

109 學年度第 1 學期第 1 次 校課程委員會議

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各系(所)中心新增課程中英文摘要

一、農學院

運算思維與資訊科技應用

政府推動新農業是為了創新台灣農業，以創新、就業與永續，期建立農業生產新模式，以建構台灣農業新價值，與現代化農業。本課程客製化將引入科技農業新概念，介紹物聯網在農業應用，5G 資通網之運算思維、區塊鏈應用、程式介紹撰寫，以提供加值農學院學生科技農業必備知識與資訊技能，及跨領域職場資訊必備技能。

Computational Thinking and Information Technology Applications 2 E

The government's promotion of new agriculture is to innovate Taiwan's agriculture, with innovation, employment and sustainability, and to establish a new model of agricultural production in order to construct new agricultural values and modern agriculture in Taiwan. The customization of this course will introduce new concepts of science and technology agriculture, introduce the application of the Internet of Things in agriculture, 5G information communication network computing thinking, blockchain applications, program introduction and writing, so as to provide the necessary knowledge and information skills of science and technology agriculture for students of the College of Agriculture. , And necessary skills for cross-field workplace information..

(一) 農園生產系：

景觀快速設計

2 選

本課程透過一系列基本設計練習，使學生掌握基本設計原則與設計元素。讓學生了解基地調查方法、提出設計目標與構想。在學生熟知這些技巧後，訓練學生在有限時間內，繪製出內容完整的一整套圖面

Landscape Rapid Design

2 E

This course aims to equip students with basic design principles and design elements through a series of basic design exercises. Let students understand the base survey method, put forward design goals and ideas. After the students are familiar with these skills, train the students to draw a complete set of pictures within a limited time.

園藝治療概論

3 選

本課程目標欲使學生具備園藝治療的基本概念與操作方法。以園藝治療為媒介，透過實地參與學習，培養學生對高齡社會與高齡社區關懷的素養，並對投入解決高齡者生活品質與環境問題有更為正向的態度。增強學生跨領域整合與多元適應能力知能

Introduction to Horticulture Therapy 3 E

The goal of this course is to equip students with the basic concepts and methods of horticultural treatment. Using horticultural therapy as a medium, through participation in learning on the ground, cultivate students' qualities of caring for the elderly society and the elderly community, and have a more positive attitude towards investing in solving the quality of life and environmental problems of the elderly. Enhance students' interdisciplinary integration and multi-adaptation ability.

景觀研究法**3 選**

本課程以社會科學研究方法為基礎，包含量化研究中的調查研究、實驗研究、非反映性研究，以及質化研究中的田野研究(含觀察法、深度訪談、焦點團體)及紮根理論等，目的在培養碩士在職專班學生以科學的研究方法對景觀專業進行研究之能力。透過各種量化與質化研究方法及概念的回顧與理解，加上實際應用操作的練習，本課程將有助於學生針對景觀領域不同的議題掌握其特性，並應用一種或多種適合的方法進行研究

Landscape Research Methods**3 E**

This course is based on social science research methods, including survey research in quantitative research, experimental research, non-reflective research, and field research in qualitative research (including observation methods, in-depth interviews, focus groups) and grounded theory, etc. The purpose is to cultivate the ability of the master's in-service professional class students to carry out research on landscape majors with scientific research methods. Through the review and understanding of various quantitative and qualitative research methods and concepts, and the practice of practical application operations, this course will help students master their characteristics for different topics in the landscape field and apply one or more suitable methods for research.

高等造園設計**3 選**

本課程主要為分析目前造園領域上的最新研究及問題，以使學生對造園的專業有更廣泛及更深入地瞭解，並使學生進一步發掘未來研究的主題。相關主題將涵蓋：

1. 造園問題之分析
2. 綠道概念之分析
3. 景觀生態與造園之關係
4. 視覺景觀之分析
5. 電腦模擬之應用
6. 校園景觀設計之分析
7. 公園使用後評估
8. 景觀資源管理

Advanced Landscape Design**3 E**

This course mainly analyzes the latest research and problems in the field of gardening, in order to enable students to have a broader and deeper understanding of gardening, and to explore the topics of future research. Related research topics include:

1. Analysis of gardening problems
2. Analysis of the concept of greenway
3. The relationship between landscape ecology and gardening
4. Analysis of visual landscape
5. Application of computer simulation
6. Analysis of campus landscape design
7. Post-use assessment of the park
8. Landscape resource management.

造園文獻選讀及論文寫作**3 選**

本課程主要藉由研讀造園相關之中英文文獻，使學生了解完成論文所需的基本研究方法知識與技能。這些技巧包括(1)研究問題之建構(2)研究設計(3)資料搜集與分析的方法(4)研究結果的展現與報告的撰寫。此外，本課程內容除了傳授與研究方法有關的知

識外，還特別著重於實例的操練，包括研究問題釐清、撰寫研究假設、研究目的與設計的整合

Literature Review and Writing on Landscape Architecture 3 E

This course aims to make students understand the basic research method knowledge and skills required to complete the thesis by studying landscape literature. These techniques include (1) construction of research questions (2) research design (3) methods of data collection and analysis (4) presentation of research results and writing of reports. In addition, in addition to imparting knowledge about research methods, this course also focuses on practical examples, including clarification of research questions, writing research hypotheses, and integration of research objectives and design.

景觀規劃理論與分析 3 選

本課程將研讀相關規劃理論，並根據實際案例進行討論分析。再請學生分組操作進行完整環境規劃操作流程，藉由實際演練與討論，加深學生對於規劃理論與分析之了解

Principles and Analysis of Landscape Planning 3 E

This course will study planning theories, and discuss and analyze based on the cases. Students will perform a complete environmental planning operation in groups. Through practical exercises and discussions, students will understand more about planning theory and analysis.

稻作創新產業巡禮 2 選

稻是台灣最重要的糧食作物，不僅種植面積廣，產值高，而且與經濟發展有密切的關聯。為提升學生對於國內、外稻作產業的認識，並增加臺灣稻作產業年輕的生力軍，本課程將從產業的角度，帶領學生認識水稻的育種繁殖產業、生產栽培產業、米質競賽產業、加工調製產業等，水稻產業鏈中重要的角色。並搭配產業見習巡禮，進行國內稻作地方產業的深度探索，以及國外稻作產業的參訪

Rice innovation industry pilgrimage 2 E

Rice, an important grain crop in Taiwan, is not only with a large area and high output value, but also closely related to economic development. To enhance students' understanding in the domestic and foreign rice cultivation industry and increasing young workers in Taiwan's rice industry, this course will lead students to understand the rice industry, including breeding and propagation industry, production and cultivation industry, rice quality competition industry, and processing industry, The important roles in the rice industry chain. Following with the rice innovation industry pilgrimage, we will conduct in-depth exploration of the local rice farming industry in Taiwan and visits to the rice farming industry abroad.

水稻灌溉與健康管理 2 選

水稻為世界主要糧食之一，亦為臺灣重要的糧食作物。本課程將從水稻栽培管理的角度，介紹水稻生產時可應用之新穎智慧栽培技術，包括自動化育苗、水位監測灌溉、微生物肥料、病蟲害監測系統、無人載具管理、加工倉儲管理、IoT 技術應用等，以建構學生對於水稻灌溉栽培之完善健康管理與溯源系統的觀念

Paddy rice irrigation and health management 2 E

Paddy rice (*Oryza sativa* L.) is one of the main foods in the world and an important grain crop in Taiwan. From the rice cultivation and management point of view. In this course, the novel and intelligent cultivation techniques that can be applied in producing rice and related products will be introduced,

including automated seedling cultivation, water level monitoring and irrigation, microbial fertilizer, pest monitoring systems, unmanned vehicle management, processing and storage management, and IoT Application, etc.. Expect to construct students' concept of perfect health management and traceability system for rice irrigation cultivation.

水稻灌溉與健康管理實習 1 選

水稻為世界主要糧食之一，亦為臺灣重要的糧食作物。本課程將搭配水稻灌溉健康管理課程內容，讓學生針對新穎智慧栽培技術進行實作或參訪，使學生具備水稻灌溉栽培之完善健康管理與溯源系統之觀念及經驗

Paddy rice irrigation and health management practice 1 E

Paddy rice (*Oryza sativa* L.) is one of the main foods in the world and an important grain crop in Taiwan. This course will follow the scheduled progress of the paddy rice irrigation and health management course, allow students to really practice or visit novel and intelligent cultivation techniques, so that students have concepts and experiences on a perfect health management and traceability system for rice irrigation and cultivation.

(二) 森林系：

森林療癒實習 1 選 羅凱安

本課程介紹常用來檢測森林療癒效果的實驗方法、儀器及現場操作設計，讓學生了解「森林環境」對於身心減壓以及健康促進中的角色，也進一步討論森林療癒相關產業於未來之發展。

Pratice of Forest Theraphy 1 E K.-A. Lo

tThis course introduces experimental methods, instruments, and field operation design commonly used to measure the forest healing effects. Student will understand the role of forest environment relieve stress and health promotion. It will also include the future development of forest therapy related industries and businesses..

(三) 水產養殖系：

水中調查技術 3 選

以熟悉並明瞭浮潛及水肺潛水學科為主要目標。初級水肺潛水學科內容包含國際潛水組織簡介、潛水裝備簡介、潛水生理、潛水醫學、潛水計畫、海洋危險生物、海洋生態學簡介、珊瑚礁總體檢介紹。進階水肺潛水學科包含潛水心理、潛水救援、水下搜索與打撈、潛水導航、船潛、深潛及夜潛。在結束完整的一學期課程後，學生除了對浮潛及水肺潛水有完整的認識之外，還具備基本的海洋生態以及水中調查技能。

此課程僅為學科部分，不包含海洋實習。需參加本課程之外的海洋實習科目，才能進行潛水證照的考試。

Underwater Survey Technology 3 E

The main goal of this class is to teach students to understand the operation of snorkeling and scuba diving for underwater survey. The contents of scuba diving include introduction of International Diving Organization, diving equipment, planning, diving physiology and medicine, marine dangerous creatures

and ecology, and inspection of coral reefs. Advanced scuba diving covers diving psychology, diving rescue, underwater search and salvage, diving navigation, boat diving, deep diving and night diving. After completing the course, students not only have a complete understanding of snorkeling and scuba diving, but also have basic marine ecology and underwater survey skills. This lecture course does not include marine internships. It is necessary to take a marine practice course other than this course in order to be qualified for taking diving license exam.

(四) 生物科技系：

生物資源創新應用

3 選

鄭雪玲、徐睿良、施玟玲、
陳與國、張誌益、徐志宏、
陳又嘉、蔡文田、蔡添順

本課程以機能性產品開發，循環經濟-生物材料利用，及仿生科技三大主題為主軸，介紹如何應用生物相關技術與知識，開發生物材料成為各種用途。機能性產品開發包含皮膚保養、降血糖、抗發炎及提升免疫力、活性胜肽、抗癌、抗病毒、保護胃黏膜、調節血脂等產品的開發，及天然物開發技術、腸道菌相分析與益生菌產品開發等單元。循環經濟-生物材料利用包含生物材料酵素開發與利用、生物材料發酵再利用、生質能源、活性碳的特性及其在醫藥上的應用等單元。仿生科技將介紹仿生科技實例。

Innovative Application of Bioresources

3

E H. L. Cheng; J. L. Hsu; W. L. Shih;
Y. K. Chen; C. I. Chang;
J. H. Shyu; Y. C. Chen; W. T. Tsai;
T. S. Tsai

There are three topics in this class, i.e. functional product development, circular economy- the reuse of biomaterials, and Bionic Technology. The goal is to exemplify the application of biological knowledge in exploring biomaterials for product development. The units in the topic of functional product development include product development for skin care, anti-diabetes, anti-inflammation and immune modulation, bioactive peptides, anti-cancer, anti-virus, stomach protection and anti-hyperlipidemia, natural product exploration, microbiota analysis and probiotic products. The units in circular economy- the reuse of biomaterials include the exploration of enzymes from biomaterials, fermentation of biomaterials for reuse, bioenergy, and the characteristics and medical application of active charcoal. In the topic of Bionic Technology, examples of biomimicry will be introduced and discussed.

(五) 動物科學與畜產系：

新興畜產科技應用特論

3 選

彭劭于

本課程將落實本系研究生對新興畜產科技之發展與現場實務技術，包含畜產動物最新之繁殖管理科技、育種科技、飼料營養科技與腸道及糞便微生物科技等項目，以改善與解決目前畜牧產業所遭遇之問題與困難，掌握畜產科技最新發展技術與達成最大之畜牧生產效益與永續發展，並培養研究生利用現代畜產科技解決目前畜牧現場之問題的能力，以提升畜產領域之競爭能力。

Special Topic in Emerging Animal Technology and Application 3 E Peng, Shao-Yu

This course will implement the development and field practice techniques of emerging graduated

animal science and technology for graduated students of department of Animal science, including the latest reproductive management technology, breeding technology, feed nutrition technology and animal manure treatment technology of livestock to improve and solve the current problems encountered by the animal husbandry industry. The latest development technology of animal husbandry technology is to achieve the maximum benefit and sustainable development of animal husbandry, and cultivate the ability of graduated students to use modern animal husbandry technology to solve the problems of the current animal husbandry field, so as to enhance the competitiveness of the animal husbandry field.

畜產實務

2 選

全系教師

為提早規劃動物科學與畜產系學生進入畜產相關產業服務，並將在校所學領域相關學科加以整合與應用，以衡量自己未來發展方向，安排一學期課程邀請產官學及企業界具經營管理及實務經驗之專家學者代表，向學生說明目前畜產相關產業現況及未來發展趨勢，並同時進行人才招募儲備作業，使學生對產業界有初步的認識。

The overview of livestock industry

2 E

Faculties

This course is designed for students to measure their future career advance before join the livestock-related industry services. We arranged to invite the representatives of experts and scholars with abundant practical experiences and business management of industry, government, academia and enterprises to introduce the current status and future development trend of the livestock-related industries. Meanwhile, the industry conducts talent recruitment and enable students to have a preliminary understanding of livestock-related industries.

屠體分切與應用實習

1 選

陳志銘

本課程內容以學習豬、牛、雞等禽畜屠體部位分切及應用之相關技術與實務操作訓練為主，將依各國屠體與食肉等級評定的標準及方法探討屠體評級之相關技術與實務訓練，以了解判定屠體之組成與價值。進而介紹屠體分切標準及技術之相關技術與實務訓練，以解說不同部位肉之品質，及其品質判定之方法與標準。依據食肉可口性與產量之相關技術與實務操作訓練，說明屠體與部位肉等級評定之運作，並且討論各部位肉於中式加工品與西式料理之應用。

Laboratory Practices for Carcass Cutting and Application of Meat Parts 1 E C.M. Chen

This course focuses on the relative technology and practical practices for the cutting of pork, beef cattle, and chicken carcasses as well as the application of carcass parts. The carcass evaluation and cutting standards will be introduced the relative technology and practical practices for the carcass cutting and carcass grading according to Taiwanese, American, and Japanese regulations. It will introduce the technology and practical practices how to grade the carcasses by quality parameters. The best use of meat on Chinese meat products and Western cuisines will be discussed.

畜產語文

2 選

余祺

為提升動物科學與畜產系學生與國際接軌之能力，於碩士班開設畜產語文特論，課程內容涵蓋畜產英文專有名詞、習慣用法及書寫，並納入東南亞語系，畜產相關用語介紹。

Livestock language

2 E

C. Yu

This particular course encompasses English vocabulary and grammatical usage specific to the livestock industry in addition to introduction to certain Southeast Asian languages. Upon successful completion of this course, students will be better equipped

to understand the latest development pertaining to the livestock sector in the global community.

(六) 植物醫學系**植醫實地實務(微型課程)****1 選****江主惠**

本課程將以實地實務深耕培訓之方式，與產業界、農政單位及農業管理者進行田間有害生物管理之經驗交流與實地診療，以強化學生對植物醫學領域之專業知識及能力，增進植物醫學產業的實務經驗，使有效進行植物病、蟲、草害及植物健康問題之診斷及管理，達到培訓植物醫師診療能力之目的。

Field Practice of Plant Medicine Course**1 E**

This course will be conducted as an intensive field practice which will be conducted by invited specialists from a variety of industrial sectors, agricultural government departments, and farm management services. Through personal dialog and communication between the specialists and students directly in the fields, students will gain specific skills and practical experiences in plant disease diagnosis and management. Our course will help students perform accurate diagnosis, and become effective in plant disease, insect and weed management, and achieve our goals in training plant doctors diagnosis and treatment abilities.

植物土壤傳播病害**2 選****陳麗鈴**

本課程介紹主要的土壤傳播病害，包括病徵、致病病原、寄主與病原菌及環境因素與病勢發展之相互關係；同時討論本類病害之綜合防治措施。

Soilborne Plant Diseases**2 E****L. L. Chern**

This course is to introduce important soil-borne diseases. The contents include in its course are: 1. Disease symptoms 2. Pathogens which caused soil-borne diseases 3. Host-pathogen interaction 4. Environmental factors vs. Diseases development 5. Integrated management of soil-borne diseases.

植物醫學相關內共生物相研究法**2 選****吳立心**

配合共生菌、菌相相關研究於各領域的新興趨勢，本課程旨在讓選修同學，提升對植物醫學相關領域共生物相與其間互動的基本認知與應用，以因應新興工作所需之文獻閱讀基本能力與本職學能。

Principle of Endosymbiont and Microbiome for Plant Medicine**2 E**

The aims of this course is giving students to broaden their understanding and application of Endosymbiont and microbiome related to plant medicine, in order to enhance the basic reading ability and practical technics of latest knowledge of Endosymbiont and microbiome applications.

蟲害發生預測預報**2 選****吳立心**

以昆蟲生態學為基礎，介紹害蟲取樣、調查方法，進而對其族群之發生期與發生量加以數理預測與評估。

Monitoring and Forecasting of Insect Pest**2 E**

Basing on the insect ecology, the practice of sampling, quantitative forecast and evaluation of occurring period and amount relative to pest population are discuss.

(七) 食品科學系

創意巧克力開發與實習**3 選**

本課程訓練學生了解可可原料的品質判定與生長地區，進而了解如何從可可原料製作成巧克力產品，學生可以在本課程中了解到可可豆到巧克力的生產製程及設備及判斷可可及巧克力品質的判定方法，學生也可以在本課程中親自到巧克力 GMP 模擬工廠親自製作巧克力並品嚐。本課程亦介紹創意巧克力的創意要點，並介紹世界具有創意巧克力的國家及產品，學生也可以自行製作自行創意的巧克力。

Development and Internship of Creative Chocolate**3 E**

This course trains students to understand the quality determination and growth area of cocoa raw materials, and then they will understand how to make chocolate products from cocoa raw materials. Students can learn about the production process and equipment from cocoa beans to chocolate and determine method the quality of cocoa and chocolate. Students can also make and taste chocolate by themselves in the chocolate GMP simulation factory in this course. This course also introduces the creativity of creative chocolate, and introduces the countries and products of creative chocolate in the world. Students can also make their own creative chocolates.

食品安全風險評估與溝通**2 選**

本課程是對食品 and 食品添加物的生物、化學和物理性質進行分析和評估，主要內容是危害對人體健康和食品貿易可能產生的不利影響。通過本課程的學習，使學生能夠理性地看待各種食品安全危害因素，掌握危害因素與食品的關係，學會採取相應的預防和補救措施，控制食品安全事故的發生，並通過風險分析對風險和風險相關因素進行分析，使學生掌握食品安全的基本知識風險感知在風險評估者、風險管理者、消費者、行業、學術界和其他利益相關者之間傳播和交流資訊和意見，以儘量減少事故的影響，從而能夠勝任政府監管部門和食品企業未來的管理和研發工作。

本課程的重點是：

- (1) 食品安全衛生管理法風險管理範疇與實踐
- (2) 瞭解食品安全事件風險分析過程中的具體問題。
- (3) 在制訂風險管理程式和建議時，可以提高一致性和透明度。
- (4) 風險管理決策與溝通的效益評估。
- (5) 相關方食品風險資訊交流。
- (6) 提高公眾對風險溝通的認識，增強公眾對食品行業的信任。

在本課程中，學生還將學習媒體如何報導食品安全問題及其風險，以及讀者如何理解。

Food Safety Risk Assessment and Communication**2 E**

This course is to analyze and evaluate the biological, chemical and physical properties of food and food additives The main content of this course is the possible adverse effects of hazards on human health and food trade. Through the study of this course, students can rationally view various food safety hazard factors, master the relationship between hazard factors and food, learn to take corresponding preventive and remedial measures to control the occurrence of food safety accidents, and analyze the risk and risk related factors through risk analysis Number, and risk perception circulate and exchange information and opinions among risk assessors, risk managers, consumers, industry, academia, and other stakeholders to minimize the impact of accidents, so as to be competent for the management and research and development of government regulatory departments and food enterprises in the future.

This course focuses on:

- (1) Risk management category and practice of food safety and health management law
- (2) Knowledge and understanding of specific issues in the process of risk analysis of food safety

incidents.

(3) Consistency and transparency can be promoted when risk management procedures and suggestions are made.

(4) Benefit assessment of risk management decision and communication.

(5) Exchange of information on food risks of related parties.

(6) To promote public understanding of risk communication, so as to enhance public trust in food industries.

In this course, students will also learn how media report food safety issues and their risks and how readers understanding..

(八) 科技農業學士學位學程

實用生活英文：農牧工作也可以很國際(1)(微型課程) 0.5 選 楊慈品

本微型課程旨在分享農業相關領域(科技農業、農園、畜產、食品、農企等)之基礎和專業英文單字，輔以英文字彙學習技巧(發音、字首/字根/字尾等)，期協助本校對農產業有興趣的學生於短期內順利習得至少 200 字農業英文單字。

Useful Agriculture Vocabulary(1) 0.5 E

This course aims to equip students with the basic but useful vocabulary knowledge that will prepare them for careers in the agriculture industry through effective vocabulary learning strategies.

實用生活英文：農牧工作也可以很國際(2)(微型課程) 0.5 選 楊慈品

本微型課程旨在分享農業相關領域(科技農業、農園、畜產、食品、農企等)之基礎和專業英文單字，輔以英文字彙學習技巧(發音、字首/字根/字尾等)，期協助本校對農產業有興趣的學生於短期內順利習得至少 200 字農業英文單字。

Useful Agriculture Vocabulary(2) 0.5 E

This course aims to equip students with the basic but useful vocabulary knowledge that will prepare them for careers in the agriculture industry through effective vocabulary learning strategies.

二、工學院

(一) 車輛工程系：

校外實習(2) 6 選 合授

為促進產學間技術與人才之交流，提升產學合作研發能量，增加學生校外實習機會，並為企業培育未來人才，特開設本課程。修習本課程之學生將在授課教師與指導教授協助之下進入業界以實習工程師進行至多六個月的實習。以其學生在畢業以前能深入了解業界生態，培養就業技能，並增進其職場競爭力。

Internship (2) 6 E Joint Teaching

The objective of the course is to promote the communication between business and school, increase students' opportunities of extracurricular intern and educate future engineers. The students should work as an intern engineer in business under the help and suggestion of advisors in six months at most. We hope the students can comprehend the business environment, incubate their technological talents and improve their competitiveness before their education.

農用電動載具設計 3 選 陳勇全、陳立文、黃馨慧、苗志銘、曾光宏、林資哲

本課程主要在介紹農用電動載具之設計與製作，內容涵蓋載具底盤理論和實務、車架結構設計與分析、焊接技術、載具動力與控制技術、農業生產與管理，以及相關農業技術。並透過已完成的電動載具開發經驗，來輔助說明實際設計及實作之流程。本課程將培養學生了解農用電動載具設計之基本設計原理、開發流程以及分析解決實際問題之能力。

Electric Agricultural Vehicle Design 3 E Y.C. Chen, L.W.Chen, H. H. Huang, J. M. Miao, K. H. Tseng, T. C. Lin

This course introduces mainly on the design and production of electric agricultural vehicles. The topics include vehicle chassis theory and practice, frame structure design and analysis, welding technology, vehicle power and control technology, agricultural production and management, and related agricultural technologies. The development experiences of completed electric vehicles will be employed to assist in explaining the process of the actual design and implementation. The main purpose of this course is to provide the students with the basic design theory of electric agricultural vehicles, development processes, and the ability to analyze and solve a practical problem

(二) 生物機電工程系：

行動通訊技術與應用 3 選 楊正輝

行動通信已成為我們日常活動不可或缺的一部分，並且在未來幾十年中它將繼續影響人類的生活方式。本課程之教學目標在促進學生瞭解行動通訊技術相關的基本知識，技術，系統結構，及實務應用實現。課程內容包括簡介、全球行動通訊系統、無線傳輸、媒體存取控制、電信系統、無線網路、通用分組無線服務、通用移動電信服務、長期演進標準、第五代行動通訊、實際應用設計及發展。

Mobile Communication Technologies and Applications 3 E Yang Cheng-Hue

Mobile communication has become an integral part of our daily activities and it will continue to

influence the life style of the human being in the next decades. The teaching objective of this course is to promote students to understand the basic knowledge related to mobile communication, technologies, system structures, and practical applications. Course content includes introduction, GSM (Global System for Mobile Communications), wireless transmission, medium access control, telecommunication system, wireless networks, GPRS (General Packet Radio Services), UMTS (Universal Mobile Telecommunications Service), LTE (Long-term Evolution), fifth generation mobile communication, practical applications design and development.

太陽能光電技術

3 選

陳建興

本課程介紹太陽能光電的基礎知識，包括太陽能電池和太陽能電池元件的原理、結構、生產技術及模擬方法。以主動學習方式，強化學生對太陽能光電技術的應用能力。

Energy and Photovoltaic Technology

3 E

C. H. Chen

This course provides an introduction to energy and photovoltaic technology, including the principle, structure, production technology and simulation method of solar cells and solar cell components. With technology-enabled active learning methods, students' ability to energy and photovoltaic technology and application is enhanced.

三、 管理學院

(一)工業管理系：

智慧代理人在物聯網的應用

3 選

林勢敏

在物聯網裡，邊緣運算扮演越來越重要的角色。邊緣運算為分散式運算架構，邊緣主機透過機器對機器的通訊，對所收集的資料執行初步分析與決策，用以維護隱私、降低網路負載，減輕雲端伺服器的工作負荷，同時加速大數據分析。智慧代理人具備分散智能及交互溝通能力，並且能被賦予執行特定任務的自主行為，是實現邊緣智慧化的最佳工具。本課程將包含以下內容：

- (1)物聯網的運算環境與實例。
- (2)物件導向的多型、抽象類別與介面、多執行緒及遠端方法呼叫。
- (3)代理人的應用
- (4)IEEE 的 FIPA 標準。
- (5)JADE 平台。
- (6)代理人的溝通語言。
- (7)代理人的行為種類及行為賦予。
- (8)代理人的註冊、找尋與運行。
- (9)代理人的實作。
- (10)智慧代理人在工業物聯網應用的最新趨勢。

The Application of Intelligent Agents in IoT

3 E

Shyh-ming Lin

IoT is receiving more and more demands for edge computing. Edge computing is a distributed computing framework, in which edge machines can protect their data privacy and interact with others through their machine-to-machine (M2M) communication abilities. With the interactions, they can then preliminarily analyze their collected data and accordingly make initial decisions. Consequently, edge computing eases the workload of cloud servers and accelerate big data analytics. Intelligent agents possess the abilities of distributed intelligence, mutual communication, and autonomous behaviors to execute their given duties. They are the best tools to develop edge intelligence.

This course will cover the following contents.

- (1)The computing environment of IoT and their application instances.
- (2)Polymorphism, Abstract class, Interface, Multithread, and Remote Method Invocation (RMI) of OOP.
- (3)Application of intelligent agents.
- (4)Foundation of Intelligent Physical Agents (FIPA) standards accepted by IEEE.
- (5)Java Agent DEvelopment framework (JADE) platform.
- (6)Agents' Communicative Language (ACL).
- (7)Agents' behaviors and behavior modeling.
- (8)Agents' registration, search, and operation.
- (9)Implementation of Intelligent agents.
- (10)The newest application trends of intelligent agents in IoT.

雲端服務應用軟體開發

3 選

林勢敏

雲端服務應用軟體是指透過網際網路上的雲伺服器提供服務的應用軟體，在網際網路技術成熟與普及的現在，相關技術已成為資訊系統開發的主流。邁入物聯網時代，雲端服務應用軟體對於內容與運算服務的提供仍將繼續扮演舉足輕重的角色。

物聯網(Internet of Things, IoT)是大數據時代最重要的資料來源,也是各個產業在導入智慧型產業策略時所必備的資訊科技,本課程介紹物聯網的基本原理及運作架構,並說明物聯網的應用場域及方法,期使修課學生瞭解物聯網技術的基礎原理並具備實作能力,可將物聯網技術應用於解決特定產業的問題。本課程內容將包括物聯網概念、物聯網感知層技術、物聯網網路層技術、物聯網應用層技術,及物聯網整合應用實例,提供學生完整的物聯網技術基礎知識及實作能力。

The Fundamentals and Implementation of IoT 3 E

The Internet of Things (IoT) is the most important source of data in the era of big data, and it is also the essential information technology for industries to introduce smart industry strategies. This course introduces the fundamental knowledge and architecture of IoT, and explains the application fields and methods of IoT. In this course, students will understand the fundamental knowledge of IoT technology and have the implementing ability to apply IoT technology to solve problems in specific industries. The course content covers the fundamentals of IoT, the perception layer of IoT, the network layer of IoT, the application layer of IoT, and the IoT integration applications. It provides students with complete fundamental knowledge of IoT and implementing abilities..

大數據分析與人工智慧 3 選

大數據分析與人工智慧是現代企業競爭力的重要來源,大數據分析能夠協助企業從龐大的資料來源中萃取出有價值的資訊,而其資料萃取技術與人工智慧中的機器學習息息相關,本課程介紹大數據分析與人工智慧的基本概念及實作方法,透過相關程式撰寫藉以訓練學生能夠瞭解技術核心。本課程內容涵蓋資料科學、資料探勘、大數據分析、機器學習與人工智慧等相關技術概念,以各種常用的資料分析模型為課程核心,教導學生相關演算法及實作方法,協助學生能夠利用相關技術解決實務上的問題。

Big Data Analysis and Artificial Intelligence 3 E

Big Data Analysis (BDA) and Artificial Intelligence (AI) technologies are important sources of competitiveness for modern enterprises. BDA can help enterprises extract valuable information from huge data sources, and the data extraction technology is closely related to machine learning in AI. This course introduces the basic concepts and implementation methods of BDA and AI, and trains students to understand relevant technologies through relevant programming. The course content covers data science, data mining, BDA, machine learning, and AI applications. It introduces various commonly used data analysis models and teaches students related algorithms and implementation methods. The course will help students to apply relevant technologies to solve practical problems.

AI 跨領域實作專題 (1 學分微型課程) 1 選

本課程強調跨領域的人工智慧應用實作,教導學生將人工智慧技術應用在特定領域問題的解決之上,課程將以實作專案的方式進行,學生以分組的方式配合問題導向學習教學法引導學生思考特定領域的問題,透過實作的方式,以人工智慧技術提出跨領域解決方案。

AI Cross-domain Implementation Project 1 E

This course emphasizes the application of Artificial Intelligence (AI) technologies on cross-domain problems, and how to apply AI technologies to solve problems in specific domain. The course will be conducted in the way of implementing a project, and students will be guided by the problem-based learning (PBL) method in groups. Students think about problems in a specific domain, and apply AI technologies to propose cross-domain solutions through practical methods.

(三)財務金融國際學士學位學程**租稅與財產移轉規劃 1 選**

本課程目的在於—

- (1)介紹所得稅的基本理論與概念，並進一步使學生瞭解所得稅課徵制度
- (2)使學生具備租稅申報實務與節稅技能
- (3)使學生具備從事投資理財稅務規劃相關工作之專業及敬業態度

租稅規劃，旨在節省家庭或個人的稅負，節稅技巧的應用與節稅策略的擬定必須建立在稅法基礎上。因此，本課程先介紹租稅法的基本概念及租稅制度等，再針對實體規定（租稅主體、租稅客體、減免規定及稅率結構等項）、程序規定、行政救濟及罰則等做深入淺出的介紹，最後再說明節稅技巧的應用及節稅策略的擬定。

Tax and Estate Planning 1 E

The purpose of this course is-

- (1) Introduce the basic theory and concept of income tax, and further enable students to understand the income tax levy system
- (2) To equip students with Filing of Tax Returns and tax saving skills
- (3) To equip students with profession in investment, finance and tax planning related work

Tax planning is aimed at saving the tax burden of individuals or families. The skills and strategies of tax-saving must be based on tax laws. Therefore, this course first introduces the basic concepts of the tax law and the tax system, etc., and then makes an in-depth introduction to the entity regulations (tax subject, tax object, reduction and exemption regulations and tax rate structure, etc.), procedural regulations, administrative relief and penalties, etc. Finally, the course will explain the skills and strategies of tax-saving.

(四)企業管理系：**專利資訊與競爭情報分析 3 選 薛招治**

本課程目的在使學生了解專利技術數據分析的基礎概念與各國專利資料庫應用，以掌握企業內外部研發能量，透過專利資訊的運用與資料檢索標準流程及模式的建立，進行有效的技術探勘與競爭者研發方向評估，提供企業建立技術策略布局之預測模式，有助於企業在技術與產品開發策略前瞻式研擬，進而達到有效經營。

本課程實務理論並重，在分析模組上將說明專利資訊在商管領域的應用，其中包含產業技術發展分析(整體產業技術趨勢分析)、技術/產品特徵分析(技術功效矩陣)、競爭者情報分析(專利權人分析)及市場商品化可行性分析(相似技術/產品比較分析)等企業商業管理應用。並搭配問題導向式的教學模式，以上機實作方式進行特定技術主題進行各國專利實際數據分析，進行各式新興技術及企業動態分析之資料探勘，以熟悉專利資訊的商業競爭情報應用及專利分析報告的撰寫練習。

Patent Information and Competitive Intelligence Analysis 3 E Hsueh, Chao-Chih

The purpose of this course is to introduce the basic concepts of patent data and how to use patent data in analyzing the internal and external R&D portfolio in the firm level. The teaching procedures include the establishment of standard data retrieval mode, technical exploration and competitor's R&D map evaluation, technology forecasting model and establishment of technology strategy. The results of patent analysis will help companies to plan technology and product map. This course emphasizes both practice and theoretical issue. The analysis modules will explain the application of patent information in

the field of business management, which includes technology development analysis in the industry level (integrated industry technology trend analysis), technology/product feature analysis (technology-function/product matrix), competitor intelligence analysis (patentee analysis), market commercialization analysis (similar technology/product comparison analysis) and other business management application. Based on the problem-oriented teaching model, students analyze the actual patent data of the specific technical topic from different database of various countries. Students could be familiar with patent information, business competition intelligence applications and patents analysis report writing from data exploration in emerging technologies and enterprise dynamics analysis.

資料探勘的商業應用

3 選

廖世義

本課程目的在使學生了解商業數據分析的資料探勘概念與實務應用，透過跨產業資料探勘標準流程與模式的建立，進行有效的模式效能評估，提供即時的商業分析以支援精準的目標行銷，有助於大數據營運的有效經營。本課程實務與理論並重，學理部分將說明資料探勘技術在商管領域的常用的演算法，包括監督式學習與非監督式學習兩方面，監督式學習包含：分類、推估與預測，非監督式學習則包含 K-Means 集群、關聯與順序，分類決策樹(ID3、C5、CART、隨機森林)、類神經網路、支援向量機 SVM，推估的演算法包含關聯法則、類神經網路(ANN)、線性迴歸、分類迴歸樹(CART)。預測分析包含迴歸、ANN、時間序列分析、指數平滑法。非監督式學習包括集群分析、階層基礎的凝聚式和分裂式，關聯法則包含 Apriori 與 FP-trees 演算法，順序法則包含有時間及順序分析。實際案例將使用 SPSS Modeler 軟體上機操作練習，包含購物籃分析、分群技術、決策樹演算法、鑑別分析、資料預測與羅吉斯迴歸、文字探勘與網頁探勘，並以解決實務問題為導向方式進行教學。

Data Mining in Business

3 E

Liaw, Shu-Yi

This course aims to enable students to understand the concept and practical applications of data exploration for business data analysis and guide them in Problem-Based Learning. Through the establishment of cross-industry data exploration standard process and model, carrying out effective model evaluation, providing real-time business analysis to support accurate marketing targets, and help the effective use of big data. Both theory and practice are important; the latter will explain the applications of data technologies in the field of commercial management and data exploration algorithm. The course will be divided into two sections: Supervised learning and Unsupervised learning. The first one includes: classification, estimation and prediction while the second is divided into clusters, associations and sequences. For classification problems, there are decision trees (ID3, C5, CART, Random Forest), artificial neural networks (ANN), and support vector machine (SVMs). Association rules, ANN, linear regression, classification regression tree (CART) can be used for estimation problems. Regression analysis, artificial neural network (ANN), time series analysis, Exponential Smoothing (ES) can be used for prediction tasks. In unsupervised learning, K-Means, hierarchical methods agglomerative and divisive are used in cluster analysis. Apriori and FP-trees algorithms are used in extraction rules, and time series analysis and sequential analysis are used in sequences. SPSS Modeler on-the-go be used to handle the practical aspects of case study including basket analysis, clustering technology, decision tree algorithm, discrimination analysis, data prediction and logistic regression, text mining and web mining. Problem-Based Learning guides the teaching method, combining theory and practice...

(五)農企業管理系：

貿易英文實務(微型課程)

0.5 選

a.提升學生對於貿易英文的能力; b.介紹並使同學熟悉貿易英文單字; c.使同學能實際撰寫農產貿易英文信件。

English for International Trade practice 0.5 E

a. To strengthen students' English ability in international trade; b. To introduce English vocabulary and usages of international trade through which to let students familiarize all these; c. To let students practice how to write English letters in the international trade environment, e.g., exploration, follow-up.

四、人文暨社會科學院

(一)幼兒保育系：

3D 列印教具設計專題研究

3 選

許衷源

本課程旨在教導學生如何設計 3D 教具。課程首先將介紹 3D 列印的由來、技術特點、工藝原理、發展現況。接著，安排一系列的教具設計要領、3D 建模軟體的實作與 3D 列印的輸出練習單元。從 3D 模型設計與切片至到 3D 列印機操作及相關故障排除。課程最後將規劃教具設計的期末專題，讓學生自行設計教具並利用 3D 列印輸出作品，從中運用 3D 列印提昇創新能力與解決問題能力。

Instructional materials design and 3D printing

3 E

Chung-Yuan Hsu

The purpose of this course is to teach students how to design instructional materials by using 3D printer. The course first introduces the origin, characteristics, application of 3D printing technology, and then arrange a series of courses for teaching 3D modelling, instructional materials design, 3D models slicing, 3D printing and ways of trouble-shooting. The final project of this course is required the students to design their instructional materials on their own and export their product. Students may not only enhance their creativity but also increase their problem-solving skills.

繪本與教學專題研究

3 選

楊璧瑋

藉由賞析、導讀與討論，釐清繪本的概念，深化學生文本閱讀與圖像分析能力，培養繪本批判思考所需的敏銳度；同時透過與實務現場的連結，增強學生從事繪本推廣和教學應用的相關能力。

Seminar in Picture books and teaching application

3 E

Pi-Hun Yang

Through appreciation, guided-reading and discussion, this course aims to clarify the concepts of picture books, deepen students' text reading and illustration analysis skills, and cultivate literature critique abilities. Moreover, through the connection with the practical fields, this course improves students' abilities of promoting picture books reading and applying picture books to their daily teaching

家庭與托育專題研究

3 選

楊璧瑋

本課程旨在引導學生瞭解家庭與托育的相關趨勢。課程透過政策討論、介紹實務托育模式與研讀近期相關研究，來協助學生建立較完整的家庭與托育圖像。課程依據台灣對兒童托育的年段做分齡：0-2 歲、2-6 歲、學齡兒童課後照顧三個托育階段，討論家庭的需求及政府的照顧政策，最後並研讀其他國家的家庭與托育政策，期能幫助學生從中思考自己未來的研究方向與生涯規畫。

Seminar in Family and Child Care Services

3 E

Pi-Hun Yang

This course aims to guide students to understand family and childcare trend. Through policies discussions, introduction to practical childcare models, and recent relevant researches, students could better understand family and childcare services. The course consists of 3 domains: 0-2-year-old children's care, 2-6-year-old children's education, and elementary school children's after-school care. The discussions encompass family needs, government childcare policies, and examples of other countries. It helps students to develop their future research topics and career development

嬰幼兒健康照護實務**3 選****張富萍**

本課程以培養學生熟悉嬰幼兒健康照護實務工作內容為導向，透過課堂講授、技能示範操作、以及實際輔導方式，讓學生習得有關嬰幼兒在清潔、遊戲、調製、以及安全等四方面之健康照護技能。

Skills for Infant and Toddler Care**3 E****Fu-Ping Chang**

The objectives of the course are to help students foster their knowledge, skills, and attitudes in caring young children. Specifically, They will be trained to professional caregivers who are skillful in safety and first aid, playing and learning, preparing baby's food and feeding, and bathing and brushing/flossing toddler's teeth.

(二)應用外語系:**素養導向課程設計專題****3 選****張美美**

因應 108 課程啟動，本課程依據 108 課綱之理念，設計素養導向課程，以培養學生能夠具備核心素養為目標。內容包含強化各教育階段、課程總綱與領域/科目之間的連貫，以及各領域/科目彼此之間的統整。強調結合情境化脈絡化的學習、強調實踐力行的表現、整合知識技能與態度、以及注重學習歷程、方法及策略。

Competency-based Instructional Design**3 E**

The goal of this class is to introduce concepts and principles regarding the Curriculum Guidelines of the 12-Year Basic Education and core competencies. Students are expected to learn to design curriculum/courses based on the new concepts and principles, including raising students' thirst for ensure continuity between educational stages, bridging between domains, and integration between subjects

(三)客家文化產業研究所:**文化資產與保存研究****3 選**

因為當前產業消失的速度極快，本課程將從文化保存觀念談起，再探討新舊文化資產保存法的政策面與架構面，並闡釋其保存的內涵與趨勢，讓學生了解文化資產保存的脈絡與建立完整性的體系；其次以實際案例認識客家社區文化資產的重要性，以加強推動文化資產保存維護工作。

The Study in innovation of Hakka Cultural Industries**3 E**

Because the speed of present industry's disappearance is extremely quick, this course will speak from keep the idea in culture. And then probing into new or old culture assets and keeping the policy and structure of France, and explain its intension and trend kept. The systems of train of thought and setting-up integrality of letting the graduate student understand culture assets and keep. Secondly realize the importance of the culture assets of Hakkas' community with the real case, promote culture assets to keep the work of safeguarding in order to strengthen.

(四)休閒運動健康系:**團體動力學****2 選****蔡孟芳**

本課程之目的旨在讓學生了解影響團隊動力的因素，除了每堂課程針對影響團體動力的不同因素，進行知識內容的學習與情境案例的小組討論外，學生需依照設計思考五步驟(同理心、需求定義、創意動腦、製作原型、實際測試)，在小組中討論出一個由團體產生待解決的具體問題，並運用團體動力學理論/概念，設計出創新的產品/服務方案。透過本課程，學生能夠學習團體動力學知識，及培養團隊合作、資訊收集分析應用、問題解決、高層次思考、創新等能力。

Group Dynamics

2 E

The purpose of this course is to help students understand the influential factors of group dynamics. Students can learn theories/concepts related to group dynamics by lectures and apply the learned knowledge by group discussions of case scenarios. In addition, students need to follow the five procedures of design thinking (empathize, define, ideate, prototype, test) to discuss a concrete problem in their small group and design innovative products/service solutions by applying the theories/concepts in group dynamics. In this course, students can obtain knowledge in group dynamics and develop competence in teamwork, information collection, analysis and application, higher-order thinking, problem-solving and innovation..

傳閱附件 1-5--本校各學院所屬各系(所)課程中英文摘要-國際學院

五、國際學院

(一)熱帶農業暨國際合作系：

利用字根字首擴展生物英文詞彙(微型課程) 0.5 選 張珮君

專業英語詞彙中常用的字首與字尾，配合舉例與課堂活動，培養學生對專業名詞的敏銳度並熟悉專業字彙的組成，進而在遇到新的字彙時能運用已知字根字首推斷詞彙意義，減少死記背誦的學習負擔。本課程整理生物專業英語詞彙中常用的字首與字尾，配合舉例與課堂活動，培養學生對專業名詞的敏銳度並熟悉專業字彙的組成，進而在遇到新的字彙時能運用已知字根字首推斷詞彙意義，減少死記背誦的學習負擔。

Advancing Biology Vocabulary by Word Roots 0.5 E

This course organizes the prefixes and suffixes commonly used in biological English vocabulary. With examples and classroom activities, students get familiarized with the composition of academic wording styles and in turn gradually acquire the ability to infer the connotation of new vocabulary. The skills learned in this course would greatly reduce the need of memorization.

(二)食品科學國際碩士學位學程：

食品質地與流變學 2 選 高莫森

食材質地與流變學屬於跨領域的科學，包含許多食品科學與技術領域的探討，食材質地與流變學是很重要的變數，它影響消費者對食品的接受度；除此之外，這些變數也被運用在製程設計與單元操作。了解食材質地與流變學相關的觀念、儀器與分析方法，對從事科學探討及在產業界生產高品質食品的人都是非常重要的。

Food Texture and Rheology 2 E Mosen Gao

Food texture and rheology are multidisciplinary research areas consist of several fields of studies including food science and technology. Food texture and rheology are considered important parameters that affect consumer acceptance. Besides, these parameters are considerations in the process design and unit operations. Understanding concepts, instruments, and analyzing methods related to texture and rheology are crucial for conducting scientific studies and for producing high-quality food in the industry.

新興食品加工技術特論與實作 2 選 高莫森

數十年來，許多另類的食品加工技術被提出，以便解決傳統食品加工技術的缺陷，在此領域的研究裡，新觀念、潛在應用及挑戰逐漸衍生，因此有必要提供此領域研究最新可能發展的更新，以引導此熱門議題進一步的探討，並發掘這些新興技術在產業落實的機會。此課程的內容是包含指導學生從事短期進行文獻研讀或實作探討，以完成一篇研究報告，或者邀請特定訪問學者演講。參與本特論的學生探討的主題應該跟學生論文研究不同，且所獲得的學分不應當做其畢業學分。

Emerging Food Processing Technologies: Special Topics and Practice 2 E Mosen Gao

During the past decades, several alternative food processing technologies have been emerged to address the drawbacks of traditional food processing technologies. In this area of research, new concepts,

potential applications, and challenges are evolving. Therefore, it is necessary to be updated about the recent progress in this area of research for conducting further studies on such hot topics and to find an opportunity for industrial implementations of these emerging technologies.

This course aims to a student to work on a relatively short-term library or laboratory project and prepare a final annotated paper, or to elect a specially arranged course of a visiting investigator. Special topics should be work separate from a student's thesis or dissertation research, and credits earned for special topics do not apply towards the research credit requirements for graduation.

(三)動物用疫苗國際學位專班：

生物安全與防疫系統

2 選

鍾曜吉

本課程主要教導學生有關生物安全相關知識，及對應之防疫監控系統之應用，以因應日益嚴峻之新興動物傳染病及國際疫情。課程內容包括介紹實驗室生物安全、牧場生物安全及國家生物安全等基本知識，並藉由近代新興傳染病及國際疫情，探討生物安全相關風險及對應之防疫監控策略。課程中亦深入探討動物防疫、檢疫、檢驗效能及疫苗研發等議題，俾使學生接軌國際防疫領域之新知。

Biosecurity and Epidemic Prevention System 2 E

Yao-Chi Chung

This course mainly teaches students about biosafety related knowledge and application of epidemic prevention monitoring system to cope with emerging animal infectious diseases and international epidemics. The content of the course includes the introduction of basic knowledge of laboratory biosecurity, pasture biosecurity and national biosecurity, and discusses biosafety related risks and corresponding epidemic prevention monitoring strategies through modern emerging infectious diseases and international epidemics. The course also conducts in-depth discussions on animal epidemic prevention, quarantine, inspection efficacy and vaccine development, so that students can have a deeper understanding of this field.

儀器分析與操作

2 選

吳幸潔

本課程主要教授生物製品檢驗分析時常用儀器的基本原理及操作應用，並搭配實際操作，讓學生由實驗過程中加深對分析儀器的了解，進而具備操作及分析能力。

Instrumental analysis and operation 2 E

Hsing-Chieh Wu

This course focus on basic principles and operating applications of instruments commonly used in the inspection and analysis of biological products. Moreover, this course will combine with practical operations, so that help students deepen their understanding of analytical instruments during the experiment process, and increase ability to operate and analyze.

進階生物技術與生技產業

3 選

朱純燕

本課程旨在加強生物技術之理論及應用之鏈結，範圍涵蓋基因工程技術、蛋白質工程技術、生技產業之發展等三大領域之多元學習，培養生物技術相關人才為目的。

Advance Biotechnology and Bioindustry 3 E

C.Y. Chu

This class is going to train students to understand the concept of biotechnology and their applications. The curriculum will emphasize three major areas, including genetic engineering, protein engineering and industrial applications. The purpose is to cultivate biotechnology-related talents

生物性佐劑

2 選

鄭力廷

生物性佐劑可刺激免疫系統進而加強疫苗功效。生物性分子可活化先天性免疫之偵測系統，或刺激免疫系統之訊息傳遞而促進疫苗功效。本課程討論免疫系統之刺激標的與現有生物性分子之使用與研究。

Biological Adjuvants

2 E

L.T. Cheng

Biological adjuvants can enhance vaccine efficacy by interacting with the immune system. More specifically, biological molecules can interact with the pathogen recognition system of the innate immune system, or participate in the signaling pathways of the immune system. This class covers the important targets of the immune system and reviews biological adjuvants currently under research.

傳閱附件 1-6--本校各學院所屬各系(所)課程中英文摘要-獸醫學院

六、獸醫學院

新興動物傳染病與人類健康

2 必

近年來國內禽流感、狂犬病、口蹄疫、非洲豬瘟、牛結節疹等重大經濟動物和野生動物相關傳染病議題，均引起政府與產業界高度重視，病原可藉由動物為宿主產生不可預知之變異性與致病性，整合和強調動物、人類與環境之健康的概念和互相依存的關係為疾病防疫的重點。學生修習本課程時將可就疾病的流行病學、人與動物疾病傳播模式、傳染的機制、自然宿主與媒介、診斷與預防，以及可降低對人類健康的威脅與衝擊性等替代方法的知識做深入的探討和瞭解。學生也需就各主題蒐集研讀最新的文獻資料和作專題報告。

Emerging Animal Infectious Diseases and Human Health

2 R

In recent years, avian influenza, rabies, foot-and-mouth disease, African swine fever, Lumpy skin disease and other important food animal- and wildlife-related infectious diseases have attracted great attention from the government and industry. The pathogen can use animals as the host to produce unpredictable mutations and pathogenicity. Integrating and emphasizing the health concepts and interdependence of animal, human and environment is the focus of disease prevention. When taking this course, students will be able to study the epidemiology of the disease, the transmission mode of human and animal diseases, the mechanism of infection, natural hosts and vectors, diagnosis and prevention, and in-depth discussion and understanding of the knowledge of alternative methods that can reduce the threat and impact to human health. Students also need to collect and study the latest literature and make special reports on some topics.

(一)獸醫學系：

小動物電腦斷層學特論(1)

3 選

本課程教授電腦斷層掃描之原理與實際應用，學習動物擺位、拍攝、造影技術及影像後製處理等操作原理。課程目的為訓練學生能獨立判讀診斷，並實際利用在小動物之臨床診療上。

Advanced Small Animal Computed Tomography(A) 3 E

This course teaches the principles and applications of computed tomography. The positioning, photographing, contrast technique and post image processing would be studied. The contents of this course will be emphasized on the training of students in independently interpretation and application in small animal clinical practice.

小動物電腦斷層學特論(2)

3 選

本課程教授電腦斷層掃描之原理與實際應用，學習動物擺位、拍攝、造影技術及影像後製處理等操作原理。課程目的為訓練學生能獨立判讀診斷，並實際利用在小動物之臨床診療上。

Advanced Small Animal Computed Tomography(B) 3 E

This course teaches the principles and applications of computed tomography. The positioning, photographing, contrast technique and post image processing would be studied. The contents of this

course will be emphasized on the training of students in independently interpretation and application in small animal clinical practice.

X光診斷學特論

2 選

在本課程中將詳細介紹 X 光影像的判讀原則，以及常見的異常影像。內容將涵蓋 X 光形成原理、X 光片之處理技術，以及身體各部份的正常及異常 X 光影像，包括腹部、胸腔、骨骼關節、顱骨和脊柱，以及軟組織。

Advanced Veterinary Radiology 2 E

The objective of this course is particularly to introduce the interpretation criteria of radiography and common abnormal images. The contents will include principles of generating X-ray, developing technique of X-ray film, and normal & joint, skull & vertebral column, and soft tissue.

(二)動物疫苗科技研究所

生物反應槽 PIC/S 量產實務

2 選

柯冠銘等合授

生物反應槽量產細胞取代傳統角瓶及滾瓶細胞培養方式可提高細胞生產密度，降低污染機率，減少操作人力及廢棄物，降低生產成本及提升品質。因此生物反應槽是現今疫苗廠、生技廠急需建立的技術，並有非常大的人才需求。

Bioreactor PIC/S Industrial Production Practice 2 E kegm

The industrial production of cells in the bioreactor can replace the traditional corner flask and roller bottle cell culture methods for contributing to increase cell density of amplification, reduce the probability of pollution, diminish operating manpower and waste, decrease costs of production, and improve quality of cell products. Therefore, the bioreactor is a technology urgently needed to be established by vaccine and biotech industry. Thus, there is a very large demand for talents in vaccine-associated industry.

七、 達人學院

行銷設計微學堂新開課程中英文課綱

口語訓練與表達/策展實務(微型課程) 0.3 選 蔡展維

- 1.訓練 Hold 住全場的能力(口語表達/肢體語言)
- 2.強化個人特質吸引目光(I SEE YOU/互動技巧)
- 3.策展概念思考(提案內容邏輯與設計思考/日常觀察的應用延伸)
- 4.演練/模擬上台提案情境(氣勢要先贏/精彩開始掌聲結束)

Oral Training and Expression / Curating Practice 0.3 E C. W. Tsai

1. Interactive Techniques.
2. Oral expression skills
3. How to Become a Curator
4. Interactive Techniques

數位排版與設計(Adobe InDesign)(微型課程) 0.6 選 蔡展維

- 1.軟體介面介紹及工具使用
- 2.InDesign 使用技巧教學
- 3.作品改善檢討暨成果展示

Digital Typesetting and Design (Adobe InDesign) 0.6 E C. W. Tsai

1. The interface in Adobe InDesign software.
2. Tips for creating e-books by using InDesign software.
3. Final presentation.

職能培力微學堂新開課程中英文課綱

時間管理(微型課程) 0.3 選 陳秀足

- 1.建立時間的價值感
- 2.引發時間管理的動力
- 3.時間管理實踐操作
 - 大學年行事曆
 - 月週日時間運用表
 - 艾森豪事件分類表
- 4.建立自己的 TM 系統

Time Management 0.3 E H. T. Chen

1. Build up the value of time.
2. Trigger the intrinsic motivation toward time management.
3. Put into practice.
4. Build up self-management system.

公眾表達藝術(微型課程) 0.3 選 陳秀足

- 1.表達的開始
- 2.說話的邏輯性
- 3.內容聚焦言之有物
- 4.推播優勢與整合想法

5.舉例說明更易接納

Public Expression 0.3 E H. T. Chen

1. How to get started
2. Use logic in oral expression
3. Get to the point
4. Information delivery and idea Integration
5. Persuade your audience by using case

職場人際溝通與衝突管理(微型課程) 0.3 選 陳秀足

- 1.人際發展四大要素
- 2.人際網路與職場溝通
- 3.溝通技巧
- 4.衝突管理

Workplace Communication and Conflict Management 0.3 E H. T. Chen

1. Four elements of interpersonal development
2. Interpersonal network and workplace communication
3. Communication skills
4. Conflict management

國際職涯規劃力(微型課程) 0.3 選 陳秀足

- 1.專業人才的履歷撰寫架構
- 2.跨國際的職能學習與人才培育
- 3.職涯學習藍圖

International Perspective Cultivation and Career Blueprint Creation

0.3 E H. T. Chen

1. Introduction of professional resume framework.
2. Transnational competency learning and talent training.
3. Career learning blueprint.

用色彩認識自我風格(微型課程) 0.3 選 陳秀足

- 1.色彩與人際風格
- 2.色彩轉換與溝通思維
- 3.色彩在工作專業的應用

Know Yourself by Using Color 0.3 E H. T. Chen

1. Color and social style.
2. Color transition and communication mindset.
3. Color application in work specialty.

App Service 擷取清洗大數據(微型課程) 0.5 選 陳永祥

在本實踐課程中，我們將學習使用如何使用 ASP.NET MVC Web 應用程式存取 SQL Server 結構化資料與 XML、JSON、CSV 或文字檔等非結構化資料，同整合開放資料，將資料整理成有用的資訊，最後整合 Bootstrap 套件製作成圖文並茂的網頁，並設計成支援手機、平板與桌機使用的響應式網站。最後部署在 Azure Web Sites 建置成雲端網站，提供使用者瀏覽查詢使用。

Azure Service Captures Cleansing Big Data 0.5 E Y. H. Chen

In this practical course, we will learn how to use ASP.NET MVC web applications to access SQL Server structured data and unstructured data such as XML, JSON, CSV, or text files, and integrate open data to organize data Useful information, and finally integrated the Bootstrap package to create a graphic web page, and designed to support mobile, tablet and desktop responsive websites. Finally, it is deployed in

Azure Web Sites to build a cloud website to provide users with browsing queries.

AI 電腦視覺辨識與大數據結合(微型課程) 0.5 選 陳永祥

在本實踐課程中，了解學習微軟認知服務介紹及 Azure 帳號申請，並教導 AI 電腦視覺辨識-Computer Vision 光學字元辨識 (OCR)與筆跡辨識器。在視覺化部份，學習人臉辨識服務、人臉辨識情感、AI 自訂視覺。同時利用 AI 電腦辨識，整合行動裝置，了解將行動裝置如何應用 AI 電腦辨識。最後搭配產合應用：製作整合雲端網站 ASP.NET MVC、行動網站，AI 電腦辨識與分析數據的專題。

Combination of AI Computer Vision Recognition and Big Data

0.5 E Y. H. Chen

In this hands-on course, learn about Microsoft Cognitive Services introduction and Azure account application, and teach AI computer vision recognition-Computer Vision Optical Character Recognition (OCR) and handwriting recognizer. In the visual part, learn face recognition services, facial recognition emotions, and AI-defined vision. At the same time, AI computer identification is used to integrate mobile devices to understand how AI devices are used for mobile device identification. Finally, it is matched with the production and application: the integration of ASP.NET MVC cloud website, mobile website, AI computer identification and analysis of data.

工業現場就業準備(1)法規及證照(微型課程) 1 選 洪宗乾

本課程主要介紹各種工業現場需要注意的政府法規及證照，包括粉塵作業、移動式起重機、職業安全衛生、勞動法規、廢棄物與資源循環及室內品質改善等。

Preparation of Employment to Industrial Sites (1) Regulations and Licenses

1 E T. C. Hung

This course mainly introduces government regulations and certificates that need attention in various industrial sites, including dust operations, heavy equipment for mobile devices, occupational safety and health, labor regulations, prefusion and resource circulation, indoor quality improvement, etc.

創新創業微學堂新開課程中英文課綱

AR(擴增實境)/VR(虛擬實境)應用及實作(微型課程) 0.6 選 鍾智超

- 1.Unity 3D 遊戲開發工具介紹與操作
- 2.3D 互動場景設計
- 3.VR Cardboard 虛擬實境技術之開發
4. AR 擴增實境技術之開發

AR / VR Application and Implementation 0.6 E C. C. Chung

1. Introduction and operation of Unity 3D game development tools
2. 3D interactive scene design
3. Development of VR Cardboard Technology
4. Development of AR technology

銷售及顧客互動關係(微型課程) 0.3 選 鍾智超

- 1.口條練習與人際溝通
- 2.社交禮儀與應對練習
- 3.銷售表達及互動技巧

Sales and Customer Interactions 0.3 E C. C. Chung

1. Oral practicing and communicating.
2. To develop the social skill and behavior.
3. Sales expression and interaction skills

創業基本實作(微型課程) 0.3 選 鍾智超

1. 創業家學習經驗分享
2. 拼布設計與實作體驗
3. 機構組合與木工製作體驗

Entrepreneurship Basic Practice Course 0.3 E C. C. Chung

1. Sharing of entrepreneurial learning experiences
2. Patchwork design and implementation experience
3. Institutional combination and woodworking experience

微型創業實作(微型課程) 0.7 選 顏嘉宏

本課程將以 Product (or Service)-based learning (產品或服務學習導向)的互動教學模式，運用十大創意創新工具的演練，引導修課的屏科大師生將自己的微型創業產品(或服務)具體化並優化；同時，在屏科大校內(或屏東縣內)建立一個商業活動實作場域，讓修課的屏科大師生可以直接面對消費者，持續進行 Plan-Do-Check-Action (PDCA)的滾動式強化。

Micro-Entrepreneurship Implement 0.7 E C. H. Yen

In this course, we will use the product (or service)-based learning model and practice the “Ten Creative and Innovative Tools” for optimization of students’ or teachers’ prototype. Additionally, we want to create a “micro- entrepreneurship implement place” for students or teachers facing the customers, collecting the opinions, performing the Plan-Do-Check-Action (PDCA) improvement.

創業基礎與實務(微型課程) 0.3 選 鍾智超

1. 創新與創業精神
2. 創業機會探索與商業模式建構
3. 創業團隊與資源整合
4. 初創企業的設立與借力

Foundation and Practice of Entrepreneurship 0.3 E C. C. Chung

1. Innovation and entrepreneurship
2. Exploration of entrepreneurial opportunities and construction of business models
3. Entrepreneurship team and resource integration
4. Establishment and leverage of startups

智財與財務基礎概念培養(微型課程) 0.3 選 鍾智超

1. 創業初期財務規劃與資金管理
2. 公司營運記帳模式
3. 商標與專利智慧財產權於產品保護之應用

Intellectual Property and Financial Foundation Concept Training

0.3 E C. C. Chung

1. Financial planning and fund management in the early stage of entrepreneurship
2. Company operation accounting model
3. Application of trademark and patent intellectual property rights in product protection

創新與創業實務(微型課程) 0.5 選 邱秋霞、郭嘉信

本課程帶給學生實作演練的機會，與有經驗企業創業者直接接觸學習的機會。做中學，跟不同背景的人學習，理論與實務的驗證與應用。

Innovation and Practical Entrepreneurship 0.5 E C. S. Chiu, J. H. Guo

This course may let students learning from practicing and learning from different education background

Implementing what they learn from book.

產業增能微學堂新開課程中英文課綱

全興講座(1)(微型課程) 1 選 曾美珍

本課程提供學生學習全球水產產業概況及產業未來的發展趨勢。進行國外產業介紹、南向經驗與產業願景分享。從飼料原料採購、整合供應鏈到永續經營進行健康養殖的實務經驗傳承。

Grobest Lecture(1) 1 E M. C. Tseng

This course provides students with an overview of the global aquaculture industry and the future of the industry. Conduct foreign industry introduction, southward experience and industry vision sharing. From the procurement of feed ingredients, the integration of the supply chain to the sustainable management of the practical experience of healthy farming.

全興講座(2)(微型課程) 1 選 曾美珍

學習水產養殖飼料產業的重要性及了解目前產業的人力需求，並提升學生進入產業的能力。課程內容著重於明瞭飼料業產業在水產養殖產業鏈中所扮演的角色與定位，現今及未來的飼料研發方向及現場實務經驗傳承等。

Grobest Lecture(2) 1 E M. C. Tseng

Learning the importance of the aquaculture feed industry and understand the current manpower needs of the industry and enhance students' ability to immerse the industry. The content of the course focuses on the role and positioning of the feed industry in the aquaculture industry chain, the current and future feed research and development directions and on-site practical experience.

茶葉產業達人(微型課程) 1 選 賴宏亮

本課程主要內容在敘述茶之栽培、管理、收穫、製茶製程技術、沖泡方法、感官品評、用途及多元化產品開發等。

Introduction to Tea Industry 1 E H. L. Lai

The main contents of this course will describe the culture and management, harvest, manufacture process of tea making, brewing method, sensory evaluation, usage and development of diversified products from tea.

新食材漢堡達人(微型課程) 1 選 張慧珍、趙偉廷、范慧華

本課程透過安心食品(摩斯漢堡)以日本職人的精神與西方科學化餐飲的能力，以行動學習，教授學生食材來源履歷、食品安全的知識，及結合新食材進行創新速食餐點的開發實務，為餐飲界培育優質餐點創新開發人才。

Hamburger Innovation 1 E H. C. Chang, W. T. Chao, H. H. Fan

This course using know-how of Anxin Food (Mos Burger) the spirit of Japanese expert and food preparation skill with Western cooking science to teach students knowledge about traceable agricultural products (TAP), food safety, also using new ingredients to develop and innovate fast food by action learning. in order to cultivate high-quality cuisine innovation and development talents for the hospitality industry.

英國飯店管家達人(1)(微型課程) 1 選 賴佩均、張慧珍

英式飯店管家是國際間最具權威的管家服務系統，歷經數百年的服務理念與技能傳承，飯店管家的特色以恰到好處的服務，提供賓客舒適與難忘的服務體驗，結合餐飲專業理念介紹與飯店現場實作演練達到完美英國飯店管家服務訓練的結合。

UK Butler Service Course(1) 1 E P. C. Lai, H. C. Chang

The English-style hotel butler is the most authoritative butler service system in the world. After hundreds of years of service concept and skill, the hotel butler features the perfect service, providing guests with comfortable and memorable service experience. This course combine professional concept of hospitality industry and actual practices to achieve the training of butler service in the British hotel.

健身產業經營達人面面觀(微型課程) 0.5 選 蘇蕙芬

本課程主要內容：1.首先帶領同學了解台灣健身產業的發展歷程，進而分析目前產業競爭現況。2.接著引導同學認識健身房經營的兩大議題：「法律」與「財務」，並掌握其中關鍵經營因素。3.最後為同學分析健身房經營的未來發展趨勢與關鍵成功因素。此外，搭配個案研討豐富課程內容，讓同學更有興趣學習且能融會貫通。

The Overview of Fitness Industry Management 0.5 E H. F. Su

The main content of this course: 1. First of all, guiding students to understand the development of Taiwan's fitness industry, and then analyze the current status of industry competition. 2. Then guiding students to understand the two major issues of fitness business operation: "Law" and "Finance", and grasp the key operating factors. 3. Finally, analyzing the future trends and key success factors of fitness business management.

課輔教師認證課程(1)(微型課程) 0.6 選 吳雅玲

補救教學之理論與實務

Curriculum of Afterschool Teacher Certificate(1) 0.6 E Y. L. Wu

Theories and practices of remedial teaching

課輔教師認證課程(2)(微型課程) 1 選 吳雅玲

1.國語課程與教學

2.數學課程與教學

Curriculum of Afterschool Teacher Certificate(2) 1 E Y. L. Wu

1. Curriculum and teaching of Chinese

2. Curriculum and teaching of Math

大師開講新開課程中英文課綱

外交實務概論(微型課程) 0.2 選 邱秋霞

本課程探究複雜的外交實務現象以提升我們對日常生活的瞭解。本課程為學生提供外交體系與領域的基礎知識。課程將從外交官員的角度討論許多國家的政治和經濟狀況。本課程旨在培養學生對外交事務的興趣、增強他們對國際外交發展的基礎認識、提高學生對國家間外交關係重要性的認識。

Introduction to Diplomatic Affairs 0.2 E C. S. Chiu

This course discusses the complicated phenomena of diplomatic affairs and promotes the understanding of our daily lives. This course provides students with fundamental knowledge of the diplomatic world. Politics and economy statuses of many countries will be discussed from diplomats' point of view. This course aims to foster students' interest in understanding international affairs; to enhance their perception over the development of diplomatic relationship among countries; and to raise students' awareness of the importance of diplomatic relations among countries

傳閱附件 2---109 學年度第 1 學期教師申請開授通識課程

109 學年度第 1 學期教師申請開授通識課程中英文課程大綱

1. 2. 西方文學賞析 Appreciation of Western Literature

本課程介紹西方文學文類，並進一步培養學生賞析文學的能力。課程目標是增進學生詮釋文本的閱讀能力，同時亦提升字彙量與閱讀技巧。這門課程涵蓋文學的各項主要文類，包括小說、散文、詩和戲劇。學生將會了解故事的基本結構包括五個階段：開端、劇情上升、高潮、下降與結尾，並學習將故事的結構法應用於閱讀小說或是戲劇當中。學生也會學習到如何使用 S. M. A. R. T. 的方法（S. M. A. R. T. 代表明喻、象徵、暗喻、押頭韻、韻腳、韻律、語氣和主題）來解釋詩歌，課堂的分組活動之一，即是學生選擇一首西洋歌曲，並且根據 S. M. A. R. T. 的方法來分析此首歌，藉由這個活動讓學生了解到歌曲和詩這個文類之間的相同和相異點，也讓學生了解到詩本身並非是個高不可攀、而是個可以親近的文類。

COURSE DESCRIPTION

This course is designed to provide students with a basic understanding of literary genres and further develop their ability to appreciate Western literature. It aims to help them learn to interpret literary works as well as expand their vocabulary and reading skills. The course covers major literary genres, including fiction, prose, poetry, and drama. Students will understand the concept of the five-stage story structure (i.e., exposition, rising action, climax, falling action, and denouement or resolution) and apply it to identify the structure of stories or plays. They will also learn how to use the S.M.A.R.T. formula (simile, symbol, metaphor, alliteration, rhyme, rhythm, tone, and theme) to examine poems. In-class exercises and quizzes will be based on assigned reading. In addition to regular attendance, students will be required to work in pairs to give an oral presentation; they will be asked to choose a popular song and analyze it according to the S.M.A.R.T. formula. It is intended that by completing this assignment students will not only demonstrate awareness of the similarities and differences between songs and poems, but also feel that poetry is a more accessible genre.

3. 建築欣賞 Appreciation of Architecture

- 一、課程講解（基本概論）：建築欣賞與認識
- 二、實際案例（概論）：如何欣賞建築藝術
- 三、實際案例（古典建築）：從古典主義到新古典主義建築
- 四、課程講解（現代建築）：現代主義建築
- 五、課程講解（台灣建築）：台灣建築概要與認識

目標：透過課程講解與實際案例討論，使學生除了對建築能更深入認識之外，並能運用在日常生活中。

COURSE DESCRIPTION

This course will be divided into five parts :

- I. Lecture : Basic introduction and understanding of Architecture appreciation
- II. Case Study : how to admire architecture art
- III. Case Study : From classical to neoclassical architecture
- IV. Lecture : Modernist architecture
- V. Lecture : The outline and understanding of Taiwan architecture

The aim : Students will not only understand architecture deeply but also be able to apply what they have learned in their daily lives through the class lecture and the discussion of case studies.

4. 採訪實務與文化書寫 News Reporting and Writing(Ethnography)

「採訪實務與文化書寫」課程重視理論與實踐，先建構「訪談」、「田野調查」、「文化書寫」的知識體系，進而藉以自媒體作品、報導文學、文案與文宣等實例進行閱讀及分析，強化閱讀及書寫能力，課程中感受一篇報導的「真實性」、「可讀性」、「傳播性」。課程規劃綱要如下：

1、採訪報導寫作技巧的基本認識。

從新聞與自媒體作品中理解議題發想、訪談對象、問題意識及論述觀點的確立，進一步了解深度報導的初步能力。

2、媒體素養及採訪倫理的學習。

田野調查即是一輩子的使命，所以進入採訪時，必須有倫理觀念，認識正確的表述技巧，培養精準且有意義的新聞產製過程，呈現專業的人文素養。

3、參與社區及產業的文化體系而增加個人生命經驗。

訪談實務以增加學理的應證，並從中發現問題而獲得解決辦法，並且能夠藉課程安排，認識社區人文與經濟，並針對產業進行深度訪談而拓展個人視野。

4、讓文字發燒，文化展現創意，訪談及書寫成為生活。

文化是一門生意並不是難事，但必須建構在「文化」認知的基礎、與「地方」培養默契、擁有專門領域的知識與技能作為採編的基礎，也因此課程強調理論與實踐的關係，也需要修課者發揮科系的專業能力進行訪談，能夠豐厚自我生涯，更能創造新穎有內涵的媒體時代。

課程規畫的學習面向，如下：

1、採訪與書寫概論

2、田野調查方法

3、口述歷史與文獻

4、文化研究與訪談

5、商業報導與文案

6、生命故事闡述

7、文學中的「文化」

COURSE DESCRIPTION

5. 提琴工藝與音樂 Violin Craftsmanship and Music

隨著國家級藝文場館「國家兩廳院」、「臺中國家歌劇院」、「衛武營國家藝術文化中心」等陸續啟用，音樂會的舉辦與國內音樂觀眾人口均大幅成長，自 2016 年底「屏東演藝廳」開幕以來，南臺灣的民眾也有機會觀賞到國際知名交響樂團的現場演出。舉世聞名的奇美博物館(Chimei Museum)，所收藏之義大利 Cremona 及其他世界名家所製之提琴家族樂器逾 1300 支，近年更設立奇美數位典藏與數位學習網站以及首創 720° 虛擬實境導覽，致力於提琴的科普教育與美學鑑賞。本校屏科大學生具優秀的農工科學訓練與實作經驗，為培養其美學素養，增進其美感經驗，本課程「提琴工藝與音樂」旨在人文、藝術、科學跨領域等面向，除了由任課教師講授提琴的歷史、提琴發音演奏與示範、提琴演奏家及中西名曲欣賞之外，並充分運用台灣各地音樂廳展演活動及社會資源進行教學，邀請本校木設系龍暉老師擔任合授教師，實地參觀「學院琴」手

工琴工坊，認識樂器製作過程、美感鑑賞、及在地製琴文化故事。期末分組報告將依課程單元內容深入主題探究與發表。

COURSE DESCRIPTION

The classical music scene in Taiwan has been flourishing due to recent openings of world-class concert halls, including the “Pingtung County Performing Arts Center” located in southern Taiwan. The internationally renowned Chimei collection contains over 1300 bowed stringed instruments and Chimei’s effort in promoting science and arts education is shown in its online digital violin archive project. The course “Violin Craftsmanship and Music” aims to provide interdisciplinary learning in humanity, arts, and science by introducing violin’s history, the sound production, the virtuosi, and the western and Taiwanese repertoire. The course activities include a visit to “The Academy of Strings” on campus. The students will present a final project on the topic of “The Art of Violin” either in the forms of static or dynamic.

6.7. 老齡化社會的溝通議題 Communication issues in Ageing Societies

老化是一個每個人都會經歷的過程，然而我們通常都這個概念有著抗拒的心態，甚而在社會化的過程當中，存在著各種老年相關的偏見，這些態度也反映在許多生活的層面，包含媒體、醫病互動、一般生活對話、老人照護、商業活動等等。這門通識課迎合屏科大針對老化社會中建立藍海市場的教學目標，幫助跨領域各科技的學生了解在急劇老化的世界裡，我們在工作、生活的環節裡，應該怎麼與老人互動與溝通。

本課程旨在引導學生從跨領域的觀點(老年社會學、媒體傳播學、社會工作、管理與行銷學、成人教育、社會心理學、老年照護與醫學)，探討與年老或老人相關所延伸的所有語言與溝通行為。所探討的議題包含老年人口變化、老年社會學與老年刻板印象建立、樂齡學習情境的師生溝通、老年老化與長期照護、醫護溝通、老年社會與銀髮行銷、家庭內外的跨世代溝通、大眾媒體對老年議題的呈現方式與意識形態操控、失智老人的語言行為與溝通。

學期終了，學生將能以跨領域和批判性的角度檢視老年與老化(ageing)的概念，甚而進一步思考我們應該用甚麼樣的態度對待老人、老年以及自己的未來樣貌。這門課程對於每一個活在快速老化的現代社會的成員而言，能有一定的啟發，對於可能在職業生涯中接觸老人的特定專業學生尤其重要：例如：急遽重要的老年照護醫療與社會工作、管理銀髮產業與行銷銀髮產品的工作也是未來趨勢，對於管理、人文社會領域的學生必能有所啟發。

透過本課程的學習，學生將對老年議題與生活中、職場中需要對應的老年溝通技巧，以及潛在的語言與年齡歧視現象，有更進一步的認識。

COURSE DESCRIPTION

This course is aimed at guiding students to view older-age related language and communication issues from multidisciplinary perspectives, such as those in Socio-Gerontology, Communication, Sociopsychology, Sociolinguistics, Marketing, Adult Learning, and Social Work. The covered issues include demographic changes, learning at later life and the associated teacher-student communication issues, communication with older people in medical and care-giving contexts, older people’s use of the media and the media representations, (dementia) older people’s language behaviors and the ways we talk to/with them. Through the completion of the course, students will learn how to communicate with older people in different contexts and have stronger awareness of ageist reproduction in language.

8.9. 人際溝通 Human Communication

本課程旨在進行人際溝通理論的介紹。這是一個實務面向研究，有助於協助學生透過人際互動掌握更多技巧。我們將解釋人際溝通的概念、理論和架構來協助學生了解自己與夥伴的互動，以及如何訓練、發展、持續和總結彼此的關係。希望本課程不僅可以教會學生採用更有效和令人滿意的交互行為，對於人際關係有較圓熟的認識。

COURSE DESCRIPTION

The purpose of this course is to develop human communication. This is an experience-oriented study that helps students to handle more skills through learning interpersonal interactions. We will explain the concepts, theories, and frameworks of human communication to help students understand their own interactions with their interactive partners and how to train, develop, continue, and summarize their relationships. We hope this course can not only teach students specific existing communication skills, but also help them adopt more effective and satisfying interactive behaviors and have a more familiar understanding of interpersonal relationship.

10. 飲食心理 The Psychology of Eating

本課程之目的旨在讓學生了解飲食、心理與個人、社會及全球的關連。從這些面向，進而認識自身的心理狀態如何影響飲食行為及環境的平衡。並透過食安問題與全球關注的糧食議題，思索可行之解決方案，朝著愛惜自然資源的實踐上邁進。除了每堂課程針對與飲食心理相關影響因素及理論概念，來進行知識內容的學習與情境案例的小組討論及反思外，學生需依照設計思考五步驟(同理心、需求定義、創意動腦、製作原型、實際測試)，在小組中討論出一個由飲食心理衍生出待解決的具體問題，並運用飲食心理理論/概念，設計出創新的產品/服務方案。透過本課程，學生能夠學習飲食心理相關知識，及培養團隊合作、問題解決、高層次思考(含批判性思考)、創新、關懷社會及全球飲食心理議題等能力。

COURSE DESCRIPTION

The purpose of this course is to help students understand the relatedness between diet and psychology based on individual, society, and global roles. From these aspects, students can further understand how psychological conditions influence dietary behaviors and environmental balance. Students can consider possible solutions to food safety problems and global issues in food shortage, to treasure nature sources around us through daily practices. Students can learn influential factors and theories/concepts related to psychology of eating by lectures and apply and reflect the learned knowledge to case scenarios by group discussions. In addition, students need to follow the five procedures of design thinking (empathize, define, ideate, prototype, test) to discuss a concrete problem related to psychology of eating in their small group and design innovative products/service solutions by applying the theories/concepts learned in the course. In this course, students can obtain knowledge in psychology of eating and develop competence in teamwork, problem-solving, higher-order thinking (e.g. critical thinking), innovation, and care attitude to social and global issues associated with psychology of eating.

11. 人畜共通傳染病 Zoonoses

根據世界衛生組織對人畜共通傳染病的定義為「在人與脊椎動物間自然傳染的所有疾病」，因此本課程的內容將專注於人與動物共同的健康問題。學生修習本課程時將可充分了解疾病的病史、人與動物發生的情形、傳染的機序、自然宿主與媒介、如何診斷與預防，以及有何替代方法可以降低對人類健康的威脅與衝擊性等知識。

COURSE DESCRIPTION

Based on the definition provided by WHO, zoonoses are diseases the agents of which are transmitted between vertebrate animals and people. Therefore, the objective of this course is to

focus the infectious diseases of importance to both human and animal health. Each student will be required to have a thorough understanding of the disease history, occurrence in man and animals, mode of transmission, natural reservoir and vector, diagnosis, prevention and control, and alternative approaches that can be used to minimize their impact on human health.

12. 自然與生命科學(食品安全與生活) Natural and Life Science (Food Safety and Life)

本課程內容包含食品相關法規，生活中常見食品添加物、食品中危害物質，基因改造食品，奈米食品的安全以及相關認證制度的介紹，希望學生藉由此課程能獲得食品安全相關資訊及知識，建立食安正確觀念並提升學生對於食品安全議題之能力與素養。

COURSE DESCRIPTION

The course will introduce the food regulations, food additives, hazardous substances in food, genetically modified food, the safety of nanofood and food safety system certification. This course can help student gain a lot of knowledge of food safety and help improve scientific literacy for students.