnected needs of all generations. It focuses on government planning frameworks and aims to generate a transformational shift in how government views the aging of population.

D0153 Migration and Modern Society (2/0): This seminar invites all students to explore the phenomenon of migration. In the first part of the seminar, we discuss the reasons why people migrate, the history of migration in Europe, emerging issues of migration and new models of future migration etc. The second part of the seminar focuses on a specific type of international migration: professional migrants. “Modern capitalism,” “work,” “mobility,” “flexibility,” and “transnational lives” are some key concepts that will help us to understand this kind of migration.

D0157 Emerging Issues for Government (2/0): This course focuses on the major issues of government from the perspectives of history, politics, the economy, and society, and explores the past, present, and future.

D0171 Sociology of Mobilities (2/0): This course aims to introduce the new emergent mobile phenomenon based on theories of multiple mobilities: from technological and media mobility (mobile transportation to mobile phones), mobile people (tourists/migrants/travelers), mobile objects and symbols, mobile spaces and the danger/risk and surveillance that results from multiple mobilities.

D0210 Statistic Methods and Application (3/0): Statistical methods and applications, such as SPSS and Minitab, are used to analyze industrial, economic and social surveys. Graduate students are expected to interpret results through experimental designs, test research hypotheses, and analyze variance, regression and trend analysis.

D0215 Globalization and Education Change (2/0): Globalization is one of the most important trends in this century. The extent and the depth of its influence to modern societies have far exceeded people’s comprehension and imagination. Therefore, it is one of the major fields to consider when exploring future possibilities. This course will introduce the formation and development of globalization as well as its effects on modern education. It will also examine recent social transformation by investigating changes to educational forms and content.

D0219 Organizational Change and Uncertainty Management (2/0): The fast changing and uncertain environment of the 21st century require organizations to be agile and responsive. In an environment of continuous and unpredictable change, organizations must develop a capacity to survive by reacting quickly and effectively to changing environments, and to create a sustainable future. This course aims to explore uncertain environments, develop successful strategies and manage changing organizations.

D0230 Designing the Future: Future-Oriented Policy Studies (0/2): This course emphasizes futures studies. Related topics include key methods in policy studies and case studies in future-oriented planning.

D0241 Seminar on Futures Studies I: Social Science Research (0/1): This course teaches students how to undertake social research using future oriented thinking. From the process of forming research topics and writing literature reviews, to devising research methods and using academic formats of writing, this course teaches students skills in social research by discussing related literature and examining students’ own research in the process.

D0242 Seminar on Futures Studies II: Social Science Research (1/0): This seminar deals with the writing of futures studies. Different writing techniques and experiences of field researchers will be introduced in this seminar.

D0243 Social Conflict and Educational Innovation (2/0): This course examines recent and future trends in university education in the context of the vast changes in the mode of production and social relations ushered in by the knowledge economy. We will look at past theories of the university as "state apparatus" (Althusser) and a "disciplinary institution" (Foucault) as well as recent work on the university in relation to "disorganized networks" (Rossiter) and "cognitive capitalism" (Moulier-Boutang).

D0244 Gender, Art/Culture and Society (0/2): This course will introduce the issue of feminist art practices through feminism, sociology of art and cultural studies. It will firstly introduce feminist theories, and then analyze how the social institution of art includes or excludes women and homosexuals, and how art practices construct gender performance and identities. Finally, it will introduce some inspiring feminist artists to explore related theoretical issues.

D0245 Tourism, Leisure and Consumer Culture (0/2): This course introduces the historical development of tourism and leisure and its social transformation. It discusses the mechanism of tourist destination making and leads students to inquire about consumption aspects of tourism and tourist practices, including issues related to package tours, backpackers' journeys, travel photography, souvenir shopping, tourist experiences, danger/risk tourism and insurance.

D0247 Ethnography in Futures Studies (0/2): The goal of this course is to develop participants' ability to apply qualitative research methods to futures studies. Course content includes principles and applications of qualitative research methods. It also seeks to intensify students' learning in research methods through practical exercises.

D0286 Social Development in Contemporary China (0/2): China is now in transition from a "world factory" to a "world market." This seminar invites all participants to explore the social development in contemporary China. In the first part of the seminar, we discuss Chinese social structures and moderation. The second part of the seminar focuses on urban-rural mobility and the "Hukou" （household registration） System in China. The third part of the seminar discusses issues relevant to education, marriage and the identity of migrant workers in coastal cities. The final part of the seminar deals with the topic of new emerging generations in China.

D0288 Cultural Studies on Museums and Exhibitions (2/0): This course aims to introduce to students the social significance and changing dynamics of public displays. It begins with the historical shaping of the public display in terms of spatial technique, and then explores how public displays have been involved in the process of defining and organizing different social categories. Finally, it discusses how public displays have helped to transform society. Specifically, this course will firstly familiarize students with basic terms relevant to public display coined by sociologists. Then, through discussions of different examples of public display—from exhibitions, museums, expos, festivals to theme parks—this course explores current academic discussions on issues of the public and displays. Finally, through discussions of some recent cases of exhibition regimes, students will learn about the transforming nature of exhibitions in globalizing societies. In addition to introducing some theoretical literature, this course also encourages students to attend and appreciate different kinds of public displays and share their comments on recent news relevant to public displays with their classmates. Some after-class activities, such as exhibition trips, will also be recommended in the class.

S0467 Applied Statistics (0/3): This course provides graduate students with a systematic treatment of the quantitative study. The major issues include testing the research hypothesis, Chi-square test and non-parametric statistics, analysis-of-variance, simple and multiple variable regression, dummy and regression diagnostics, and Time Series analysis. Many of the statistical software packages, including SPSS+, Minitab and SAS, are also employed in the practical assignments. Finally, students will learn how to conduct a set of survey data, to solve some common problems, and to interpret the complex findings of the empirical studies.

D517 Foresight Lecture Series (0/2): The course equips students with capability in practical uses of futures knowledge. To envision futures from a wide variety of career possibilities, speakers of the courses are mainly prominent leaders from business, corporations, and industry.

D561 Foresight Lecture Series (0/2): This is an introductory course for students of the Graduate Institute of Futures Studies, aiming to familiarize students with the life as a graduate student.

D580 Gender, Work and Trends (0/2): The main purpose of this course is to explore the interest of research institutes in the study of gender labor and trends. The topics covered by the course, includes the supply and demand sides of the labor market, explores the changing trends in gender labor and gender work that are evident in the labor process. In the view of gender work, the analysis of labor market demand and supply orientation is included. This course focuses on such things as a discussion of employers' statistical discrimination, internal labor market and gender classification, as well as the distribution and promotion of organizational work, and gender and stratified division of labor system construction. On the demand-side section of the labor market, this course focuses on two main points, one for the expansion of higher education and the gender link of the labor market; one for the credit and gender selection of the profession. How to influence the development experience of different gender in the labor market? The two are also recent gender and labor research the latest discussion direction and analysis point of view. A section on trends in gender work will analyze emerging trends related to gender work, such as the recent dispatch of labor, female entrepreneurship, or female high-level managers or leadership styles.

~~**D0585 Ures Theory & Methodology (0/2):** This course offers a theoretical analysis on the different aspects of futures research. It includes four main topics: (1) Why Futures Studies (2) From Utopia to a New Discipline (3) Classic Works on Futures Research, and (4) Selected Issues on Futures Research.~~

D583 Young People's Future (2/0): Young people are future creators. However, along with the increasing globalization and individualization, young people in many societies must choose their lifestyles among uncertainties and complexity. This seminar focuses on topics related to young people's futures such as young people's future visions, new lifestyles of young people, uncertainty and precarious situations in youth employment, young activists and the future they want.

Master's Program in Curriculum and Instruction

T0081 Research Methodology (3/0): This course aims to prepare graduate students for reading, analyzing, criticizing, and writing a dissertation, thesis, or a scholarly journal article. Topics include major paradigms and fundamental methods, literature review, instruments design and administration, data collection and analysis, results explanation, and research ethics.

D0257 Seminar on Curriculum and Instruction in Globalization (3/0): This course deals with issues of curriculum and instruction in the era of globalization. Seminar topics could range from curricular and instructional changes in major countries, issues of policy and implementation in different contexts, to global education and the pursuit of global citizenship in various parts of the world.

D0259 Inquiry on Classroom Teaching and Learning (0/3): This course examines current theories into practice on the issues of classroom management, assessment, community building, critical thinking, and decision making in the context of actual classroom experiences. Students will develop practical strategies, investigate ways to affect children's learning in the classroom, and reflect systematically.

D0285 Multicultural Curriculum and Instruction (0/3): Deep democracy requires a citizenry that embraces multiculturalism. Multicultural curriculum and instruction help establish multicultural values, and enables teachers to design and instruct multicultural curricula. Participants of this course will explore their own values and multicultural experiences, understand how different ethnic groups, including "new Taiwanese children", encounter learning difficulties, and seek to make changes in the curriculum and instruction.

D0283 Seminar on Textbook Design (0/3): After the textbook policy has been changed into censorship system, the issues of textbook have become more important. The aims of this course are to introduce the principles and perspectives of textbook design, to discussion edition, censorship, adoption, evaluation of textbook, and to analyze the contents of textbook. Base on discussing above contents, this course hopes to develop students' abilities and interests in textbook research.

D0288 Educational Statistics (3/0): This course is designed to explore the important statistical methods in the research. The statistical methods include t test, $\chi 2$ test, correlation, ANOVA, etc... The teaching activities include explaining the concepts, citing instances, and exercising sample problems.

D0325 Seminar on Curriculum and Instruction (3/0): Based mainly on the assigned class reading, this course explores the possible key competencies of future generations. It also discusses how the educational system can foster students' competencies needed for the future. And different kinds of curriculum and instruction in many kinds of schools will be discussed.

D0392 Action on Research in Curriculum and Instruction (3/0): Student will be able to apply the action research in their essays.

D0427 Curriculum and Instructional Theories (3/0): This course is designed to introduce the students to some foundational theories of instruction and curriculum. Students are encouraged to reflect upon their own experiences and be able to develop curricula that are suited for learners and practice their beliefs about teaching and learning.

D0429 Seminar on Technology Application in Learning (0/3): This course aims to investigate applications of emerging learning technologies on a global scale, and practical ways of integrating such technology into local educational settings.

D0509 Seminar on Curriculum and Instruction for Disadvantaged (0/3): This course introduces the theories and practices of curriculum and instruction for the disadvantaged students, and develops students' abilities and interests in research about curriculum and instruction for the disadvantaged students. Contents include the approaches of curriculum and instruction for disadvantaged students, disadvantaged students' learning problems and teachers' teaching dilemmas, curriculum design and textbook transformation for disadvantaged students, etc.

D0519 Study on Curriculum Design and Development (3/0): Principles and elements of curriculum development, major curriculum design models, curriculum implementation and evaluation will be introduced. Critical analysis will be on issues of national curriculum standards, frameworks, school-based curriculum development, textbooks censorship and adoption, curriculum and reform dilemmas.

D0521 Learning Diagnosis and Learning Strategies (3/0): The main purposes of this course not only guide students to understand diversity learning dinosaur tools but also assess learning problems of students. And then we can provide effective learning strategy to improve achievements of students.

D0524 Study on Curriculum Management and Leadership (3/0): The aim of this course is to guide students to understand the theoretical development and the practical content of curriculum management and curriculum leadership. The purpose of curriculum management is to help ensure that all students will get the most out of their education. The first part of curriculum management is curriculum design. At this stage, educational philosophy and practice is taken into consideration. Curriculum implementation follows, after which administrators train teachers so that they will be able to deliver the curriculum in a way that will most benefit the students. Curriculum leadership implies that, during the process of curriculum development, assistance and guidance are provided for the teaching method, the curriculum design, the curriculum implementation and the curriculum evaluation for teachers to enhance effective teaching and learning performance of students. Based on this, the main content of curriculum leadership can be categorized into the following six areas: (1) to set goals and plans of the courses; (2) to manage

and develop educational programs at schools; (3) to inspect and assist teaching improvement; (4) to develop professional competences of teachers; (5) to evaluate learning outcomes of students; (6) to shape the culture of developmental courses. Therefore, curriculum leadership is aimed to improve curriculums and to improve teaching under the support of administration in terms of its strength and resources; it can be claimed to include various aspects such as courses, management, teaching, student learning and school culture. In short, the basic idea of curriculum leadership lies in the effective curriculum and teaching design under the power of leadership, which will be applied to actual classroom teaching to improve students' learning outcomes.

D0525 Study on Curriculum Development and Instructional Design (0/3): The course aims to develop students' competence in curriculum and instructional design and advance understanding in learner-centered paradigm in the 21st century. In this course, students will explore and experience diverse instructional strategies, such as collaborative learning and participatory learning, and reflect on their current practice to refine their curriculum and instructional design.

D0529 Inquiry on Classroom Teaching and Learning (0/3): This course examines current theories into practice on the issues of classroom management, assessment, community building, critical thinking, and decision making in the context of actual classroom experiences. Students will develop practical strategies, investigate ways to affect children's learning in the classroom, and reflect systematically.

D0566 Seminar on Assessment for Learning (0/3): Because education is shifting from the instructor-centered to the learner-centered paradigm of education, the major focus of assessment shall be placed on designing and implementing assessment to support effective and personalized learning. This course aims to develop pre-service and in-service teachers' (1) awareness of the changing purpose of assessment from sorting students by their performance to supporting students in the learning process, (2) theoretical understanding of assessments for learning, (3) professional development regarding their knowledge and skills in designing and implementing the kinds of assessments for learning, and (3) research design competence by exploring research on the relevant topics.

D0578 Seminar on Teacher Professional Development (0/3): This course introduces the theories and practices of teacher professional development, and develops students' abilities and interests in research about teacher professional development. Contents include analysis and discussion of curriculum and instruction, classroom management, student counseling, and career development for teachers in diverse stages.

Doctoral Program in Foresight for Educational Leadership and Technology Management

D0463 Special Topics on Quantitative Methods (3/0): This course offers a broad foundation of knowledge and skills related to statistics and quantitative models. The selected topics will focus on the educational leadership and technology management. Typical statistic models including ANOVA, Factor analysis, Regression analysis, ARIMA, MANOVA, and SEM will be discussed and practiced in class. Some of fuzzy statistics will also be addressed in this course.

D0464 Special Topics on Educational Policy and Leadership (0/3): This course offers students an in-depth investigation of educational policy and leadership theories. Policy process theories and new perspectives of leadership are covered. Students' thinking is provoked by exploring current issues and analyzing cases.

D0465 Special Topics on Innovation and Management of Educational Technology (3/0): Due to the nature of fast developing educational technologies and the complexity in the diffusion process, the implementation of innovation within educational setting often encounters challenges which may result in failure. This course aims to provide an overview of innovation diffusion process and strategies of change management. In addition, new trends in education will be addressed and discussed. The learners will also have an opportunity to practice the theories and methods learned in class.

D0467 Special Topics on Curriculum and Instruction Leadership (0/3): This course provides students in-depth investigation of the theories of curriculum and instruction leadership. The course content includes international perspectives, national policies, trends, and latest issues in curriculum and instruction leadership. Both sharing and discussing are important ways in this course. The students will be asked to prepare and present a special topic focused on this field in class.

D0529 Special Topics on Educational Information Management (3/0): This course offers a broad foundation of knowledge and skills related to educational information management and its application in the implementation of online education. The content of this course includes the application and the effects of educational information management, the combination of different pedagogy (self-regulated learning, problem-based learning, game-based learning, collaborative learning, team-based learning. etc.) with educational information management. The teacher and students in this course will also analyze the problems of teaching and identify the goals teaching and applications in E-learning.

D0531 Special Topics on Policy and Governance in Higher Education (0/3): This course provides specific topics related to educational policy and governance in higher education. The discussion will focus on the current policy and governance issues in the systems of developed countries. However, the course will also ask the participants to reflect the related issues in Taiwanese higher education system.

D0563 Special Topics on Emerging Educational Technology (0/3): This course provides students in-depth understanding of innovative and emerging educational technologies and their effects on students' learning. The content of this course includes the applications of information and communication technologies (ICT), ubiquitous learning, mobile learning, flipped classroom, mobile applications (APP), Massive open online courses (MOOCs), educational games, eye tracker, and social networking sites (SNSs) for learning. The potential issues of new educational technologies, and their applications and effects will also be discussed and explored in this course.

D0564 Special Topics on Development in Culture and Educational Industries (3/0): This course is devoted to exploring the development of a wide variety of commercial businesses and nonprofit organizations in cultural and educational industries. Through literature review, field studies and cases analysis, this course will provide students with an in-depth understanding of basic concepts and theories of management, strategic analysis of the management policies in which organizations operate to effective problem solving and decision making, and critical thinking of what actions entrepreneurs take to maximize value creation and social responsibilities.

D0573 Special Topics on Higher Education and University Instruction (0/3): This course consists of five components. First, it explores the development and evolution of ideas and the spirit of a university; second, it examines recent development trends and reform directions of higher education in advanced countries; third, it investigates current issues, strategies and perspectives of higher education and university instruction in Taiwan; fourth, it enquires about the impact of the knowledge-based economy on higher education and university instruction; and finally, it describes advances in the overall quality and competitiveness of higher education.

D0756 Seminar on Futures Research Methodology (3/0): This course develops the academic basis for futures studies. The origins, approaches, philosophical foundations for the field are explored, as well as questions around the futures of futures studies. This course investigates the methods used in futures studies. These include: Delphi, scenario development, causal layered analysis, futures wheels, visioning, trend analysis, emerging issues analysis and back casting. The course also focuses on how to create the future. Design implications in created preferred futures are explored.

D0757 Special Topics on Critical Issues Facing Emerging Technologies in Education (0/3): This course discusses the trends and potentials as well as challenges and problems teachers and policy makers faced with advanced technology integrated in classroom and educational systems. Students will examine and understand the impact and changing nature of emerging technologies and to make the best use of

them adequately.

D0758 Special Topics on Foresight and Emerging Issues (0/3): This course introduces various methods of exploring alternative futures, including CLA, future triangle, future wheel, scenario planning etc. Then we will pick common and black swam issues to examine the methodology introduced and map the issues' life cycle.

D0759 Special Topics on Emerging Issues of Educational Policy and Leadership (3/0): This course introduces the emerging issues of educational policy and leadership. Students are facilitated to discuss the topics such as the global context for educational change, the policy for closing the achievement gap, tomorrow's learning, curriculum, teachers and teaching, and educational leadership.

D0761 Dissertation Proposal Seminar (0/3): This course provides doctoral students who are well-prepared with research methods for academic writing and publication purposes. The course will focus on practical topic selection, searching for fitted journals, organizing abstracts, developing innovative research frameworks, data collection, and methodology implementation. Finally, students need to due to a manuscript for submitting a selected journal as a basic requirement. Those who work on doctoral dissertation proposals or dissertations are welcome.

D0787 Globalization and Futures of Learning and Work (3/0): This course aims to apply futures thinking to explore the significant changes in higher education and work-related issues over time. Moreover, work has also changed with little doubt as to the impact of digital communication, remote work, and societal change on the nature of work itself. There are arguments to be made for organizations to become more agile, flexible, entrepreneurial, and creative. As such, work and education are both traversing a path of immense changes, adapting to global trends and consumer preferences.

D0788 Special Topics on The Application of Emerging Learning Technology (3/0): This course will cultivate students' perspectives on international development trends related to emerging technologies and can apply current educational technology themes to educational practice, focusing on virtual and physical integrated learning, interactive learning technology applications, STEAM and cross-disciplinary thematic learning, AI & The application of deep learning, the development of game-based learning design and other topics, so that students can have the practical ability of educational technology development trends and related teaching research.

D0789 Special Topics on Organizational Effectiveness and Sustainable Management (0/3): This course focuses on the core concept of organizational effectiveness and sustainable management for doctoral students. The related topics include the meaning of effectiveness for organizations, the theories and practices of organizational effectiveness, what are the fitted approaches for sustainable management in future.

D0790 Special Topics on Program Evaluation (0/3): Through the introduction of theory and practice, this course facilitates students to investigate program evaluation. Students may acquire basic knowledge through discussions on theoretical foundations, models, and evaluation methods. They further deepen their understanding by exploring evaluation practices.

D0xxx Foresight Planning in Education (0/3): This course will focus on learning and using some of the major theories and methods of scenarios for strategic planning and improved decisions for educational institutions and organizations.

E3003 Independent Study (3/0): This course, as a seminar, aims to facilitate students to write dissertation proposals. In the process, students enhance their capacities to conduct quantitative and qualitative research. They also engage in critical inquiry and logical thinking.

T8000 Thesis (0)

GRADUATE INSTITUTE OF EDUCATIONAL PSYCHOLOGY AND COUNSELING

Degree Offered: M.Ed.

Director: Kuei-Chieh Chang (張貴傑)

The Institute

The Graduate Institute of Educational Psychology and Counseling has been established since 2002, in response to the increasing importance and needs of psychological counseling in communities, families and schools. The program has the capacity of 27 students every academic year. The goals of the Institute are as follows:

1. To train students as professional counseling psychologists and teachers with psychology and counseling expertise.
2. To develop students' theoretical background and academic research capabilities.
3. To strengthen students' professional competency to fulfill the needs of psychological counseling in all-level of educational settings, communities and institutions.
4. To enhance students' occupational competitiveness by offering a synthesis of cross-disciplinary fields with educational psychology and psychological counseling.
5. To broaden and diversify the visions of faculty members and students through an integration of theories and practices.
6. To equip students with knowledge bases and competency to acquire the professional certificate as a counseling psychologist.

The curriculum places an equal emphasis on educational psychology, counseling theory, and practice. The curricular structure includes research methodology, psychological foundation courses, areas of specialization and practicum. The courses of educational psychology emphasize diagnosis of learning difficulties, teaching and learning strategies, teaching performance assessment, and teacher effectiveness, etc. The courses of counseling emphasize systematic theories and practices of psychological assessment, group dynamics, expressive arts therapy, career counseling, school counseling, family therapy, music therapy, dance therapy, and play therapy, etc.

The Master of Education degree requires the successful completion of 32 credits of coursework, including 14 credits of required courses and 18 credits of elective courses. Students are also required to submit a written master's thesis completed under the supervision of a faculty member and pass an oral examination.

Faculty

Professors
Kuei-Hsiang Han (韓貴香)

Associate Professors
Hung-Yen Sung (宋鴻燕) ; Kuei-Chieh Chang (張貴傑) ; Wei-Chen Chiu (邱惟真)

Assistant Professors
Che-Hsiu Hsu (許哲修) ; Chiung-Fang Chang (張瓊方) ; Yu-Hua Chen (陳玉樺)

Course Descriptions

Master's Program

D0024 Studies in Educational Psychology (3/0): This course presents an advanced study of the theories and processes of educational psychology at school levels, especially in relation to current research in identifying major variables in the teaching-learning process and theories and principles of learning.

D0025 Studies in Theories of Counseling and Psychotherapy (3/0): This course covers historical and contemporary theories of counseling, advanced study of techniques, and research findings.

D0026 Studies in Counseling Practice and Techniques (0/3): This course offers an introduction to major theoretical concepts in the counseling process, as well as techniques and laboratory experience in case conceptualization and counseling skills.

D0028 Studies in Learning Strategies (0/2): This course presents a history and overview of the systems of psychology applied to education. It also presents modern theories and current research in learning strategies and human motivation, especially in relation to the educative process.

D0029 Studies in Group Counseling (0/3): This course covers the study of group counseling methods and techniques; review of basic theories of group process; exploration of group processes through group interaction, and didactic analysis and synthesis.

D0030 Studies in Developmental Psychology (0/2): This course introduces all periods of life and takes a life-span perspective on all phases of life, including childhood.

D0032 Studies in Abnormal Psychology (3/0): This course aims to help students understand the definitions and fundamental philosophical issues related to abnormality. The course also describes and classifies various psychological disorders, such as anxiety disorders, mood disorders, schizophrenia, personality disorders, childhood psychopathology, psychoactive substance use disorders, and psychological factors of physical illness, and comparisons of different theoretical approaches.

D0037 Qualitative Research (3/0): This course aims at introducing concepts and applications of qualitative research, including related practices, proposal development, and analysis of research cases.

D0041 Learning Diagnosis and Guidance (0/2): This course focuses on how to detect and diagnose students with learning difficulties, and discusses the kinds of assistance and guidance that can be provided to such students.

D0042 Internship of Educational Psychology and Counseling I (2/0): This course provides an internship in a human services agency （approved by the College） that focuses on the development and direct practice of human service professional skills. Prerequisites: senior standing; admission to professional standing.

D0043 Internship of Educational Psychology and Counseling II (0/2): This course provides an internship in a human services agency （approved by the College） focusing on the development and direct practice of human service professional skills. Prerequisites: senior standing; admission to professional standing.

D0068 Studies in Social Psychology (0/2): This course presents an examination of issues, theories, and research in selected areas of social psychology and other behavioral sciences that have implications for education and higher education policies, programs, and practices.

D0072 Studies in Ethical Issues of Counseling (0/3): This course presents legal and ethical concepts and issues relevant to the practice of psychology and student personnel services.

D0114 Supervised Counseling Practicum (I) (2/0): In this course, students are required to fulfil six-hour weekly part-time practicum experience in community agencies. Through supervised professional work in different community service settings, students gain knowledge via hands-on direct psychological services.

D0115 Supervised Counseling Practicum (II) (0/2): Upon completion of all courses, students gain one year of practicum experience in community agencies. Through supervised professional work in different community service settings, students gain experience in applying a variety of intervention strategies and psychological services across the spectrum of psychopathologies.

D0117 Seminar on Psychological Measurement & Assessment (0/3): This course provides group and individual assessments of cognition, behavior, emotion and personality, as well as their theoretical and statistical bases, construction, administration, interpretation of instruments, and evaluation theory and practice.

D0210 Statistical Methods and Applications (0/3): The main purpose of this course is to help students to understand the priniciples and analytic techniques of statistics in educational research. The contents including t-test, ANOVA, ANCOVA, correlation, regression, etc. It is expected that through the course, students can apply appropriate statistics method to solve educational research questions.

D0405 Special Topics in Theories of Personality (0/2): The purpose of this class is to introduce different theories, assessment and studies in the field of personality psychology, such as psychoanalytic aspects, new-analytic and ego aspects, biological aspects, behaviorist and learning aspect, cognitive, trait, and humanistic and existential aspects.

D0486 Program Planning and Educational Training (0/2): The course aims to develop students' basic concepts of program planning and educational training, as well as to help students understand and evaluate the operation model and content. Through discussion of examples and actual operation, students are expected to develop the capacity of proposal writing on program and education training.

D0488 Seminar on the Creative Thinking (0/2): The objective is to construct systematically the theory and strategy of creative thinking through the four teaching methods: demonstration, illustration, interaction, and feedbacks. This course mainly helps students cultivate critical thinking and creativity. Through his or her understanding in creative thinking and strategy, the student applies his or her self-evaluation to different aspects and diverse areas.

D0491 Crisis and Trauma (0/2): The course is designed to enhance the students' knowledge and skills in the fields of trauma response and crisis intervention. Topics addressed in the course cover theoretical concepts, research findings and treatment strategies in a variety of traumatic events such as natural disaster, interpersonal traumatic experience, and personal/family crises.

D0498 Counseling Intake Skills and Practicum (0/2): The objective of this course is to familiarize graduate students with the procedural and skills of intake. This course covers the evaluation of clients' problems and needs, the strategies of following arrangement, skill practice and practicum.

D0654 Seminal on Child and Adolescent Counseling **(0/2):** Take this course to learn the different theoretical orientations and techniques of working with children and adolescents Students will be able to understand and learn the particularity of working with children, skills with non-verbal work, the use and practice of play therapy.

D0738 Graduate Seminar in Criminal Psychology **(2/0):** Using the Risk-Need-Responsivity (RNR) model as a theoretical framework in criminal psychology, we will examine four specific topics in criminal psychology, including criminal events, sexual crimes, domestic violence, and drug prevention.

D0781 Graduate Seminar in Positive Psychology **(0/2):** Through the theory construction and class execution, the learners would be able to successfully acquire various positive emotions from our daily life and be able to learn the knowledge and skill of happiness at important life perspectives, such as family, interpersonal relationship, career planning etc., by practicing our own strengths and virtues.

D0782 Seminar on Spiritual Therapy (2/0): This course introduces the current theory and practice of spiritual therapy, as well as physical, psychological, social and spiritual development. Learners are required to have the theoretical and practical skills of psychotherapy. The course combines literature discussion with practical exercises, expecting learners to expand their helping professions in the process of experiential learning.

D0783 Seminar on Multicultural Counseling (2/0): The objective of this course is to explore cultural issues related to the work of psychotherapy. Students shall learn to explore their own cultural identity and understand how it can impact their clinical work with others. This course will address awareness, knowledge, and skills of cultural competency. Students are expected to develop a conceptual framework for identifying and addressing cultural information relevant to clinical assessment and treatment.

D0784 Studies in Mental Health of Community, School and Enterprise (2/0): This course cover counselling issues in community, school, and enterprise through group interaction and novitiating.

D0785 Seminar of Creative Arts Therapy **(0/2):** Creative art therapy uses non-verbal methods for psychotherapy. Currently, it includes five specialties in Taiwan, including art therapy, music therapy, psychodrama, dance therapy, and drama therapy. This course introduces the fundamentals of music therapy and psychodrama for application in practice and research.

D0803 Seminar on Family and Couple Therapy (0/2): Students taking this course will be able to learn the basic concepts of family and couples therapy, along with practical skills. They will also be able to apply the skills learned in the practical work of family and couples therapy.

D0804 Seminal on Counseling Foresight Trend (0/2): In this course, important topics for the future development trend of the counseling profession will be planned. Experts and scholars from inside and outside the university will be invited to lead foresight thinking and discussions, providing learners with a broad perspective and then collaborating with other professionals across domains.

D0805 Seminal on Career Counselling (0/2): This course aims to assist students in understanding the important concepts of career counseling theory, practice, and research

T0081 Research Methodology (3/0): The main purpose of this course is to provide students with a basic knowledge of research. Through the course, students will be able to learn the process of conducting research, features of different research methods, and APA writing style.

T8000 Thesis （0）

CENTER FOR TEACHER EDUCATION

Director: Yi-Chun Lin (林怡君)

The Center

The Center for Teacher Education was established in 1995 due to Taiwan's democratization and trends of diversification in teacher education. It recruits college and graduate students at Tamkang University who are committed to teaching and prepares them to become professionals at the secondary-school level. The Center is one of the leading teacher education institutes in Taiwan.

The core mission of the Center for Teacher Education is to help prospective teachers develop: (1) a strong knowledge base in the field of education; (2) an ability and habit to self-reflection based on their understanding of the humanities and their professional knowledge of education; (3) and the ability to put their beliefs into practice.

Pre-service teachers are required to complete at least 28-credit courses in general educational knowledge, curriculum and instruction, subject matter-specific methods, counselling, classroom management, evaluation and assessment, and elective courses that aim to broaden pre-service teachers' knowledge in humanities and diverse subjects. A 54-hour non-credit service learning opportunity is built into the program to encourage social participation and theory into practice. A six-month internship is required to complete the program. To be certified, teachers must pass a National Teachers' Certification Examination following their internship.

The Center regularly holds activities to facilitate student participation and stimulate student talents through award-wining competitions. Opportunities for school and institution visits are arranged each semester to strengthen the links between theory and practice. We aim to train teachers who not only are capable of teaching topics related to their subject matter, but also are caring individuals who are committed to teaching students with diverse backgrounds.

Faculty

Professors
Ya-Fung Chang (張雅芳)

Associate Professors
Huey-Fang Ju (朱惠芳) ; Yi-Chun Lin (林怡君)

Assistant Professors
Chia-Yuan Huang (黃佳媛) ; Shu-Ling Chen (陳淑玲) ; Chen-Hsiu Tai (戴晨修)

Course Descriptions

Undergraduate Courses

A0599 Introduction to Education (2/0): This course will help students to: (1) analyze the function, value, principles and criteria of education, (2) explore the process and product of education, and (3) inspire their commitment to practical applications of education.

D0655 Adolescent Development (2/0): This class is designed to help students learn to understand the developmental changes of adolescents. By discussion and reflections, students are more aware of the important issues related to adolescents. Therefore, students may apply the knowledge and skills learned in class to help adolescents who have psychological problems and learning difficulties.

A1370 Instructional Theory (2/0): This course covers theories and methodologies of instruction. It also examines issues of how to teach effectively and efficiently and to promote student learning.

A1584 Educational Philosophy (0/2): This course introduces different perspectives on education by both Eastern and Western scholars to help students construct their own philosophy of education.

D0659 Education Sociology and Administration (2/0): Educational society and executive leadership.

A1626 Theory and Practice in Counseling (2/2): This course introduces the basic principles of guidance, with various prospects of models, and explores the process and essence of guidance through problem-solving in the context of real cases.

A1628 Classroom Management (2/2): This course covers the principles and strategies of classroom management. An emphasis is placed on how to apply these strategies to create a positive environment in teaching and learning.

A2253 Introduction to Special Education (3/0): This course introduces the characteristics of various types of students with special needs, and outlines the relevant treatments in terms of instruction, classroom management, interpersonal relationships, and teacher-student interactions.

D0054 Curriculum Development and Design (0/2): This course introduces some basic concepts of curriculum and the process of curriculum development, which typically consists of analysis, design, implementation, and evaluation. Related issues and future trends are discussed as well.

D0146 Secondary School Internship (2/0): The aim of this internship course is to provide secondary school student teachers opportunities to put theory into practice, learn to reflect with a disciplined mind, and become skillful in classroom management and teaching. Student teachers will need to keep journals and construct portfolios that record the process they go through to become reflective practitioners.

D0172 History Instructional Materials and Methods (2/0): This course aims to help students learn to design subject-specific lessons with informed knowledge about their students and methods.

D0176 History Instructional Practicum (0/2): In this course, students' pedagogical content knowledge is emphasized; and students are asked to perform micro-teaching or classroom teaching.

D0452 Chinese Instructional Materials and Methods (2/0): This course aims to help students learn to design subject-specific lessons with informed knowledge about their students and methods.

D0453 Chinese Instructional Practicum (0/2): In this course, students' pedagogical content knowledge is emphasized; and students are asked to perform micro-teaching or classroom teaching.

D0457 English Instructional Materials and Methods (2/0): This course aims to help students learn to design subject-specific lessons with informed knowledge about their students and methods.

D0458 English Instructional Practicum (0/2): In this course, students' pedagogical content knowledge is emphasized; and students are asked to perform micro-teaching or classroom teaching.

D0459 Mathematics Instructional Materials and Methods (2/0): This course aims to help students learn to design subject-specific lessons with informed knowledge about their students and methods.

D0460 Mathematics Instructional Practicum (0/2): In this course, students' pedagogical content knowledge is emphasized; and students are asked to perform micro-teaching or classroom teaching.

D0461 Civics and Society Instructional Materials and Methods (2/0): This course aims to help students learn to design subject-specific lessons with informed knowledge about their students and methods.

D0462 Civics and Society Instructional Practicum (0/2): In this course, students' pedagogical content knowledge is emphasized; and students are asked to perform micro-teaching or classroom teaching.

D0471 Spanish Instructional Materials and Methods (2/0): This course aims to help students learn to design subject-specific lessons with informed knowledge about their students and methods.

D0472 Spanish Instructional Practicum (0/2): In this course, students' pedagogical content knowledge is emphasized; and students are asked to perform micro-teaching or classroom teaching.

D0473 French Instructional Materials and Methods (2/0): This course aims to help students learn to design subject-specific lessons with informed knowledge about their students and methods.

D0474 French Instructional Practicum (0/2): In this course, students' pedagogical content knowledge is emphasized; and students are asked to perform micro-teaching or classroom teaching.

D0506 Physics Instructional Materials and Methods (2/0): This course aims to help students learn to design subject-specific lessons with informed knowledge about their students and methods.

D0507 Physics Instructional Practicum (0/2): In this course, students' pedagogical content knowledge is emphasized; and students are asked to perform micro-teaching or classroom teaching.

D0538 Emerging Learning Technologies Applications (2/0): This course introduces new technology applications in education. Topics include new technology trends, digital natives, digital games, virtual world, mobile learning, flipped classroom and MOOCs, etc.

D0539 Topical Seminar in Educational Issues (2/2): This course introduces several critical topics in education. Topics include environmental education, financial education, ocean education, art education, media literacy education, multicultural education, etc.

D0540 Field Experience at Secondary Schools (0/0): This course provides various opportunities for students who are also future teachers to observe, participate and practice teaching skills in real educational environment. To fulfill the requirement of this course, certain criteria are held according to regulations of The Center for Teacher Education.

D0552 Chemistry Instructional Materials and Methods (2/0): This course aims to help students learn to design subject-specific lessons with informed knowledge about their students and methods.

D0553 Chemistry Instructional Practicum (0/2): In this course, students' pedagogical content knowledge is emphasized; and students are asked to perform micro-teaching or classroom teaching.

D0554 Russian Instructional Materials and Methods (2/0): This course aims to help students learn to design subject-specific lessons with informed knowledge about their students and methods.

D0555 Russian Instructional Practicum (0/2): In this course, students' pedagogical content knowledge is emphasized; and students are asked to perform micro-teaching or classroom teaching.

D0556 Japanese Instructional Materials and Methods (2/0): This course aims to help students learn to design subject-specific lessons with informed knowledge about their students and methods.

D0557 Japanese Instructional Practicum (0/2): In this course, students' pedagogical content knowledge is emphasized; and students are asked to perform micro-teaching or classroom teaching.

D0571 Adaptive Instruction (0/2): Adaptive Instruction has been driven by a realization that tailored learning cannot be achieved on a large-scale using traditional and non-adaptive approaches. Adaptive learning endeavors to transform the learner from passive receptor of information to collaborator in the educational process. This course includes the topical discussions of differentiated instruction, adaptive learning theories and practices, as well as the various current ways of student-centered innovations.

D0572 Learning Assessment (0/2): This course provides knowledge and skills in learning assessment. It requires students to develop different types of tests based on three domains, namely, cognition, affection, and psychomotor.

T0145 Educational Psychology (2/2): This course introduces different theories of educational psychology including behaviorism, humanism, and cognitive psychology. It also examines the characteristics of teacher-student interaction in the process of teaching and learning.

D0540 Field Experience at Secondary Schools (0/0): This is a 54-hour non-credit prerequisite course

which aims to help prospective teachers learn about the process of instruction, reflect upon their diverse experiences in real-life situations, and develop their knowledge and commitment to education.

D0762 Topical Seminar on Outdoor Adventure Experiential Education (2/0): Outdoor Adventure Experiential Introduce the principles of outdoor exploration and develop personal abilities of management and leadership handling outdoors activities. The contents include outdoor curriculum design and assessment, outdoor activity management, outdoor leading skills, in-depth explanation skills and field practice etc.

D0688 Topical Seminar on Experimental Education (2/0): The paradigm of education is transformed from how to "teach" students to how to lead students to "learn". The old school system built during the industrial age is facing new challenges. Due to the changes in learning models and learning tools, we have set off a new wave of educational reforms. Eventually, the experimental education leads a new learning image and be able to break the boundaries of time and space for our children. It can broaden children's horizons.

D0771 Student Learning Support (0/2): This course introduces theories and practices of remedial instruction. In addition, this course offers field-based learning at a junior high school.

A2219 Seminar in International Education (0/2): This course comprises leading educational topics internationally.

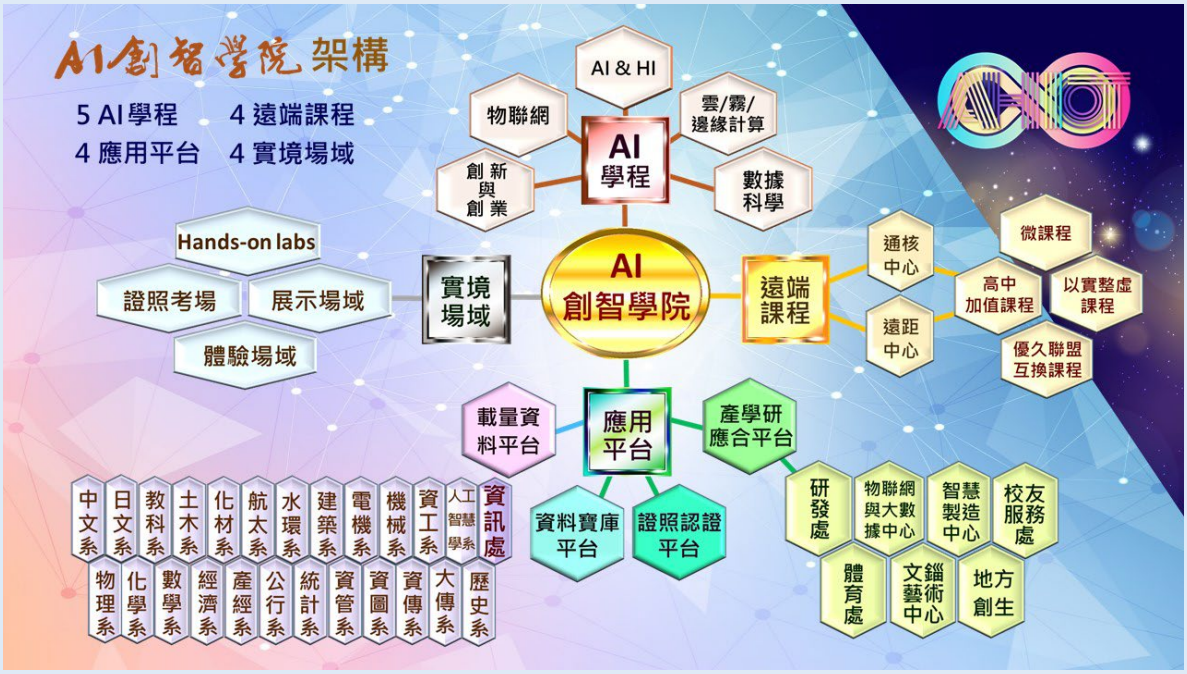
CENTER FOR FUTURES INTELLIGENCE AND RESEARCH

Director: Kuo-Hua Chen (陳國華)

The mission of the Center for Futures Intelligence and Research (C-FAR) is to promote futures studies through the provision of futures courses and foresight consultancy services to different sectors such as the industry, governmental agencies, educational institutions, and research units, so that futures thinking can be widely used in practice and contribute to enhancing a forward-looking mindset in Taiwan's society.

With the increasing complexity and rapid changes in recent years, futures thinking is becoming indispensable and increasingly used as a high-level business and policy decision-making in many parts of the world. Tamkang University has embraced futures studies since the 1970s. In November 2015, the Center for Futures Intelligence and Research was set up to further facilitate the futures studies in all levels of society.

COLLEGE OF ARTIFICIAL INNOVATIVE INTELLIGENCE



COLLEGE OF ARTIFICIAL INNOVATIVE INTELLIGENCE

Dean: Tzung-Hang Lee (李宗翰)

Brief History

Inaugurated in August 2020 as a virtual operational hub in TKU, with physical institutions added in August 2021, the College of Artificial Innovative Intelligence (AII) integrates virtual and physical technologies through cross-domain learning. In August 2022, the Department of Artificial Intelligence was newly added to cultivate artificial intelligence professionals with cross-disciplinary and innovative capabilities. The AII consists of five AI sections and 4 application platforms. The 5 sections are the Section of Artificial Intelligence (AI) and Human Intelligence (HI), the Section of Internet of Things (IoT), the Section of Data Science, the Section of Cloud/Fog/Edge Computing, and the Section of Innovation and Entrepreneurship. The 4 application platforms are: the Big Data Platform, the Certificate Platform, the Industry-Academia Platform and the Information-Warehouse Platform. The AII connects the existing academic and research units within the university and integrates all of the resources needed for learning and research developments. The AII is operated based on the principle of "Trend ***E***conomy", the practice of "Zero-Knowledge Proofs", and the concept of "One-Stop Shopping".

The Research Collaboration Platform and the Thesis Resources Platform are established to allow students to grow and learn through a cross-domain environment. The Certifications Platform offers four reality fields and four categories of online courses with on-site examinations to promote employability and competitiveness. The Big Data Platform unites existing departments within the university that are already applying big data sciences. It promotes resource-sharing by utilizing various tools such as Microsoft, Amazon, and Google. The Industry-Academia Research Collaboration Platform unites the strengths and characteristics of the university units to conduct industry-academia cooperation with external units. It also combines university social responsibility with corporate social responsibility so local revitalization may be carried out effectively. The College of Artificial Innovative Intelligence has established long-term, close partnerships with Microsoft, Nvidia, and AMD. These globally leading companies will collaborate extensively with the college on AI courses, student internships, research funding, and AI certification. We have also signed an MOU with the AI Alliance of the Ministry of Digital Affairs, with course certifications from AII co-signed by the Taipei Computer Association and the AI Alliance. Additionally, South Korea's KBS News visited AII for a special interview, showcasing the college's outstanding achievements in the field of artificial intelligence. All of the courses offered within the five virtual departments are available free of charge to all students on campus to take anytime, anywhere. Our vision for students includes encouraging proactive learning in various fields, building resilience and capability, fostering future leaders in a modern society, enhancing employability through adaptability to enterprises, and maintaining the ability to continuously overcome challenges in this technologically oriented era.

Motto and Goals

Cross-domain integration with AI technologies.

Future Development

1. Integrate and share existing resources in school for all the students and faculty on campus.

2. Provide an AI-friendly environment for students to grow and learn with positive motivation in cross-domain courses.

3. Encourage cooperation with industry and local revitalization.

The College of Artificial Innovative Intelligence's vision is to team up with the faculty in school to integrate academic and research resources, offering a cross-domain environment for students and teachers. With TKU's objective of information-oriented education, AII will maintain its goal to lead an AI innovative method to help students to adapt to the AI cloud age.

DEPARTMENT OF ARTIFICIAL INTELLIGENCE

Degrees Offered: B.S.

Chairman: Kuo-Chung Yu (游國忠)

The Department

Established in 2021, the Department of Artificial Intelligence (AI) is one of the first AI programs of AI in Taiwan. The Department has 11 full-time faculties and 10 adjunct faculties. The department faculties and students are involved in a wide range of AI related research areas. Several research laboratories have been established and receive continued support by TKU as well as industries and government agencies. There are several areas of specialty available: Machine Learning and Deep Learning, Natural Language Processing, Image Processing and Machine Vision, Data Science and Applications, AIoT, Robotics, Electronic Commerce, and others. The Department offers. The Department offers B.S. degree in Artificial Intelligence. The M.S. and Ph.D. programs will be promoted in recent years.

Faculty

Distinguished Chair Professor
Han-Chieh Chao (趙涵捷)

Professors
Kuo-Chung Yu (游國忠) ; Tzung-Hang Lee (李宗翰) ; Yin-Tien Wang (王銀添) ;
Li-Chiu Chang(張麗秋) ; Ching-Ho Yen (嚴建和)

Associate Professors
Yu-Kuang Teng(鄧有光)

Assistant Professors
Yen-chun Huang(黃彥鈞) ; Min-jie Hsu(許閔傑) ; Jaesik Jeong(鄭在植) ; Tzu-Chia Chen(陳子家)

Degree Requirements

The Requirements for BS degree in AI: Completion of 128 credits of courses, including 83 credits of required courses and 45 credits of elective courses.

Course Descriptions

Undergraduate Courses

S0487 Discrete Mathematics (3/0): Discrete mathematics is a fundamental course in computer science. Its goal is to enhance students with adequate capabilities of abstract thinking, logical analysis and reasoning, and problem solving. It also helps students put into practice of what has been learned, and further, build solid foundation for future research works.

M0008 Introduction to Artificial Intelligence (3/0): This course aims to provide the basic concept and the applications of artificial intelligence to the learners. The developments including automation, computer information, networking as well as AI will be introduced. In addition, the important applications of AI techniques on Industry, including image processing, natural language processing and data analysis will be introduced.

S0325 Calculus (3/0): This course is an introduction to Calculus, its techniques and applications. Topics in this semester include limits and continuity of functions, definitions and applications of differentiation and integration, the fundamental theorem of Calculus, inverse functions and their derivatives, integration techniques and so on. The goal is to strengthen students' problem-solving skills as well as independent thinking abilities.

A2273 Computer Programming (I) (3/0): This course will introduce knowledge and skills related to Python programming. Python is the representative of today's "simple but powerful" programming language. It is easy to get started but also has powerful functions such as data analysis and artificial intelligence. This course is an introductory course. It starts with the introduction of basic programming language, and introduces basic operations, logic and loops, lists and other collection objects and functions. Finally, it introduces Pandas' data processing suite and the concepts of artificial intelligence and basic processing suites.

E4100 Freshman AI Laboratory (1/0): In this hand-on experimental course, students would learn the fundamental tools in artificial intelligence (AI) including programming languages, functions and packages, and developing platforms. Based on these platforms and packages, students could implement program design, data collection and cleaning, data storage and retrieval, and basic data analysis.

E4114 Practice of Artificial Intelligence Technologies (3/0): The main purpose of this course is to let the students learn using actual data and case studies to finish projects. At the same time, we attach importance to data security.

S0439 Linear Algebra (0/3): This course covers matrix theory and linear algebra, emphasizing topics that are useful for other subjects. Linear algebra is a branch of mathematics that studies the properties of linear equations and matrices. The concept of linear algebra is very useful in physics, economics and social sciences, natural sciences, and engineering. Due to its wide range of applications, linear algebra is one of the most widely taught subjects in university mathematics.

E1039 Introduction to Computer Network (0/3): It’s our aim in this book to provide you with a modern introduction to the dynamic field of computer networking, giving you the principles and practical insights. You’ll need to understand not only today’s networks, but tomorrow’s as well.

S0450 Introduction to Probability Theory (0/2): In addition to illustrating the mathematical meaning of probability theory, this course also addresses applications in a variety of ways. The main contents of this course include the basic principles of combinatorial analysis, axioms of probability, conditional probability, random variables, continuous random variables, limit theorem and so on.

A2274 Computer Programming (II) (0/3): C language can be applied in many application fields, including development of operating system, firmware, and kernel codes of large amount of systems. For the purpose of future employment of students, this course will introduce the fundamental concepts of how to design, implement, and debug C program.

M0724 Object Oriented Programming (0/2): This course introduces object-oriented programming using the Java programming language. The purpose of this course is object-oriented programming concepts such as classes, interfaces, inheritance, and polytyping. The course will cover how to build a java program from start to finish, including correct grammar, writing style and common mistakes.

E4032 Machine Learning (I) (2/0): This course mainly introduces the concept and techniques of machine learning. The scope of machine learning includes (1) supervised learning: classification and regression; (2) unsupervised learning: dimension reduction and clustering; (3) semi-supervised learning. In addition, this course also introduces the scikit learn and related modules.

E0756 Image Processing (3/0): This course provides basic concepts of computer vision technology and applications. Four major topics include: (a) Review of image processing algorithms; (b) Image feature detection, and texture and shape analysis; (c) Construction of three-dimensional vision, camera calibration, and three-dimensional motion; (d) Image object detection and recognition using machine learning and deep learning methods. The applications of computer vision are also included in this course.

M0517 Statistics (2/0): Statistics simply means numerical data, and is field of math that generally deals with collection of data, tabulation, and interpretation of numerical data. It is actually a form of mathematical analysis that uses different quantitative models to produce a set of experimental data or studies of real life.

E0644 Database (3/0): This course examines the concept and infrastructure of database management systems, to enable students how to build a database system should have the knowledge and methods, training the SQL data model and established application capabilities. Courses will enhance students' understanding and knowledge of the three layers concepts of database systems, to familiarize students with the basic syntax of SQL and the ability to construct an application system, but also to understand the methods of the theoretical basis of the logical database design and physical database designs.

E0650 Data Structures (3/0): This course provides a comprehensive and technically rigorous introduction to data structures such as arrays, stacks, queues, linked lists, trees and graphs and techniques such as sorting hashing that form the basis of all software. In addition, this course presents advanced or specialized data structures such as priority queues, efficient binary search trees, multiway search trees and digital search structures. This course also discusses topics such as weight biased leftist trees, pairing heaps, symmetric minmax heaps, interval heaps, topdown splay trees, B+ trees and suffix trees.

E4033 Artificial Intelligence Application Experiment (II) (1/0): This course provides hands-on experiments for students to understand and be familiar with the environment settings of machine learning, model building and training, and data processing and analysis. Meanwhile, the students will learn the processing, analysis, and model of open-data, IoT real-time data, community data, and electronic commerce data in this course.

E4170 Mathematics for Artificial Intelligence (3/0): The course aims to bridge the gap between first-year Calculus, Probability, and Linear Algebra, extending into the foundational mathematical theories essential for Artificial Intelligence (AI). Through a structured and progressive approach, students will gain a comprehensive understanding of the mathematical principles underpinning AI, preparing them for advanced AI application courses.

E0902 Logic Design (3/0): This course will cover the fundamental theories of digital system design, from Function Specification, Formulation, and State Reduction processes, etc. Students will learn essential IC design foundations, which serve as a prerequisite for the AI chip design courses to be taken later.

E4170 Mathematics for Artificial Intelligence (3/0): This course mainly integrates the previously learned calculus, linear algebra, and probability statistics, and introduces the mathematics required for Artificial Intelligence, and then further introduces some related issues, including PCA, SVM, NN, and CNN, so as to enhance students' abilities in understanding, analysis, organization, reasoning, and application.

E4210 Internet of Things (0/2): This course introduces the core technologies and concepts of the Internet of Things. Allow scholars to understand the overall process of the Internet of Things, life applications, and information security guidelines. This course also allows students to understand the hardware devices of the Internet of Things and electronic prototyping.

E4132 Project of Artificial Intelligence Technologies (0/2): In this course, teachers and students are paired and grouped to conduct special experiments, implementations, and discussions.

E4171 Linux Design Practice (0/3): Linux Systems Course is a class designed to teach students the skills and knowledge of Linux, one of the most powerful and widely used operating systems in Artificial Intelligence and Robotics. Students will explore Linux Systems from basic commands to advanced techniques. This course offers practical, hands-on experience and guidance to help students navigate the versatile Linux.

E3670 Deep Learning (3/0): This course introduces both the theory and practice of Deep Learning. The course content covers everything from the basic operations of neurons, single-layer neurons, multi-layer neurons, learning mechanisms of neural networks, to the introduction of important deep neural network architectures such as CNN, RNN/LSTM, Auto-Encoder, GAN, Transformer, UNet, YOLO, 3DCNN, and Siamese Neural Network. Furthermore, we will discuss how these networks handle data such as text, images, speech, videos, and other types of data.

E4036 Senio4 Project Laboratory(I) (0/1): This course trains students in the entire process of problem analysis, design, development, testing, and report writing for a project. Through practical exercises, students will develop the ability to think independently and collaborate effectively within a team. They will learn to apply their knowledge and broad perspectives to assist disadvantaged communities in acquiring software information application skills, aligning with the goal of promoting professional knowledge in service learning.

E4209 Introduction to Hydroinformatics (2/0): The purpose of this course is to introduce the integrated application of water resources issues and information technology for the second-year undergraduate students. The contents include the relevant information technology and artificial intelligence concepts applied in the field of water resources.

E3379 Designs and Practices of Embedded Systems (3/0): This course is an AI-based embedded system design course. In addition to learning the basic concepts of designing embedded systems, students will also learn how to use AI models in embedded systems.

K0001 Artificial Intelligence Methods in Medical Diagnosis (3/0): The course introduces the computational and statistical methods of artificial intelligence in medical diagnosis, and understands the role of diagnostic methods through practical cases. Students can learn the application of artificial intelligence and machine learning to medical data, and learn the skills of intelligent computational analysis and diagnostic methods through training in data processing and constructing machine learning models.

M2621 Introduction to Intelligent Commerce (2,0): With the development of artificial intelligence, big data, and the Internet of Things, various smart applications have also flourished. This course primarily introduces several major areas of smart business applications, allowing students to gain a preliminary understanding of the development and applications of smart commerce and related tools.

E0170 Natural Language Processing (0/3): Natural Language Processing (NLP) is a crucial branch of artificial intelligence. The course content encompasses the fundamental concepts, techniques, and methods of natural language processing. Students will learn how to integrate NLP with other AI technologies, such as deep learning and reinforcement learning, to solve more complex problems.

E4037 Artificial Intelligence Practice (0/3): Students will learn how to use mathematics to analyze data set in different application fields, and understand the mathematical principles and program implementation methods behind generative AI.

E4038 Senior Project Laboratory(II) (0/1): This course trains students in problem analysis, design, production, testing, and report writing for their projects. In practical sessions, students are nurtured to develop independent thinking and teamwork skills, enabling them to apply acquired knowledge and a broad perspective to solve relevant scientific and technological problems

K0002 Artificial Intelligence Applications in Healthcare (0/3): With the improvement of computer computing power and the rise of algorithms, artificial intelligence has changed the original medical process. This course introduces the application of artificial intelligence in medicine, and understands the role of artificial intelligence through actual cases, allowing students to understand the latest applications of artificial intelligence in the medical field and medical data.

E4173 Introduction to Smart Water Resources Management (0/2): This course introduces the impact of climate change on water resource supply and demand related fields. Under this topic, it introduces the concept of artificial intelligence and modern technology applied to water resource management. It also presents practical application cases, water resource management adjustment strategies under climate change, etc., allowing students to use specific examples.

E3974 Advanced Deep Learning (3/0): This course aims to provide students with a hands-on learning experience in deep learning techniques. The curriculum will cover the fundamental concepts of deep learning, the principles and implementation of neural networks, and further explore applications such as convolutional neural networks and pre-trained models. Using PyTorch as the primary tool, the course will guide students from basic operations to advanced applications, integrating various deep learning models to examine their use in fields like image recognition and defect detection.

E4019 Visual Sensing Technology and Applications (3/0): By using a large amount of Python programming and OpenCV, you can quickly grasp digital image processing techniques such as image access, display, cropping, scaling, rotation, and contrast/brightness adjustment. Node-RED, with its easy-to-use visual flow setup, allows you to quickly create monitoring dashboards, MVC websites, REST APIs, and store sensor data using a MySQL database.

E3836 Research Technology Practice (I) (3/0): Through an internship in a real-world technology company, gain hands-on experience and a deep understanding of the roles, responsibilities, and significance of an AI engineer.

E4340 System Integration Practice (I) (3/0): In the actual field, learn to apply AI technology for system integration.

E4341 Project Development Practice (I) (3/0): Through an internship in a real-world technology company, gain hands-on experience and a deep understanding of the roles, responsibilities, and significance of an AI engineer.

COLLEGE OF
PRECISION HEALTHCARE

COLLEGE OF PRECISION HEALTHCARE

Dean: Zou-Han Lee (李宗翰)

Brief History

In response to the demographic challenges of aging population and declining birth rates, Taiwan's industries will face significant impacts in the next 10 years. Higher education institutions should proactively address the trend of population aging and prepare for the growing demand for domestic talent in the elderly health industry. "How to enhance the health of the elderly and reduce their dependency" has become an important topic for industry, government, and academia. Our university proposes an interdisciplinary approach that combines information and communication technology with biotechnology and healthcare, shaping a comprehensive personalized healthcare management system encompassing diagnosis, treatment, smart healthcare, caregiving, and precision prevention. This paves the way for a whole new landscape in the healthcare industry, focusing on "precision health."

In 2023, our university received approval from the Ministry of Education to establish the "College of Precision Healthcare," which includes the "Graduate Institute of Senior Citizen Health Care Management" (comprising the Intelligent Management Division and the Precision Healthcare Division) and the "Graduate Institute of Intelligent Healthcare Industry" (comprising the Intelligent Healthcare Division and the Gerontechnology Division) in 2024. The "Graduate Institute of Senior Citizen Health Care Management" integrates expertise from three major areas: "Smart Analytics," "Health Management," and "Industrial Management." It utilizes evidence-based data to conduct assessments and management related to senior citizen health, aiming to achieve the goals of "smart operational management" and "precision health management." The "Graduate Institute of Intelligent Healthcare Industry" combines expertise from three major areas: "Elderly Care," "Gerontechnology," and "Industrial Management." Its objectives are to achieve "precision intelligence in the healthcare industry" and "digitization of senior citizen care management processes."

Furthermore, we are collaborating with various long-term care and medical resources in the Yilan region, such as Lo-Tung Poh-Ai Hospital, Taipei Veterans General Hospital Yuanshan Branch, Taipei Veterans General Hospital Su'ao Branch, National Yang Ming Chiao Tung University Yilan Hospital, and the Yilan Community Care Service Promotion Association. In 2024, we plan to apply for the establishment of an elderly caretaking facility dedicated to create a practical training environment on the Lanyang campus. This initiative aims to provide our faculty and students with a cross-disciplinary development opportunity and a second career growth path in the field of long-term health care.

Motto and Goals

Cultivate students' ability for Intelligent analysis and apply it to the quality of healthcare in industry management, so that students could have industry professional and analytical vision, use AI tools to conduct intelligent analysis, and develop innovative and feasible services or business models.

Future Development

Cultivate students' ability to comprehensive the care process for the elderly group, and have the literacy for the management of the elderly care industry. And be able to use different AI tools and industry expertise to meet the needs of development and management strategies.

GRADUATE INSTITUTE OF SENIOR HEALTH CARE MANAGEMENT

Degrees Offered: Master

Chairman: Yu-Kuang Teng (鄧有光)

Graduate Institute of Senior Health Care Management

Established in 2023, Graduate school comprising the Intelligent Management Division and the Precision Healthcare Division.

Faculty

Associate Professors
Teng,Yu-Kuang (鄧有光) ; Mau, Lih-Wen (毛莉雯) ; Chen, Chun-Min(陳君敏)

Assistant Professors
Lo, Tang-Yun (羅瑭勻)

Degree Requirements:

The Requirements for master degree in graduate school: Completion of 32 credits of courses, including 15 credits of required courses and 17 credits of elective courses.

Course Descriptions:

We have two divisions: Intelligent Management Division and Precision Healthcare Division. We cultivate students' ability for Intelligent analysis and apply it to the quality of health care in industry management, so that students could have industry professional and analytical vision, use tools to conduct intelligent analysis, and develop innovative and feasible services or business models.

Master's Program

Z1001 Health Care Management for Older Adults (3/0): The purpose of this course is to facilitate the integration of findings on specific topics, promote theoretical understanding, and potentially enhance students' awareness and proficiency in health promotion for older adults.

Z1002 Research Methods in Healthcare (2/0): Introduces students to research methods in health services organization and research. Conceptual framework of health services research, systematic methods of literature review, selection of research approach and data collection design, and study instrument and measurement will be illustrated for paving the foundation for developing a solid study protocol.

Z1007 Healthcare Marketing Management (2/0): This course is intended to understand the definition and fundamental concepts of marketing and market structure; and to apply strategic planning for healthcare market analysis and health promotion. Especially, it is critical to understand how healthcare industry can manage post-pandemic challenges to achieve the goal of health for all. Specially, this course will discuss multi-dimensional health programs, including long-term care industry, cancer and the chronic disease screening, child care, and occupational health, to cover the comprehensive spectrum of healthcare industry.

Z1009 Organizational Behavior Theory and Management in Healthcare (3/0): This course examines the dynamic nature of health services organizations and the implications for leaders and managers within the context of organizations as open systems from an individual, group and system perspective. The course examines principles of strategic leadership/management applied to health care organizations among a changing environment and focuses on improving organizational performance through leadership principles. Given improved organizational performance, how to motivate internal customer and maintain high employee satisfaction is equivalently important for leadership.

Z1013 Geriatric Health Care and Long-term Care (3/0): This course explores the vision and policy objectives of an aging society, LTC strategies, healthcare integration, and issues in elderly care service models and resource integration. Students will understand the challenges and learn to provide effective LTC services through integrated strategies and healthcare collaboration.

Z1014 Social Welfare and Policy for the Aging Population (3/0): This course focuses on social policy analysis to help students understand the impact of population aging, individual aging, and related welfare needs in society. It examines social policies and welfare measures to tackle these challenges while fostering students' research abilities in elderly welfare and policy.

Z1015 Health Planning and Evaluation for the Elderly (3/0): This course aims to teach students the knowledge and methods required for planning and evaluating health programs. Through case studies and practical exercises, students will gain hands-on experience in designing and evaluating health programs. By analysing real-life cases and engaging in simulation exercises, students will be able to apply their acquired knowledge and develop practical skills in the field of health program planning.

Z1017 Artificial Intelligent in Health Care for Older Adults (3/0): This course will begin by introducing the fundamental concepts and relevant technologies of artificial intelligence, including machine learning, natural language processing, and computer vision. Subsequently, we will delve into the various applications of artificial intelligence in geriatric healthcare, such as health monitoring and medical diagnostics, health management and preventive care, as well as assisted living and smart healthcare facilities.

GRADUATE INSTITUTE OF INTELLIGNET HEALTHCARE INDUSTRY

Degrees Offered: Master

Chairman: Yu-Kuang Teng (鄧有光)

Graduate Institute of Graduate Institute of Intelligent Healthcare Industry

Established in 2024, Graduate school comprising the Intelligent Healthcare Division and the Gerontechnology Division.

Faculty

Associate Professors
Teng,Yu-Kuang (鄧有光) ;

Assistant Professors
Cheng Yuan-Cheng (鄭元成); Wu Cheng-En (吳承恩); Lin Tzu-Wen (林子文);
Huang Chia-Sheng (黃嘉笙); Liang Yuan-Lin (梁原霖)

Degree Requirements:

The Requirements for master degree in graduate school: Completion of 32 credits of courses, including 15 credits of required courses and 17 credits of elective courses.

Course Descriptions:

We have two divisions: Intelligent Healthcare Division and the Gerontechnology Division. We cultivate students' ability for three major areas: "Elderly Care," "Gerontechnology," and "Industrial Management." Its objectives are to achieve "precision intelligence in the healthcare industry" and "digitization of senior citizen care management processes."

Master's Program

Z1001 Health Care Management for Older Adults (3/0): The purpose of this course is to facilitate the integration of findings on specific topics, promote theoretical understanding, and potentially enhance students' awareness and proficiency in health promotion for older adults.

Z1002 Research Methods in Healthcare (2/0): Introduces students to research methods in health services organization and research. Conceptual framework of health services research, systematic methods of literature review, selection of research approach and data collection design, and study instrument and measurement will be illustrated for paving the foundation for developing a solid study protocol.

Z1007 Healthcare Marketing Management (2/0): This course is intended to understand the definition and fundamental concepts of marketing and market structure; and to apply strategic planning for healthcare market analysis and health promotion. Especially, it is critical to understand how healthcare industry can manage post-pandemic challenges to achieve the goal of health for all. Specially, this course will discuss multi-dimensional health programs, including long-term care industry, cancer and the chronic disease screening, child care, and occupational health, to cover the comprehensive spectrum of healthcare industry.

Z1009 Organizational Behavior Theory and Management in Healthcare (3/0): This course examines the dynamic nature of health services organizations and the implications for leaders and managers within the context of organizations as open systems from an individual, group and system perspective. The course examines principles of strategic leadership/management applied to health care organizations among a changing environment and focuses on improving organizational performance through leadership principles. Given improved organizational performance, how to motivate internal customer and maintain

high employee satisfaction is equivalently important for leadership.

Z1013 Geriatric Health Care and Long-term Care (3/0): This course explores the vision and policy objectives of an aging society, LTC strategies, healthcare integration, and issues in elderly care service models and resource integration. Students will understand the challenges and learn to provide effective LTC services through integrated strategies and healthcare collaboration.

Z1014 Social Welfare and Policy for the Aging Population (3/0): This course focuses on social policy analysis to help students understand the impact of population aging, individual aging, and related welfare needs in society. It examines social policies and welfare measures to tackle these challenges while fostering students' research abilities in elderly welfare and policy.

Z1015 Health Planning and Evaluation for the Elderly (3/0): This course aims to teach students the knowledge and methods required for planning and evaluating health programs. Through case studies and practical exercises, students will gain hands-on experience in designing and evaluating health programs. By analysing real-life cases and engaging in simulation exercises, students will be able to apply their acquired knowledge and develop practical skills in the field of health program planning.

Z1017 Artificial Intelligent in Health Care for Older Adults (3/0): This course will begin by introducing the fundamental concepts and relevant technologies of artificial intelligence, including machine learning, natural language processing, and computer vision. Subsequently, we will delve into the various applications of artificial intelligence in geriatric healthcare, such as health monitoring and medical diagnostics, health management and preventive care, as well as assisted living and smart healthcare facilities.

APPENDICES

APPENDIX A:
TAMKANG'S INTERNATIONAL PARTNER INSTITUTIONS

Area	Nation	Name of Institution	Date of Pact with TKU
Africa	Malawi	University of Malawi	2000/11/08
	Republic of South Africa	Tshwane University of Technology	2022/09/08
	Republic of South Africa	University of the Witwatersrand, Johannesburg	2022/09/19
America	Canada	Brandon University	1998/05/14
	Canada	Athabasca University	2000/11/08
	Canada	York University	2017/12/18
	Canada	University of Regina	2021/05/05
	U.S.A.	St. John's University, N. Y.	1975/03/20
	U.S.A.	Washington State University	1977/03/27
	U.S.A.	The University of West Florida	1977/10/18
	U.S.A.	California State University, Sacramento	1981/07/10
	U.S.A.	University of Illinois at Urbana-Champaign	1981/11/21
	U.S.A.	Ohio University, Athens	1982/05/21
	U.S.A.	Mankato State University	1982/07/09
	U.S.A.	University of Missouri, St. Louis	1982/08/27
	U.S.A.	California State University, Northridge	1984/04/01
	U.S.A.	California State University, Fresno	1984/08/03
	U.S.A.	California State University, Chico	1988/08/01
	U.S.A.	Oklahoma City University	1990/12/04
	U.S.A.	Monterey Institute of International Studies	1994/06/25
	U.S.A.	Winona State University	1996/11/18
	U.S.A.	California State University, Long Beach	1998/03/01
	U.S.A.	Trinity College	1998/12/21
	U.S.A.	Florida State University	1999/06/01
	U.S.A.	The University of Maryland	2000/11/08
	U.S.A.	Indiana University of Pennsylvania	2000/11/08
	U.S.A.	California State University, Stanislaus	2002/11/21
	U.S.A.	Knowledge System Institute Graduate School	2002/12/13
	U.S.A.	Dominican University of California	2004/03/03
	U.S.A.	University of Wisconsin**,** Stout	2004/11/15
	U.S.A.	University of the Incarnate Word	2005/02/14
	U.S.A.	Suffolk University	2006/01/20
	U.S.A.	The University of Michigan**,** Flint	2006/03/28
	U.S.A.	University of St. Thomas	2006/08/01
	U.S.A.	Hawaii Pacific University	2006/08/11
	U.S.A.	San Francisco State University	2007/06/08
	U.S.A.	American University	2007/12/12
	U.S.A.	Temple University	2008/04/30
	U.S.A.	Texas A & M International University	2010/01/07
	U.S.A.	University of Central Florida	2010/01/28
	U.S.A.	California State Polytechnic University, Pomona	2011/08/29
	U.S.A.	Florida Institute Of Technology	2012/07/02
	U.S.A.	University of Texas at San Antonio	2014/05/28
	U.S.A.	Wayne State University	2016/01/27
	U.S.A.	The University of Texas at Arlington	2020/02/06
	U.S.A.	Kansas State University	2021/06/25
	U.S.A.	University of Mississippi	2021/09/08

Area	Nation	Name of Institution	Date of Pact with TKU
	U.S.A.	University of North Carolina at Greensboro	2021/11/25
	U.S.A.	The College of New Jersey	2022/05/26
	U.S.A.	University of Massachusetts Lowell	2022/12/05
	U.S.A.	University of St. Thomas-Houston	2023/12/04
	U.S.A.	Arizona State University	2023/12/11
	U.S.A.	American College of Acupuncture & Oriental Medicine	2024/01/03
	U.S.A.	Baruch College of The City University of New York	2024/05/31
	Mexico	Universidad Autonoma del Estado de Mexico	1992/04/17
	Mexico	Universidad Autónoma Del Estado De Hidalgo	2024/04/23
	Costa Rica	Universidad de Costa Rica	1984/01/31
	Chile	Universidad de Chile	1998/05/21
	Panama	The Technological University of Panama	2005/11/05
	Panama	The University of Panama	2006/04/17
	Panama	Universidad Latina de Panamá	2013/01/25
	Paraguay	Universidad Nacional de Asunción	2014/04/28
	Paraguay	Instituto Desarrollo, Republic of Paraguay	2023/01/04
	Argentina	Universidad Argentina de la Empresa	2022/05/1
	Argentina	Universidad De Belgrano	2023/02/02
Europe	Austria	The University of Vienna	2000/11/08
	Belgium	Saint-Louis University-Brussels	2000/02/04
	Belgium	Université Catholique de Louvain	2000/11/08
	Belgium	Vrije Universiteit Brussel	2007/06/25
	Czech Republic	The University of Economics, Prague	1991/11/10
	Czech Republic	Charles University	2002/11/09
	U.K.	University of Sunderland	1991/03/20
	U.K.	Royal Holloway, University of London	1994/09/30
	U.K.	Hertford College, University of Oxford	2000/11/08
	U.K.	Oxford Brookes University	2006/11/13
	U.K.	The University of Bristol	2007/02/13
	U.K.	University of Essex	2020/08/20
	U.K.	The University of Edinburgh	2021/07/27
	U.K.	Cardiff University	2023/12/12
	Finland	Laurea University of Applied Science	2007/03/14
	Finland	University of Turku	2014/12/12
Europe	France	Université de Franche-Comte	1989/11/08
	France	Université Jean Moulin Lyon 3	2000/11/08
	France	Université Paris-Sorbonne	2000/11/08
	France	École Supérieure d'Informatique, Électronique,Automatique	2014/07/01
	France	Université Paris Diderot	2015/04/16
	France	Université de Poitiers	2016/03/14
	France	Université de Lille	2019/05/27
	France	European Business School Paris	2022/05/17
	Germany	Ludwig-Maximilians-Universität München	1980/09/08
	Germany	Universität Bonn	2000/11/07
	Germany	Universität zu Köln	2000/11/08
	Germany	Universität des Saarlandes	2021/06/11
	Hungary	Corvinus University of Budapest	2009/06/08
	Hungary	Budapest Business School, University of Applied Sciences	2021/11/04
	Ireland	University of Dublin, Trinity College Dublin	2017/10/16
	Italy	Sapienza University of Rome	2019/05/27
	Netherlands	HZ University of Applied Sciences	2023/09/18

Area	Nation	Name of Institution	Date of Pact with TKU
	Poland	Warsaw University	2001/11/08
	Poland	Jagiellonian University	2017/07/03
	Romania	Babeş-Bolyai University	2006/05/05
	Russia	Far Eastern Federal University	1991/12/18
	Russia	Moscow Linguistic University	1997/09/14
	Russia	St. Petersburg State University	1999/09/01
	Russia	Ural Federal University	2014/06/23
	Russia	National Research Lobachevsky State University of Nizhny Novgorod	2020/01/10
	Spain	Universidad de Navarra	1988/05/11
	Spain	Universidad de Castilla-La Mancha	2011/01/31
	Spain	Universidad CEU San Pablo	2013/05/15
	Spain	Universidad de Murcia	2013/09/04
	Spain	Universidad de Alcalá	2013/12/03
	Spain	Universidad de Málaga	2015/05/05
	Spain	Universidad de Granada	2016/06/07
	Spain	Universidad Complutense de Madrid	2019/11/11
	Spain	Universitat Autònoma de Barcelona	2024/01/11
	Sweden	Stockholm University	1991/04/11
	Turkey	Hacettepe University	2016/06/03
	Ukraine	National Taras Shevchenko University of Kyiv	1998/07/03
	Lithuania	Vytautas Magnus University	2022/06/21
	Republic of Slovenia	The University of Ljubljana	2022/09/22
	Republic of Latvia	University of Latvia	2023/04/17
Asia	Hong Kong	Hong Kong Institute of Technology	2018/04/17
	India	Jawaharlal Nehru University	2013/06/14
	India	Vel Tech Dr. RR & Dr. SR Technical University	2015/12/05
	India	Amity University	2016/07/07
	India	Chandigarh University	2016/12/30
	India	Indian Institute of Technology Kanpur	2018/12/20
	India	SRM Institute of Science and Technology	2019/09/20
	India	Vellore Institute of Technology	2019/11/25
	India	Presidency University	2022/01/18
	India	Kalasalingam Academy of Research and Education	2023/01/24
	India	SRM University AP	2023/05/30
	Indonesia	Gadjah Mada University	2004/03/23
	Indonesia	Universitas Muhammadiyah Yogyakarta	2013/06/20
	Indonesia	Universitas Indonesia	2017/07/21
	Indonesia	Sepuluh Nopember Institute of Technology	2019/08/06
	Japan	Asia University	1994/05/29
	Japan	Chuo Gakuin University	1968/03/19
	Japan	Reitaku University	1982/01/18
	Japan	Tsuda University	1994/04/11
	Japan	Josai University	1994/05/30
	Japan	Josai International University	1994/05/30
	Japan	Tokai University	1994/08/29
	Japan	Waseda University	1997/12/27
	Japan	The University of Electro-Communications	1998/10/06
	Japan	Komazawa University	1999/11/06
	Japan	Kyoto Tachibana University	2000/03/27
	Japan	Aoyama Gakuin University	2002/10/11

Area	Nation	Name of Institution	Date of Pact with TKU
	Japan	Nagasaki University of Foreign Studies	2004/05/17
	Japan	Nagasaki University	2004/11/08
	Japan	Akita International University	2005/03/02
	Japan	Heisei International University	2005/04/04
	Japan	Kagoshima University	2005/11/05
	Japan	The University of Aizu	2006/03/06
	Japan	Ritsumeikan Asia Pacific University	2007/12/05
	Japan	Ritsumeikan University	2007/12/05
	Japan	Hosei University	2008/03/31
	Japan	Kyushu University	2008/09/11
	Japan	Doshisha University	2010/05/21
	Japan	Hokkaido University	2010/11/29
	Japan	Fukuoka Women's University	2011/11/21
	Japan	Tokyo University of Foreign Studies	2012/03/14
	Japan	Osaka Metropolitan University	2012/08/24
	Japan	Meiji University	2013/03/18
	Japan	Gakushuin University	2013/07/30
	Japan	J.F.Oberlin University	2014/10/16
	Japan	Tokushima Bunri University	2014/11/08
	Japan	Ryukoku University	2015/03/12
	Japan	Kindai University	2015/04/10
	Japan	Kansai University	2015/07/30
	Japan	Business Breakthrough University	2016/06/07
	Japan	Yamaguchi University	2016/12/29
	Japan	Kwansei Gakuin University	2017/06/27
	Japan	Shibaura Institute of Technology	2017/12/22
	Japan	Meiji Gakuin University	2019/03/21
	Japan	Kanagawa University	2019/08/13
	Japan	Chiba University	2019/12/23
	Japan	Seikei University	2020/02/12
	Japan	Okayama University	2020/02/25
	Japan	Japan Women's University	2023/11/15
	Kazakhstan	L.N. Gumilyov Eurasian National University	2014/06/27
	Korea	Dankook University	1975/05/14
	Korea	Sungshin Women's University	1983/05/20
	Korea	Kyungnam University	1985/01/31
	Korea	Chongju University	1986/05/26
	Korea	Kyonggi University	2000/11/08
	Korea	Kyung Hee University	2006/11/21
	Korea	Hanyang University	2012/08/28
	Korea	Ewha Womans University	2013/05/21
	Korea	Chung-Ang University	2014/06/03
	Korea	Myongji University	2019/10/01
	Macao	University of Macau	2012/12/06
	Macao	City University of Macau	2024/09/17
	Mainland China	University of Chinese Academy of Sciences	1992/01/18
	Mainland China	Xiamen University	1995/04/24
	Mainland China	Northwestern Polytechnical University	1996/01/16
	Mainland China	University of International Business and Economics	1996/06/24
	Mainland China	Beihang University	1997/10/10
	Mainland China	Fudan University	2001/04/13
	Mainland China	Harbin Institute of Technology	2001/08/22

Area	Nation	Name of Institution	Date of Pact with TKU
	Mainland China	Jilin University	2001/08/23
	Mainland China	University of Shanghai for Science and Technology	2002/03/29
	Mainland China	Peking University	2002/03/30
	Mainland China	Nanjing University of Aeronautics and Astronautics	1998/07/10
	Mainland China	Southwestern University of Finance and Economics	2000/04/22
	Mainland China	Nanjing University	2001/04/12
	Mainland China	Shandong University of Finance and Economics	2002/03/31
	Mainland China	Wuhan University	2002/05/29
	Mainland China	Wuhan University of Technology	2003/11/27
	Mainland China	Renmin University of China	2002/04/01
	Mainland China	Capital University of Economics and Business	2008/06/16
	Mainland China	Anhui University of Finance & Economics	2008/06/16
	Mainland China	Jiangxi University of Finance and Economics	2008/06/16
	Mainland China	Zhongnan University of Economics and Law	2008/12/10
	Mainland China	Guangzhou University	2008/12/17
	Mainland China	Zhejiang University	2009/01/08
	Mainland China	Shandong University	2009/04/27
	Mainland China	Sichuan University	2010/05/24
	Mainland China	Nankai University	2001/07
	Mainland China	Tianjin University	2010/11/06
	Mainland China	Beijing Institute of Technology	2010/11/16
	Mainland China	Xi'an Jiaotong University	2010/11/18
	Mainland China	East China Normal University	2010/12/09
	Mainland China	Lanzhou University	2011/12/08
	Mainland China	Yunnan University	2012/04/01
	Mainland China	Tongji University	2012/10/22
	Mainland China	Northwest University	2013/01/08
	Mainland China	Huaqiao University	2013/02/25
	Mainland China	Fujian Normal University	2014/03/17
	Mainland China	Guizhou University	2014/08/28
	Mainland China	Beijing Foreign Studies University	2015/10/22
	Mainland China	Beijing Jiaotong University	2015/12/18
	Mainland China	Fuzhou University	2016/01/04
	Mainland China	Chuzhou University	2016/03/22
	Mainland China	Liaoning University	2016/05/09
	Mainland China	Northeast Normal University	2018/05/18
	Mainland China	Soochow University	2018/09/27
	Mainland China	Central China Normal University	2018/11/12
	Mainland China	South China University of Technology	2018/12/13
	Mainland China	Chongqing University	2019/10/12
	Mainland China	Dalian University of Technology	2019/10/21
	Mainland China	Shenzhen University	2021/09/08
	Mainland China	Hefei University of Technology	2021/12/31
	Mainland China	CHANG'AN University	2021/12/14
	Mainland China	Shanghai University	2022/08/31
	Mainland China	Southwest University	2023/10/24
	Malaysia	One World Hanxing Academy of Journalism & Communication	2003/05/26
	Malaysia	New Era College	2003/12/17
	Malaysia	In-House Multimedia Academy	2003/12/25
	Malaysia	Han Chiang College	2004/03/17

Area	Nation	Name of Institution	Date of Pact with TKU
	Malaysia	Universiti Tunku Abdul Rahman	2012/03/02
	Malaysia	Sunway University	2013/03/18
	Malaysia	IACT College	2018/04/17
	Malaysia	Nilai University	2023/12/14
	Mongolia	National University of Mongolia	2011/12/21
	Philippines	University of Santo Tomas	1983/05/13
	Philippines	De La Salle University	1988/03/20
	Taiwan	National Quemoy University	2013/07/04
	Thailand	Bangkok University	2015/10/22
	Thailand	Prince of Songkla University	2016/03/14
	Thailand	King Mongkut's University of Technology Thonburi	2017/11/10
	Thailand	Kasetsart University	2018/05/29
	Thailand	King Mongkut's Institute of Technology Ladkrabang	2018/08/20
	Vietnam	Nguyen Tat Thanh University	2019/01/29
	Vietnam	National Economics University	2020/12/04
	Vietnam	Thai Nguyen University	2021/03/08
	Vietnam	Thai Nguyen University of Agriculture and Forestry	2021/12/09
	Vietnam	Foreign Trade University	2022/05/18
	Vietnam	Van Lang Saigon College	2022/10/19
	Vietnam	Dong Thap University	2022/10/21
	Vietnam	The Saigon International University	2023/07/21
	Vietnam	University of Engineering and Technology, Vietnam National University, Hanoi	2024/05/02
	Cambodia	International Institute of Cambodia University of Technology	2023/07/13
Australia & New Zealand	Australia	The University of New South Wales	1991/08/12
	Australia	Curtin University	1998/04/27
	Australia	The University of Queensland	2007/12/18
	Australia	Queensland University of Technology	2011/08/04
	Australia	Western Sydney University	2018/03/06
	Australia	Southern Cross University	2019/01/21
	Australia	University of Adelaide	2023/05/25
	New Zealand	University of Waikato	1998/03/23

APPENDICES

APPENDIX B: UNIVERSITY PUBLICATIONS

Tamkang University's publication program supports faculty and student research. University publications include:

Journal of Applied Science and Engineering (JASE; ISSN:* 2708-9975 *(Online) · ISSN: 2708-9967 (Print))

JASE is a monthly international journal listed in *ESCI*, *COMPENDEX PLUS (EI)* and *Scopus*. It changed name from *Tamkang Journal of Science and Engineering (TKJSE)* in 2012. The first issue was published in July 1998. *JASE* aims to serve the needs of the research and development community and to become a well-known international journal publishing papers of highest quality in all disciplines of applied sciences and engineering. All the published papers can be freely accessed via the website (jase.tku.edu.tw). *JASE* is submitting to ISI Thomson for Science Citation Index (SCI expanded), and its on-line paper submission is supported by *Scholar One Manuscript* of Clarivate Analytics.

The 《Journal of Applied Science and Engineering》

JASE was first published as a quarterly issue in July 1998, converted to a bimonthly issue from February 2021 (Volume 24, Issue 1) and converted to a monthly issue from January 2023 (Volume 26, Issue 1).

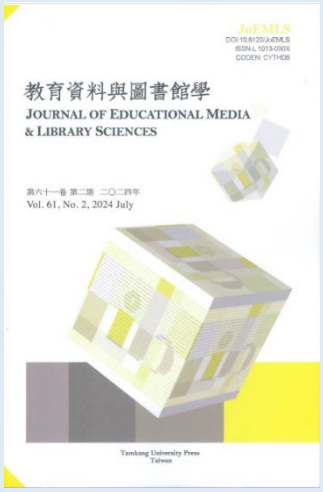
The Journal of Educational Media & Library Sciences (JoEMLS)

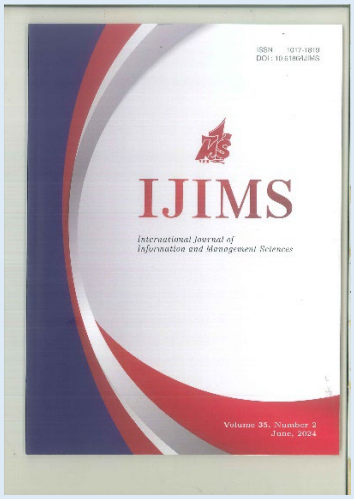
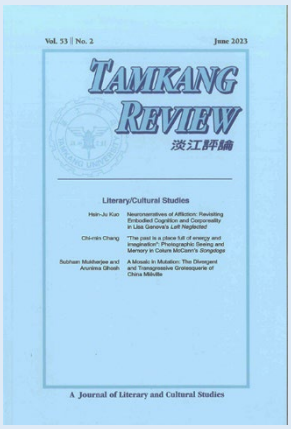
The *JoEMLS* published by the Tamkang University Press and co-published with the Department of Information & Library Science (DILS) and Chueh Sheng Memorial Library, was formerly the ***Bulletin of Educational Media Science*** (March 1970-June 1980) and the ***Journal of Educational Media Science*** (September 1980-June 1982). In 2015, The *JoEMLS* was acknowledged as an A class scholarly journal in Taiwan by the Ministry of Science and Technology (MOST) now as the National Science and Technology Council, NSTC). Since October 2016, JoEMLS has been changed from quarterly to a tri-annual journal, published in March, July, and November.

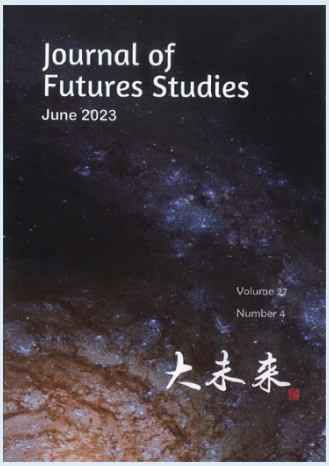
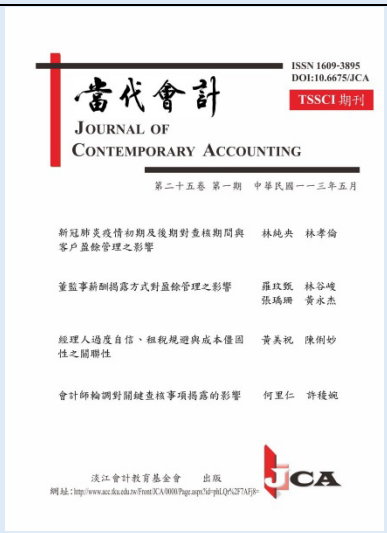
The JoEMLS is an Open Access (OA) Dual, double-blind reviewed and international scholarly journal dedicated to making accessible the results of research across a wide range of Information & Library-related disciplines.

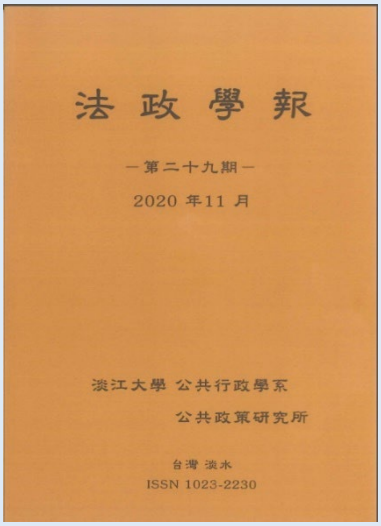
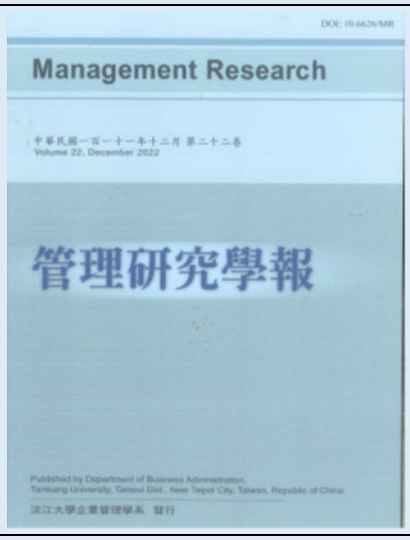
The *JoEMLS* is indexed or abstracted in

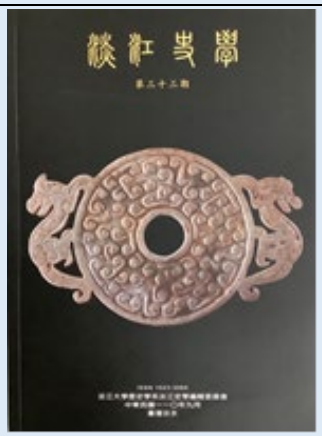
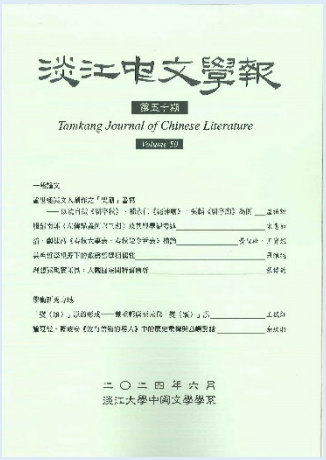
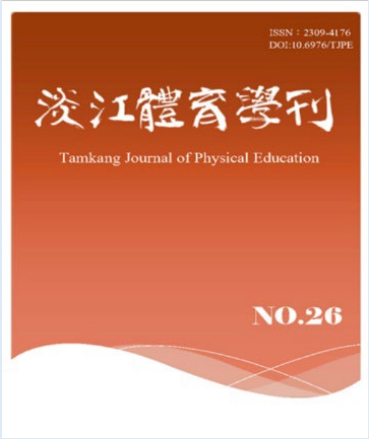
- Cabell's Directory of Publishing Opportunities
- Chinese Electronic Periodicals Service (CEPS)
- Chinese Educational Resources Information Centre Project (Chinese ERIC)
- H.W. Wilson Database
- Index to Chinese Periodicals
- Library & Information Sciences Abstracts (LISA)
- Library Literature & Information Science (LLIS)
- Library, Information Science & Technology Abstract (LISTA)
- Scimago Journal & Country Rank
- Scopus
- Taiwan Humanities Citation Index (THCI)
- Taiwan Social Sciences Citation Index (TSSCI)
- Ulrich's Periodicals Directory



Tamkang Journal of Mathematics Tamkang Journal of Mathematics (TKJM), published by the Department of Mathematics is funded by Tamkang University. TKJM began in 1970 as a semi-annual periodical that provides a forum for scholarly exchanges of ideas in mathematics, and it is also the first international journal with mathematical subject in Taiwan. Moreover, TKJM became a quarterly journal in 1985, with its four issues released at the end of March, June, September and December. Articles published in TKJM are original research and survey papers in mathematics which covers diverse mathematical disciplines, and submissions come from all over the world. All published articles are subject to peer review from an international pool of referees. TKJM is indexed by Scopus, Math. Review, Zentralblatt Math., EBSCO, MathSciNet and ESCI.	
The International Journal of Information and Management Sciences The International Journal of Information and Management Sciences (IJIMS) is published by the Department of Management Sciences. The Journal was first published in 1990. It is an extension of two journals, namely, the International Journal of Policy and Information (1980-1988) and the Tamkang Journal of Management Sciences (1982-1989), both of which were published by Tamkang University. IJIMS focuses on topics such as information, management sciences, operation research, decision theory, system theory, statistics, and business administration and finance. It involves not only numerical computations or statistical simulations, but also applications of decision support systems, expert systems, knowledge-based systems, artificial intelligence, etc. IJIMS aims to elucidate policymaking processes, with an emphasis on its applications, especially on policy aspects of information management technology. It also explores the contributions and implications of knowledge-based models in the study of socio-economic systems, develops applications of computer-process databases and knowledge-based models to policy analysis, and integrates the coupling of these various systems intelligently into the communities. Another aim of this journal is to provide a forum for researchers who attempt to quantify research findings or formulate a quantitative model from qualitative data. The International Journal of Information and Management Sciences is cited in EI Compendex, INSPEC, SCOPUS, MathSci, Pascal, ZMath and Mathematical Reviews, and is submitting to ISI Thomson for possible inclusion in the Science Citation Index.	
Tamkang Review The English Department of Tamkang University publishes *Tamkang Review*, an international journal of comparative literary and cultural studies. It is a biannual publication released in June and December. Inaugurated in 1970, *Tamkang Review* is recognized as one of the leading scholarly journals in Taiwan. It is indexed in THCI Core, MLA International Bibliography, MLA Directory of Periodicals, and Scopus.	

Tamkang Journal of International Affairs (TJIA) TJIA is a triannual English journal published by the College of International Affairs. Its main goal is to provide an open forum for scholarly research and inquiry on various topics, covering international relations, regional and global security, foreign policy, state's political and economic dynamics of shapes, Cross-Taiwan Strait relations, and area studies. TJIA is indexed in Scopus and available in Airiti Library, Taiwan Open Access Journals (TOAJ), and EBSCO.	
Journal of Futures Studies The Journal of Futures Studies is a globally-oriented, trans-disciplinary refereed journal (ESCI). Its mission is to develop high-quality, futures-oriented research and thinking, based on the evolving knowledge base of futures studies/foresight.	
Journal of Contemporary Accounting *Journal of Contemporary Accounting* is published semiannually by the Department of Accounting and Tamkang Accounting Educational Foundation. The journal provides a forum for the publication of high-level theoretical and applied accounting manuscripts with academic significance in terms of their originality and contribution. Correspondence may be addressed to The Editor, *Journal of Contemporary Accounting*.	

Journal of Information Management—Concepts, Systems, and Applications *Journal of Information Management—Concepts, Systems, and Applications* is published semiannually by the Department of Information Management. All articles are refereed with Chinese and English abstracts. (published until 2013)	
Journal of Law and Political Science *Journal of Law and Political Science*, published by the Department of Public Administration, provides a forum for theoretical discussion and practical experience exchange in an original format.	
Management Research The journal was first published in 2001 by the Department of Business Administration. Scholars are encouraged to submit manuscripts on any aspect of business management. The journal adopts a highly rigorous and lengthy review process.	

Tamkang History Review *Tamkang History Review*, first published in 1989 by the Department of History, is an annual open forum for the publication of research articles in all fields of historical studies.	
Tamkang Journal of Chinese Literature *Tamkang Journal of Chinese Literature*, first published in 1992 by the Department of Chinese Literature, is a semiannual publication with a focus on Chinese literature, intellectual history, bibliography, philosophy, etc.	
Tamkang Journal of Physical Education (TJPE) *Tamkang Journal of Physical* Education (TJPE), Fist published in 1998 by the Office of Physical Education. The journal covers a broad range of topics within sports science, with a particular focus on empirical research and review articles related to sports, leisure, education, and physical activities. The journal aims to promote academic research and provides a platform for scholarly dialogue and exchange. In 2022, TJPE was evaluated by the Humanities and Social Sciences Research Center of the Taiwan National Science and Technology Council and was ranked as a Level 3 journal in the field of education. It is also indexed in several prominent databases, including TCI, ACI, TOAJ, and CEPS.	

APPENDICES
APPENDIX C: FACULTY

Abdullah, Nur Anisah Binti, Ph.D., U. of Strathclyde, UK, Associate Professor of Education and Futures Design

Ai, Chi-Han, Ph.D., École des Hautes Études en Sciences Sociales, France, Associate Professor of International Tourism Management (English Taught Program)

Blanco Pena, Jose Miguel, Ph.D., U. of Navarra, Spain, Professor of Spanish

Boileau, Gilles, Ph.D., U. of Paris IV, France, Professor of French

Brown, Iain Kelsall, M.A., Queen's U., Canada, Assistant Professor of English

Burovtseva, Nataliya, Ph.D., Moscow State Normal U., Russia, Associate Professor of Russian

Chan, Li-Wei, Ph.D., National Taipei U., Taiwan, ROC, Assistant Professor of Public Administration

Chang, Ben-Hang, B.A., Shih Hsin U., Taiwan, ROC, Specially Appointed Professor of Chinese Literature

Chang, Chao-Ching, Ph.D., National Taiwan U., Taiwan, ROC, Associate Professor of Chemical and Materials Engineering

Chang, Cheng-Hsin, Ph.D., Colorado State U., USA, Professor of Civil Engineering

Chang, Chia-Hsiung, M.A., Arkansas State U., USA, Assistant Professor of Physical Education Instruction and Activities Section

Chang, Chia-I, Ed.D., Stanford U., USA, Professor Emeritus of Education and Futures Design

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Chang, Chia-Wen, Ph.D., National Chengchi U., Taiwan, ROC, Associate Professor of Accounting

Chang, Chieh-Ying, (Ph.D., Imperial College London, UK), Assistant Professor of English

Chang, Chih-Yung, Ph.D., National Central U., Taiwan, ROC, Professor of Computer Science and Information Engineering

Chang, Ching-Gwo, Ph.D., Saint-Petersburg State U., Russia, Professor of Russian

Chang, Chiung-Fang, Ph.D., McGill U., CA, Assistant Professor of Educational Psychology and Counseling

Chang, Chiung-Sui, Ph.D., U. of Kansas, USA, Professor of Educational Technology

Chang, Chun-Hui, Ph.D., National Taiwan U., Taiwan, ROC, Associate Professor of International Business

Chang, Chun-Tao, Ph.D., Tamkang U., Taiwan, ROC, Professor of Statistics
Chang, Der-Wen, Ph.D., U. of Texas-Austin, USA, Professor of Civil Engineering
Chang, Feng-Cheng, Ph.D., National Chiao Tung U., Taiwan, ROC, Associate Professor of Computer Science and Information Engineering
Chang, Fu-Chang, Ph.D., U. of Cologne, Germany, Associate Professor of Diplomacy & International Relations
Chang, Horng-Jnh, Ph.D., Tamkang U., Taiwan, ROC, Professor Emeritus of Management Sciences
Chang, Hsiu-Chuan, Ph.D., Kathol. U. Eichstätt-Ingolstadt, Germany, Assistant Professor of German
Chang, Hsuan, Ph.D., Ohio State U., USA, Professor of Chemical and Materials Engineering
Chang, Hsuan-Ling, Ph.D., National Taiwan U., Taiwan, ROC, Associate Professor of Banking and Finance
Chang, Hsuan-Pu, Ph.D., Tamkang U., ROC, Associate Professor of Information and Library Science
Chang, Hui-Lan, Ph.D., National Chengchi U., Taiwan, ROC, Assistant Professor of Information and Communication
Chang, Jau-Shien, Ph.D., National Taiwan U., Taiwan, ROC, Associate Professor of Information Management
Chang, Kuei-Chieh, Ph.D., National Changhua U. of Education, Taiwan, ROC, Associate Professor of Educational Psychology and Counseling
Chang, Kung-Hung, M.A., Taipei Physical Education College, Taiwan, ROC, Associate Professor of Physical Education Instruction and Activities Section
Chang, Kuo-Lei, Ph.D., U. of Paris III-Sorbonne Nouvelle, France, Professor of French
Chang, Li-Chiu, Ph.D., National Taiwan U., Taiwan, ROC, Professor of Water Resources and Environmental Engineering & Artificial Intelligence
Chang, Li-Han, Ph.D., National Taiwan U., Taiwan, ROC, Associate Professor of Banking and Finance
Chang, Sheng-Hsiung, Ph.D., National Taiwan U., Taiwan, ROC, Associate Professor of International Business
Chang, Tzu-Shan, Ph.D., Southern Illinois U.-Carbondale, USA, Associate Professor of English
Chang, Wu-Ueh, Ph.D., National Chengchi U., Taiwan, ROC, Associate Professor of Diplomacy & International Relations
Chang, Ya-Chi, Ph.D., National Sun Yat-sen U., Taiwan, ROC, Associate Professor of Accounting

Chang, Ya-Fung, Ph.D., U. of Illinois-Champaign, USA, Professor of Teacher Education
Chang, Yea-Huey, Ph.D., Indiana U.-Bloomington, USA, Associate Professor of English
Chang, Yi-Bin, Ph.D., U. of Texas at Dallas, USA), Associate Professor of Public Administration
Chang, Ying-Hua, Ph.D., National Central U., Taiwan, ROC, Associate Professor of Information Management
Chang, Yong-Sheng, Ph.D., National Chung Hsing U., Taiwan, ROC, Associate Professor of Business Administration
Chang, Yue-Cune, Ph.D., Johns Hopkins U., USA, Professor of Mathematics & Business Management
Chang, Yueh-Hsia, Ph.D., Ohio U., USA, Associate Professor of Education and Futures Design
Chang, Yun-Chi, Ph.D., Autonomous U. of Barcelona, Spain, Associate Professor of Spanish
Chang, Yu-Shan, Ph.D., National Taipei U., Taiwan, ROC, Professor of Accounting
Chang, Yu-Yueh, Ph.D., National Taiwan U., Taiwan, ROC, Assistant Professor of Business Administration
Chang, Hsiang-Chuan, Ph.D., Waseda U., Japan, Assistant Professor of Transportation Management
Chang Chien, Yu-Ting, (Ph.D., National Sun Yat-sen U., Taiwan, ROC), Assistant Professor of Information Management
Chao, Ching-Hsiang, Ph.D., National Taiwan U., Taiwan, ROC, Associate Professor of Banking and Finance
Chao, Chun-Shan, Ph.D., National Chengchi U., Taiwan, ROC, Professor Emeritus of Diplomacy & International Relations
Chao, Han-Chieh, Ph.D., Purdue U., USA, Distinguished Chair Professor of Artificial Intelligence
Chao, Hsiao-Wen, Ph.D., Beijing Sport University, Beijing, China, Associate Professor of Physical Education Instruction and Activities Section
Chao, Louis Ron-Yaw, Ph.D., Duke U., USA, Professor Emeritus of Computer Science and Information Engineering
Chen, Chao-Liang, Ph.D., National Central U., Taiwan, ROC, Professor of Economics
Chen, Chia-Chien, (Ph.D., Fu-Jen Catholic U., Taiwan, ROC), Assistant Professor of English

Chen, Chien-Chang, Ph.D., National Tsing Hua U., Taiwan, ROC, Professor of Computer Science and Information Engineering
Chen, Chien-Fu, Ph.D., The Ohio State U., USA, Associate Professor of Diplomacy & International Relations
Chen, Chien-Hsu, Ph.D., National Tsing Hua U., Taiwan, ROC, Associate Professor of Physics
Chen, Chien-Hua, M.A., National Taiwan Normal U., Taiwan, ROC, Associate Professor of Physical Education Instruction and Activities Section
Chen, Chih-Hsin, Ph.D., National Taiwan Normal U., Taiwan, ROC, Professor of Chemistry
Chen, Chi-Hsiang, Ph.D., National Central U., Taiwan, ROC, Associate Professor of Business Administration
Chen, Chih-Wei, Ph.D., National Taiwan U., Taiwan, ROC, Associate Professor of Public Administration
Chen, Ching-Fan, Ph.D., Tamkang U., Taiwan, ROC, Associate Professor of Educational Technology
Chen, Chun-Min, (Ph.D., University of Wollongong, NSW, Australia), Associate Professor of Graduate Institute of Senior Healthcare Management
Chen, Chun-Nan, Ph.D., National Cheng Kung U., Taiwan, ROC, Professor of Physics
Chen, Chun-Ying, Ph.D., National Central U., Taiwan, ROC, Associate Professor of Transportation Management
Chen, Duen-Kai, Ph.D., National Chiao Tung U., Taiwan, ROC, Assistant Professor of Computer Science and Information Engineering
Chen, Hai-Ming, Ph.D., National Chiao Tung U., Taiwan, ROC, Professor Emeritus of Management Sciences
Chen, Hsia-Hsiang, Ph.D., National Yang Ming Chiao Tung U., Taiwan, ROC, Assistant Professor of Computer Science and Information Engineering
Chen, Hsiao-Chuan, Ph.D., National Autonomic U. of Mexico, Mexico, Professor of Global Politics and Economics
Chen, Hsin Liang, Ph.D., Tamkang U., Taiwan, ROC, Assistant Professor of Electrical and Computer Engineering
Chen, Hsin-Chih, Ph.D., U. of Washington., USA, Professor of Diplomacy & International Relations
Chen, Hui-Ling, Ph.D., Tamkang U., Taiwan, ROC, Assistant Professor of Accounting
Chen, Hui-Yun, Ph.D., University of Exeter, UK, Associate Professor of Mass Communication & Center for General Education and Core Curriculum

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Chen, I-Fei, Ph.D., Fu Jen Catholic U., Taiwan, ROC, Chair Professor of Management Sciences
Chen, Jasmine Wei-Li, Ph.D., West Virginia U., USA, Associate Professor of International Tourism Management (English Taught Program)
Chen, Jhy-Hwa, Ph.D., National Taipei U., Taiwan, ROC, Professor of Economics
Chen, Ji-Jing, Ph.D., National Taiwan Normal U., Taiwan, ROC, Assistant Professor of Chinese Literature
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Chen, June S., Ed.D., Columbia U., USA, Assistant Professor of Education and Futures Design
Chen, Kai-Chih, M.A., Chinese Culture U., Taiwan, ROC, Assistant Professor of Physical Education Instruction and Activities Section
Chen, Kan-Nan, Ph.D., U. of Illinois-Chicago, USA, Honorary Professor of Chemical and Materials Engineering
Chen, Kuo-Hua, Ph.D., Louisiana State U., USA, Professor of Education and Futures Design
Chen, Li-Ching, Ph.D., National Central U., Taiwan, ROC, Associate Professor of Statistics
Chen, Li-Chuan, Ph.D., U. of Strasbourg, France, Assistant Professor of French
Chen, Li-Hua, Ph.D., National Taiwan Normal U., Taiwan ROC, Professor of Education and Futures Design
Chen, Man-Hua, Ph.D., U. of Missouri-Columbia, USA, Associate Professor of Statistics
Chen, Pei-Chun, Ph.D., National Yang Ming Chiao Tung University, Taiwan., Assistant Professor of International Business
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Chen, Pu-Woei, Ph.D., SUNY-Buffalo, USA, Professor of Aerospace Engineering

Chen, Qi-Zhen, Ph.D., National Chung Cheng U., Taiwan, ROC, Assistant Professor of Computer Science and Information Engineering
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Chen, Ta-Tao, Ph.D., U. of Sydney, Australia, Associate Professor of Chinese Literature
Chen, Tien-Wen, M.A., National Taiwan Sport U., Taiwan, ROC, Associate Professor of Physical Education Instruction and Activities Section
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Chen, Tzeng-Yuan, Ph.D., Georgia Inst. of Tech., USA, Professor of Aerospace Engineering
Chen, Tzu-Chia, Ph.D., National Yang Ming Chiao Tung U., Taiwan, ROC, Assistant Professor of Artificial Intelligence
Chen, Tzu-Ying, Ph.D., National Taiwan U., Taiwan, ROC, Assistant Professor of Risk Management and Insurance
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Chen, Wei-Ching, Ph.D., U. of Lyon II, France, Assistant Professor of French
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Chen, Wei-Ju, Ph.D., National Central U., Taiwan, ROC, Associate Professor of Accounting
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Chen, Yau-Hung, Ph.D., National Taiwan U., Taiwan, ROC, Professor of Chemistry
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Cheng, Wan-Hsiu, Ph.D., Tamkang U., Taiwan, ROC, Associate Professor of Banking and Finance
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Chi, Yu-Jen, Ph.D., National Chiao Tung U., Taiwan, ROC, Associate Professor of Electrical and Computer Engineering

Chiang, Chieh, Ph.D., National Sun Yat-sen U., Taiwan, ROC, Assistant Professor of Mathematics
Chiang, Jen-Shiun, Ph.D., Texas A&M U., USA, Professor of Electrical and Computer Engineering
Chiang, Wen-Shun, Ph.D., Okayama U., Japan, Professor of Japanese
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Chien, I-Chieh, Ph.D., U. of Washington, USA, Assistant Professor of Water Resources and Environmental Engineering
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Chou, Meng-Ying, Ph.D., National Chiao Tung U., Taiwan, ROC, Assistant Professor of Mathematics
Chou, Tsung-Hsien, M.A., Chinese Culture U., Taiwan, ROC, Professor Emeritus of History
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Chu, Chia-Jui, Ph.D., U. of Franche-Comté, France, Associate Professor of French
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Chuang, Shi-Feng, Ph.D., Northeastern U., USA, Professor of Economics
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Chung, Chih-Hung, Ph.D., U. of North Texas, USA, Associate Professor of Educational Technology
Chung, Chih-Lin, Ph.D., U. of California-Irvine, USA, Associate Professor of Transportation Management
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Chyan, Chin-Jau, Ph.D., U. of Essex, UK, Associate Professor of English
Chyi, Song-Ling, Ph.D., U. of Paris III-Sorbonne Nouvelle, France, Associate Professor of English
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Deng, Jian-Bang, Ph.D., Philipps-U. of Marburg, Germany, Professor of Education and Futures Design
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Don, Trong-Ming, Ph.D., U. of Connecticut, USA, Professor of Chemical and Materials Engineering
Dong, Chung-Li, Ph.D., Tamkang U., Taiwan, ROC, Professor of Physics
Du, Chao-Hung, Ph.D., U. of Edinburgh, UK, Professor of Physics

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Fang, Yu-Hui, Ph.D., National Central U., Taiwan, ROC, Professor of Accounting
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Ger, Meng-Yo, Ph.D., National Cheng-Chi U., Taiwan, ROC, Assistant Professor of Graduate Institute of Senior Healthcare Management
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