

103 學年度第 1 學期 校課程委員會議 提案傳閱附件 目錄

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傳閱附件 1-1--本校各學院所屬各系(所)課程中英文摘要-農學院

各系(所)新增課程中英文摘要

一、農學院

(一) 森林系：

樹木健康管理

2 選

梁文進, 下

本課主要介紹林木病蟲害之特性、發生調查、診斷及管理，森林病蟲標本採集保存。並介紹苗木、枝幹、葉部、根部病蟲害及立木與木材腐朽等各論。

Tree Health Management

2 E

W.J. Liang, S

This course is to introduce the characteristics of damage induced by forest diseases and insect pests. It covers pest investigation, diagnosis and management, and specimen collection and preservation. A comprehensive discussion on pests of seedling, twig, foliage, root and wood decay is also included.

維管束植物光合作用

3

選

賴宜鈴 下

維管束植物比細菌或是藻類發展出更繁複的組織和機制來調控光合作用，有許多研究利用葉片光合作用的測量和光合參數來代表植物的生長表現和健康，葉片的光合作用能力也常用以推估生態系的生產力，因此光合作用的測量普遍的應用在農業、生態與環境科學上。本課程旨在幫助學生更深入了解光合作用的原理和測量的方法，將包含光合作用的概念、參與光合作用的胞器和酵素系統調控，課程也將包含儀器操作及在實務上的應用。

Photosynthesis of Vascular Plants

3

E

I. L. Lai, S

Vascular plants developed more complicated tissues and mechanisms to regulate photosynthesis than bacteria or algae. The measurements and the parameters of leaf photosynthesis were applied to present plant performance and health. The ecosystem productivities could be further modeled by plant photosynthetic ability. The measurements of photosynthesis were widely applied in agriculture, ecology and environmental science. This course was aimed to help students more aware of the principles and methods of photosynthesis measurements. The course would include the introduction of concept of photosynthesis, involved organelles and enzyme systems and controlling factors. The course would also include the operation of instruments and the practical use.

(二) 水產養殖系：

海洋生態專論

3

選

翁韶蓮, 上

介紹海洋生態系中，海洋環境中海流（表層流、風海流、底層流等）潮汐、波浪等物理因子之變化及生物組成之變動。繼而探討並比較沿岸生態系、河口區生態系、大洋生態系之生態特性及生物組成食物鏈等之差異。

Advanced Topics of Marine Ecology

3

E

S.L. Wong, F

This course introduces those physical factors in marine environment, i . e. surface current, wind ride current, bottom current, tide and wave, etc, and then compare with the

different ecosystems (e.g. coastal ecosystems, open ocean system, coral reef system, lagoon, and etc.).

SPF 餌料生物量產實作 2 選 下

本課程的目的在教導學生如何篩選無特定病原之餌料生物，包括微藻、輪蟲、枝角類、橈角類、豐年蝦等。此外，在課程中也將教導學生如何進行這些篩選出的無特定病原餌料生物的量產，以應用於水產幼苗之培育。

Mass Production of SPF-Live Food Lab. 2 E S

The objects of this course are going to teach students how to screen the specific pathogen free (SPF)-live foods, including microalgae, rotifer, daphnia, copepod, Artemia and so on. In addition, students would also be trained to learn how to mass produce the selected SPF-live foods for aquaculture larval breeding.

生物安全育種與繁殖實作 2 選 下

本課程介紹水產養殖動物的生殖行為、生殖生理、人工繁殖方法與種苗培育過程。指導學生實際操作各項種苗繁殖及培育工作，從中獲取經驗並涵養成技術。

Practicum for Biosecurity Selective Breeding and Propagation of Aquatic Animal 2 E S

This course introduce the reproductive behavior, reproductive physiology, procedures of artificial propagation and seed production of aquatic animals in aquaculture. Furthermore, the course instructs students to acquire the experience and skill in aquatic seed production through practicing the manipulation of such production.

飼料配製實作 2 選 上

水產飼料為水產養殖產業成敗之關鍵，相關產業界亟需擁有飼料製作能力之人力資源投入。本課程目的為強化學生飼料實務製作技能，訓練學生具有獨立設計專用配方、原料選擇、飼料造粒機械操作與品質管制之能力。課程規劃由學生獨立操作，加強實作，建立完整飼料配製實作能力，以期與產業界接軌。

Feed Processing Practice 2 E F

Aquafeed is the key of the aquaculture industry. Relative industry need manpower having the ability to produce the aquafeed. The purpose of this course is to strengthen skill of feed manufactory and to train our students having ability of designation of specific feed formulation, feedstuff selection, operation of feed machine and quality control by themselves. The course plan our students operate alone and strengthen the practice to built up the feed processing capacity and to narrow the gap between academic and industry.

生物安全養殖經營管理實作 2 選 上

全球水產繁養殖產業正遭受嚴重地疫病侵襲，造成重大的經濟損失，眾所周知，疾病是預防重於治療，本課程銜接水產繁養殖技術相關基礎課程，建立水產繁養殖生物安全防疫設施，並規畫防疫作業流程，藉以訓練學生具有生物安全之觀念及熟悉生物安全之作業模式與流程，提升水產繁養殖技術，促進產業之永續經營。

Aquaculture Biosecurity Management Lab. 2 E F

The aquaculture industry was impacted by disease infection, and this caused huge economic loss. It was well known that prevention was more important than treatment. Therefore, the present course was mainly to connect the basic ones related to aquatic breeding and cultivating to establish the aquatic biosecurity system, and to organize the processing of disease prevention. These were capable to bring the students the concept of biosecurity and made them being familiar with the operation and processes, which increased the skills of aquatic breeding and cultivating for promoting sustainable development.

(三) 植物醫學系：

菇蕈栽培技術

2 選

下

食用菌如洋菇、草菇、鮑魚菇、木耳、金針菇及香菇等菇類之生理、生態及形態之認識，栽培方法為基本內容。介紹各種菇類栽培之理論與實際配合，探究菇類生長之條件，對目前國內外流行而適合企業化經營之食用菌類特別作有系統之說明，以利選讀生將來應用。

Edible Fungi Cultivation

2 S

S

Edible fungi such as common mushroom, chinese mushroom, oyster mushroom, Jelly fungi mushroom and shiitake are the major subjects to be discussed in lectures. The physiology, ecology and morphology provide basic information to culture the mushroom. Knowing how to compost manure, isolates the mycelia theory and practical operation, especially emphasized on large-scale commercial cultivation of mushrooms in status and future of the world, and to meet the need of techniques and knowledge for mushroom production.

植物病害田野實習

2

必

下

本課程包括帶領學生至南部地區各農業場所如農業試驗所鳳山熱帶園藝試驗分所、高雄區農業改良場、農藥公司田間工作站及產銷班等，實際瞭解不同作物的栽培管理，此外依據不同季節田間病害現況進行現場診斷示範並教導學生做案例討論。

Field Study of Plant Disease

2

R

S

The course provided practical training of integrated crop management. In order to understand the good agricultural practices of various crops, several field trips will be held to major agricultural stations in southern Taiwan. The methods of diagnosing plant disease is demonstrated. Case studies by groups of students are also encouraged.

植物蟲害田野實習

2

必

下

本課程包括帶領學生至南部地區各農業場所如農業試驗所鳳山熱帶園藝試驗分所、高雄區農業改良場、農藥公司田間工作站及產銷班等，實際瞭解不同作物的栽培管理，此外依據不同季節田間蟲害現況進行現場診斷示範並教導學生做案例討論。

Field Study of Plant Pests

2

R

S

The course provided practical training of integrated crop management. In order to understand the good agricultural practices of various crops, several field trips will be held to major agricultural stations in southern Taiwan. The methods of diagnosing plant pests is demonstrated. Case studies by groups of students are also encouraged.

校外實習**2 必****陳文華, 上**

本課程內容主要是讓學生有機會至植物醫學相關研究機構或私人企業進行實務操作，以提升學生之實務經驗及技能，達到學理及實務並重之目的，並可使學生瞭解相關產業生態，為就職前整備。修習本課程，可以使學生體認植物醫學產業中的實務工作，回到學校後能自我要求加強專業知識的學習。

Practice of Industrial Training**2 R****RW. H. Chen, F**

This aims of the course are to provide the practice opportunities for students at plant medicine related organizations and private companies. The output goal is to enable improved students' real experiences and skills in plant medicine which will help to fulfilling interaction between theory and practice, understating the industry dynamic and preparation for employment. After having this course, students will understand those practical works in the plant medicine related industry, and will push themselves to learn and strengthen needed professional knowledge.

(四) 生物科技系：**暑期實習(1)(2)(3)****2 選****徐睿良等合授,上**

本課程的目的為使學校課程內容與企業需求間更加緊密結合，透過暑期實習之過程，讓學生熟悉研發、生產、品管及行銷等企業運作流程並瞭解企業制度與產業趨勢。進一步地，協助學生從實習經驗中充實專業技能、培養獨立思考、協調溝通的能力及敬業態度。

Summer Vacation Practice(1)(2)(3)**2 S****JL Hsu, etc. F**

This course aims to establish close correlation between course contents in this department and industrial needs. Through the industry internship, students will be more familiar with business trends and key industrial components such as research and development, manufacturing, quality assurance, marketing, and so on. In addition, this course also aims to help students not only enrich job skills, but develop independent thinking, coordinating and communication ability, and professional attitude.

基因體學**2 選****徐志宏、下**

本課程主要為分子生物學之進階課程，目的在利用分子生物學之技術以達到探究生物體基因體序列及其功能的目的，亦為基因體科學研究之基礎課程。課程內容包括分子生物技術、圖譜分析、定序策略及方法、基因表現分析、序列分析方法、高通量遺傳學、蛋白質體學、結構基因體學、基因體結構、微生物基因體學、比較基因體學、人類基因體、訊息傳遞、醫藥應用、藥物基因體學、疾病診斷、農業應用及道德與規範等。

Genomics**2 E****D. J. H. Shyu, S**

This course is the advanced course of molecular biology. It is designed to introduce the genome sequences and their functions of certain organisms, so it is also the basic course of genomic science research. The content includes techniques of molecular biology, mapping techniques, sequencing strategy and methods, gene expression analysis, sequence analysis methods, high-throughput genetics, proteomics, structural genomics, genome structure, microbial genomics, comparative genomics, human genome, signal transduction,

pharmaceutical applications, pharmacogenomics, disease diagnosis, agriculture applications, and ethical issues and regulations.

環境基因體學

2 選

徐志宏、下

本課程主要探討生物體因應不同環境變化在基因表現層次上所造成的反應，利用基因體技術的分析了解特定環境或環境因子對基因表現程度的影響，進而瞭解在特定環境中基因體多樣性及多形性存在的意義，並對決定人類健康、環境與生態系統以及自然族群的影響因子及其永續發展建立系統性的觀念及輪廓。

Environmental Genomics

2S

D. J. H. Shyu, S

The course of environmental genomics aims to explore the responses of gene expression of organisms to the changes in various environments. The uses of genome technology will facilitate the understanding of effects of certain environment or environmental factors on gene expression as well as the meanings of presence of genome diversity and polymorphisms within a particular environment. The systematic conceptual framework and sustainable development of determining factors for the human health, environment and ecosystems, and natural populations will be discussed.

品保與品管

2 選

徐睿良、下

品保與品管可確保產品的品質在各種產業上扮演舉足輕重的角色。本課程的目的為使同學具備品保與品管之概念、瞭解其產業應用之各種實務，並學習如何將品保與品管落實於生物科技產業。課程內容涵蓋品質的概念、各種品質制度、品管與品保之關係、全面品質保證系統、各式品管方法及生技產業之各式優良實務。

Quality assurance and quality control

2 S

J. L. Hsu, S

Quality assurance (QA) and quality control (QC) have been used to guarantee the quality of products and play a key role in various industries. The aim of this course is to provide students an overview of QA & QC, as well as some good practices. Contents include concept of quality, various quality systems, relationships between QA and QC, total quality assurance management, QC methods and good practices in quality assurance.

職能訓練

2 選

胡紹揚,下

職能訓練課程主要介紹進入產業市場的相關知識，包括產業發展、趨勢、市場評估、公司規範、職場倫理、智慧財產權等。課程同時配合現場生產流程之實務操作，讓學生瞭解生產廠之作業流程與規範，訓練作業現場之操作技術，培養學生實務能力以提升就業之優勢。

Functional training

2 S

S.Y. Hu, S

The course is aimed to introduce basic knowledge for student entering industry which including the trend of industrial development, assessment of market, corporation instructions, employment ethics and intellectual property rights etc. The course also combines the practice training in the production process of factory to make student understand the specification of production process. The objective of the course is to make students have practical ability for improving the competitive advantages in their career.

(五) 動物科學與畜產系

畜產短期實務實習

1 選 全系教師 下

本課程旨在提供大學部學生短期專業實習，以瞭解產業現況與加強畜產專業能力之養成，進而培養良好工作態度與增進現場實作能力。本課程之安排，於事先經系務會議篩選具規模且經營上軌有制度之畜產企業單位，包括公、民營機構，雙方取得共識，安排必要之實習項目與進度，於寒、暑假期間實習一個月，完成預定進度，繳交報告，並經實習單位及任課老師共同考核合格者，始給予學分。

Short-term Practice of Livestock Enterprises 1 E Faculties S

The aims of this course are designed for the short-term training of animal science undergraduate students to realize current status of animal industry, enhance professional capacity, educate working attitude, and improving practical ability. Students in this course will be appointed to some selected enterprises or companies with livestock production units during summer or winter vacations for one month of training program. Students who complete the practical training program with writing reports and pass the evaluation by both the department and the subject teacher will be granted the credit.

傳閱附件 1-2--本校各學院所屬各系(所)課程中英文摘要-工學院

二、工學院

(一) 機械工程系：

軟性電子製程技術

3 選 周春禧、盧威華、林鉉凱,下

本課程主要介紹軟性電子製程技術，其授課內容包括薄膜沉積、微影蝕刻、雷射原理、電極圖案化、捲對捲傳輸與先進封裝等製程技術與設備。讓學生了解未來投入相關產業該具備的技術。

【內容綱要】：

1. 簡介
2. 薄膜沉積
3. 微影蝕刻
4. 雷射原理
5. 電極圖案化
6. 捲對捲傳輸
7. 先進封裝

Flexible Electronics Process 3 E Chou Chuen-Shii、Lu Wei-Hua、Lin Hsuan-Kai ,S

This course is designed to introduce flexible electronics process. The content includes the thin film, lithography, etch, principle of laser, electrode patterning, Roll to Roll process and advance packing. The course will offer the basic knowledge relative to flexible electronics field.

1. Introduction
2. Thin film
3. Lithography
4. Etch
5. Principle of laser
6. Electrode patterning
7. Roll to Roll process
8. Advance packing

傳閱附件 1-3--本校各學院所屬各系(所)課程中英文摘要-管理學院

三、 管理學院

(一)管理學院

進階專業英文溝通技巧 2 選 Sean Francis O'Keefe、王秀華,上、下

本課程傳授以英文溝通專業知識、技術之訣竅。課程內容包括瞭解聽眾之需求；專業英文之表達技藝；採訪和對話時應有的認知；會議時資訊應如何呈現；學術海報和其他文字媒介之最佳展現等。經由各種溝通技術之演練，學生可習得以英文有效溝通專業知識之技術。

Advanced Communication in English for Scientists 2 E Sean Francis O'Keefe、Hsiu Hwa Wang ,F、S

This course provides skills and tools for presentation of scientific information. Course content includes understanding your audience, oral scientific delivery, interviews, presentations at meetings, posters and other written media, and demonstrations. Through extensive in-class communication projects, students will gain an understanding of critical skills required for effective transmission of scientific information in English.

(二)企管系：

國際行銷企劃撰寫實務 3 選 趙雨潔 陳佳誼,上

本課程目的為使學生結合國際行銷及其他功能領域的基礎理論，使同學(1)熟悉國際行銷企劃與執行；(2)能進行情境分析與情境規劃；(3)能整合不同管理課程之重要概念；(4)能有效率及有效能的執行行銷計劃。

主要授課內容綱要如下：國際行銷規劃程序、國際品牌發展策略、企劃書類型及基本架構、企劃書撰寫邏輯與成功要素、企劃報告編撰技巧、行銷之 S.W.O.T 分析、市場區隔化與目標市場選擇、定位策略、行銷之 4P 策略、行銷之預算編列、行銷之績效評估、行銷企劃案實務範例、行銷企劃撰寫實務演練。

International Marketing Workshop 3 E Y.C.Chao, C.A.Chen,F

This course will integrate the concepts and skills of international marketing and previous functional courses to make students: (1) Familiar with the process of international marketing planning formulation and implementation; (2) Able to conduct situational analysis and scenario planning; (3) Able to integrate the key concepts in various management courses; (4) Able to efficiently and effectively execute the marketing plan.

The major subjects are summarized as follows: International marketing planning process, Global branding strategies, Type and contents of marketing plan, The key components and logic of Marketing Planning, Planning skills. S.W.O.T. analysis, Market segmentation and targeting strategy, Positioning strategy, 4 P's Marketing strategies, Preparing marketing budget, Marketing performance evaluation, Marketing practice and case studies.

國際貿易職能 3 選 趙雨潔 陳佳誼,下

國際貿易人員是否具備應有的能力，包含語文、國際商業文書撰寫、國際經貿常識、國際商業禮儀...等，對於廠商海外市場開拓的成效具有重要的影響。本課程之設計，在

於培養學生具備國際貿易應有之職能，將來方能勝任國際貿易業務推展之工作。

Working Capabilities of International Business 3 E Y.C.Chao, C.A.Chen ,S

The working capabilities of international business include language, commercial letter writing, international business knowledge, international business etiquette. These capabilities determine the performance of foreign market developments. This course aims to develop students' working capabilities of international business. It is hoped that students are capable of handling the jobs of foreign market developments in the future.

校外實習(2) 9 選 ,下

為強化學生專業能力，使能理論與實務相結合，特開設此課程。修課學生得選擇本課程所擇定之廠商或研究機構於暑假期間前往實習。

Practice of Industrial 9 E Training, S

This course is designed to strengthen students' professional capability by combining theoretical and practical aspects. Students taking this course are required to do a summer internship in a selected company or research institute.

(三)資訊管理系：

顧客關係管理 3 選 黃申在，上

顧客關係管理目的在探討企業與顧客間存在的為微妙關係，以協助企業掌握顧客需求及了解顧客如何替企業創造利潤。顧客關係管理涵蓋領域相當廣泛，以管理及科技兩方向做為區隔及整合，教學上，透過熱門議題來理解傳統管理上的生產行銷消費者行為及資料庫等基本概念及資訊科技，也透過實務個案，接軌理論概念與企業實務，達到理論與實務並行。

Customer Relationship Management 3 E S.T. Huang, F

Customer Relationship Management (CRM) is a discipline, emerging around 80's, that explores the subtle interaction and relationship between business and customers, to assist business capture the needs of customers and understand how customer can help business generate profits. The scope of CRM is very extensive, and usually classified by two aspects in concepts, management and technology, and the mixing in practices. In this course, we first employ basic concepts and IT issues in traditional management issues: production, marketing, customer behaviors and databases, to help understand CRM. Along with the conceptual basis, we adopt field case studies to bridge with the business practices, altogether to achieve synergy of theory and practice.

傳閱附件 1-4--本校各學院所屬各系(所)課程中英文摘要-人文社會學院

四、 人文社會學院

(一) 應用外語系：

人力資源管理與實務 2 選 , 下

本課程旨在介紹企業中的各項人力資源管理流程，透過講課、企業講師經驗分享、案例閱讀與探討、實務演練與角色扮演各項人力資源流程，以達到將理論與實務結合的目的。

Human resource management and the practice 2 S , S

This course aims to equip students with knowledge regarding human resource management through a variety of teaching curriculums, such as lecture, discussion, case study, and role-play. The purpose is to help students to put HR-related theories and concepts into practice and understand what rights, obligations and managerial skills they need to bear in mind in order to play the roles as employ

新聞英文 2 選 , 上

本課程旨在提倡將實用語料(如英語報紙與雜誌)融入課堂英語教學，透過師生及小組間閱讀討論政治的、科技的、經濟的、文化的、生活的、娛樂的等時事，學生可以由聽、說、讀、寫四種語言學習方式瞭解周遭之時事，並可增進英語能力。

English by Newspapers and Magazines 2 S , F

This course, through authentic materials (e.g., English newspapers and magazines), aims to provide students with exposure to real-life English language and authentic cultural information. By reading and discussing political, technological, economic and entertainment news in pairs, small groups, whole-class settings, and online group discussions, students will have more connections to the content of news. With more connections to the content of news, students will be supported to deepen their understanding of news and enhance their English language proficiency, including listening, speaking, reading, and writing in English.

(二) 休閒運動健康系：

餐飲服務技術及實務 3 選 , 上

- 1.本課程以餐飲服務之服務品質與顧客滿意度為基礎，主要目的希望能為學生們找出對服務的熱忱。
- 2.瞭解餐飲的組織與職責及準備作業；包括營業前後的準備、餐具佈置、餐飲服務技術。
- 3.有了餐飲服務技術概念和操作基礎，讓同學從分組討論、練習，尋求合作的默契與分享，更學習到互相尊重彼此創意的美德。

The Skill of Restaurant Service and Practice 3 E , F

- 1.To enhance the quality of restaurant service and customer satisfaction. We hope we can help students to find the service enthusiasm.
- 2.To understand correct preparation procedures, including preparations before and after business time, utensil arrangement and service skills.
- 3.To learn respecting others' creativity by means of groups discussion, practice and

cooperation.

客房管理與實務 3 選 ,下

每一位旅客都希望從一進飯店開始到其離開飯店，有備受歡迎的感覺，真正體驗到「賓至如歸」式的接待。旅客的再度光臨有賴旅館氣氛的營造，即由客房的整潔、餐飲的品質及員工們的服務態度等因素，來決定對於飯店的評價。

稱職房務員應具備之任務：

從事飯店客房的整潔工作，以備旅客住宿。

依照正確的步驟，操作清潔用具和材料，更換床單，打掃客房內浴室，以維持客房清潔衛生。

學習工作技能，迅速檢查客房，使各種佈置、清潔工作全部完成，確實提供新遷入的旅客住用。

體認清潔、親切、舒適、安靜及旅客安全之共同目標。

House keep and practice 3 E ,S

Guest satisfaction is the first priority in hotel service. The re-visit of guest depends on room clean, food quality and employers attitude.

As a result, the jobs of houses keepers are as follows:

- 1.To complete room clean for guest.
- 2.To maintain room clean according to correct steps, such as change sheet, room bathroom.
- 3.To learn job required skills: check room quickly and correctly.
- 4.the common goal of satisfying guest: clean, kindness, comfort tranquility and security

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)熱農系：****國際農業發展 2 選 鄭達智 李嘉偉 方中宜,上**

本課程內容在介紹中華民國在臺灣五十年來之農業發展過程，從初期的土地改革政策和以農業為主之經濟發展，進入以工商業為主之現代化社會，同時在配合農業升級及回饋國際社會政策下推展各項國際合作計劃；目的在使同學能鑑往知來，為下一世紀之農業開創新局。

International Agriculture Development 2 E C. T. Chih/J. W. Lee/J. Y. Fang ,F

This course is to provide an insight of agricultural development of Taiwan for the past 50 years, and also point out its new direction for the next century. Its contents include: land reform programs, agricultural trade and economic development, transformation from an agricultural to industrialized economy, and international cooperation.

文獻選讀與寫作 2 選 邱亞伯,下

本課程主要介紹科學出版物，包括摘要、前言、材料與方法、討論和參考文獻。基於此，將教導學生如何閱讀和撰寫科學文章。

Scientific Reading and Writing 2 E A. L. Charles, S

This course is to introduce the formats of scientific publications, including abstract, introduction, materials and methods, results, discussion, and references. Based on these, students will be taught as to how to read and write scientific papers.

作物營養學 2 選 陳光堯,下

本課程主要在闡明作物營養管理的原則與方法，並介紹作物無機營養失調症狀及其診斷技術與改善方法。

Crop Nutrition 2 E G. Stanley Chen, S

The course emphasizes the principle and methods of crop nutrition management, symptoms of nutrient disorders, diagnostic techniques and amendment methods.

作物營養學實習 1 選 陳光堯,下

本實習主要在使學生認識作物無機營養失調的症狀，以及熟悉作物無機營養的診斷技術與分析方法。

Practice of Crop Nutrition 1 E G. Stanley Chen, S

The course offers hands-on practices on identifying symptoms of crop nutrient disorders and other diagnostic techniques, especially on plant and soil analysis.

植物種原保存 2 選 方中宜,下

本課程首先概述性的描述植物種原之重要性及植物種原保存之全球策略，然後針對植物種原保存的兩大途徑，包括就地保存(植物在最少管理下長期栽植與保存在他們的原有生態系統)和異地保存(使用植物園、野外種植、種子庫和基因庫)之相關技術和問

題進行深入探討。另外，本課程也針對全球具有代表性之植物種原保存中心進行介紹。

Plant Germplasm Conservation 2 E J. Y. Fang, S

This course first gives an overview of the importance of plant genetic resources and global strategies for plant germplasm conservation. The course then explores in depth the related techniques and associated problems with the two main approaches of plant conservation, which include the *in situ* conservation (maintainance of plants in their native ecosystems with a minimum of management) and *ex situ* conservation (use of botanic gardens, field plantations, seed stores and gene banks). Important plant germplasm conservation centers worldwide are also introduced.

植物繁殖技術 2 選 方中宜,下

本課程旨在教授學生各種植物繁殖之理論及技術。本課程內容涵蓋：繁殖場所之設施、資材及衛生管理；種子繁殖--種子的篩選、生產和管理、種子繁殖技術；營養繁殖--母本選拔及管理、扦插法、嫁接法、壓條法；無菌微體繁殖法--組織培養；特殊植物器官之繁殖方法。

Plant Propagation Techniques 2 E **J. Y. Fang, S**

This course aims at providing the students with theoretical knowledge and practical skills on plant propagation. The contents of this course include the propagation environment (structures, substrate, sanitation measures), sexual propagation via seeds, asexual propagation via cutting, grafting and layering, propagation by specialized underground structures, and finally micropropagation.

植物繁殖技術實習 1 選 方中宜,下

本實習課程配合"植物繁殖技術"課程，使學生熟習各類植物之繁殖技巧。實習項目包括：栽培環境、介質、肥料、容器及消毒方法之認識；種子之活力檢測、播種、育苗、定植和採種技術；營養繁殖之母本選拔及管理、扦插、嫁接、壓條等繁殖技術；組織培養技術。

Practice of Plant Propagation Techniques 1 **E J. Y. Fang, S**

This course is designed for the students to get familiarized with the different techniques of plant propagation. The content includes: propagation structures, substrates, fertilizers, containers and sanitation; seed viability testing, seed sowing and handling; stock plant selection and management, propagation by cuttings, grafting, budding, and layering; propagation by specialized underground structures ; and tissue culture.

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

(一)獸醫學系：

專題研究(4)(限外籍生修課) 2選 連一洋 邱明堂 簡基憲，下

本課程目的在提供各種特殊技術和知識，以解決研究生實驗和研究時之特殊問題。由指導教授安排一序列之個別口頭發表和討論，以提昇學生論文有關之研究能力。

**Special Topics (4)(Forieng Student only) 2 E Y. Y. Lien ,
M.T.Chiou C.H.Chien , S**

The purpose of the course is to offer varieties of special technique and knowledge used to solve special problems occurred during research or graduate study for graduate students. A sequence of individual presentations and discussions are arranged from adviser to promote the student the study ability in the topics involving his (her) thesis.

傳閱附件 2--訂定「農學院生物資源博士班」104-106 學年度課程規劃案

農學院生物資源博士班必選修科目表

(一)教育目標

本博士班旨在整合生物學、化學、生態學及管理學理論，培育生物資源保育管理及開發利用之研究發展人才。為達成此高級人才培育之目標，本所積極配合政府生物多樣性保育、生物資源管理與新興綠色產業政策，加強與政府機關、研究機構，以及農業生技、綠色科技等產業界之合作。

(二)必修科目

中 英 文 科 目 名 稱	學 分 數	第一學年		第二學年		備 註
		上	下	上	下	
專題討論 Seminar	4	1	1	1	1	
生物資源研究法與論文習作 Bioresources Research and Thesis Writing	4	2	2			
博士論文 Dissertation	12			6	6	
合 計	20	3	3	7	7	

(三) 選修科目

中 英 文 科 目 名 稱	學 分 數	第一學年		第二學年		備 註
		上	下	上	下	
木質纖維材料化學改質特論 Special Topics on Chemical Modification of Lignocellulosic Materials	3	3				
分子生物學特論 Special Topics on Molecular Biology	2	2				
演化生物學分析 Analysis of Evolution Biology	3	3				
休閒研究方法論 Research Methods in Leisure Studies	3	3				
農林廢料再利用特論 Special Topics on Utilization of Agricultural & Forest Residues	3	3				
維管束植物光合作用 Photosynthesis of vascular plants	3	3				
植被生態學 Vegetation Community Ecology	3		3			
陸域生態系生態學 Terrestrial Ecosystem Ecology	3		3			
動物幹細胞建立與應用 Application and Establishment of Stem Cells	2		2			
基因表達系統 Genetic Expression System	2		2			
應用微生物特論 Special Topics on Applied Microbiology	2		2			
生質能源特論 Special Topics on Biomass Energy	2		2			
生態統計學 Statistical Ecology	3		3			
保育生物學特論 Special Topics on Conservation Biology	3		3			
線性模式與育種 Linear Model and Breeding	2		2			
專題研究(1) Special Topics (1)	2			2		

中 英 文 科 目 名 稱	學 分 數	第一學年		第二學年		備 註
		上	下	上	下	
地理資訊系統特論 Special Topics on Geographic Information Systems	2			2		
地理資訊系統特論實習 Practice of Special Topics on Geographic Information Systems	1			1		
動物生殖生理特論 Special Topics on Animal Reproductive Physiology	2			2		
活性天然物特論 Special Topics in Bioactive Natural Products	3			3		
國際保育事務特論 International Affairs on Natural Conservation	3			3		
標記輔助選拔與基因選種 Marker assisted selection and genomic breeding	2			2		
生物技術與產業實務 Biotechnology and Bioindustry	2			2		
室內聲學設計特論 Special Topics on Room Acoustics Design	3			3		
專題研究(2) Special Topics (2)	2				2	
生態旅遊研究 Ecotourism Research	3				3	
經濟動物繁殖管理特論 Special Topics on Farm Animal Reproductive Management	2				2	
碳材料特論 Special Topics on Carbon Materials	3				3	
木質材料加工特論 Special Topics on Processing of Wood-based Materials	2				2	
生態系統及生物多樣性管理 Management of Ecosystems and Biodiversity	3				3	
合 計	74	17	22	20	15	

農學院生物資源博士班課程與核心能力關聯表

[illegible]

生物資源研究所系(所)博士班課程與核心能力關聯表

【專業選修】				
科目名稱	核心能力項目	1.具備生物資源之創新研究能力。		3.具備外國語文及國際視野能力。
		1-1 保育管理	1-2 開發利用	
木質纖維材料化學改質特論 Special Topics on Chemical Modification of Lignocellulosic Materials			◎	◎
分子生物學特論 Special Topics on Molecular Biology			◎	◎
演化生物學分析 Analysis of Evolution Biology		◎		◎
休閒研究方法論 Research Methods in Leisure Studies		◎		◎
農林廢料再利用特論 Special Topics on Utilization of Agricultural & Forest Residues			◎	◎
維管束植物光合作用 Photosynthesis of vascular plants		◎		◎
植被生態學 Vegetation Community Ecology		◎		◎
陸域生態系生態學 Terrestrial Ecosystem Ecology		◎		◎
動物幹細胞建立與應用 Application and Establishment of Stem Cells			◎	◎
基因表達系統 Genetic Expression System			◎	◎
應用微生物特論 Special topics in Applied Microbiology			◎	◎
生質能源特論 Special Topics on Biomass Energy			◎	◎
生態統計學 Statistical Ecology		◎		◎
保育生物學特論 Special Topics on Conservation Biology		◎		◎

【專業選修】				
科目名稱	核心能力項目	1.具備生物資源之創新研究能力。		3.具備外國語文及國際視野能力。
		1-1 保育管理	1-2 開發利用	
線性模式與育種 Linear Model and Breeding			◎	◎
專題研究(1) Independent Study(1)		◎	◎	◎
地理資訊系統特論 Special Topics on Geographic Information Systems		◎		◎
地理資訊系統特論實習 Practice of Special Topics on Geographic Information Systems		◎		◎
動物生殖生理特論 Special Topics on Animal Reproductive Physiology		◎	◎	◎
活性天然物特論 Special Topics in Bioactive Natural Products			◎	◎
國際保育事務特論 International Affairs on Natural Conservation		◎		◎
標記輔助選拔與基因選種 Marker assisted selection and genomic breeding			◎	◎
生物技術與產業實務 Biotechnology and Bioindustry			◎	◎
室內聲學設計特論 Special Topics on Room Acoustics Design			◎	◎
專題研究(2) Independent Study (2)		◎	◎	◎
生態旅遊研究 Ecotourism Research		◎		◎
經濟動物繁殖管理特論 Special Topics on Farm Animal Reproductive Management			◎	◎
碳材料特論 Special Topics on Carbon Materials			◎	◎

【專業選修】				
科目名稱	核心能力項目		2.具備領導、溝通、協調與團隊合作之能力。	3.具備外國語文及國際視野能力。
	1.具備生物資源之創新研究能力。			
	1-1 保育管理	1-2 開發利用		
木質材料加工特論 Special Topics on Processing of Wood-based Materials		◎		◎
生態系統及生物多樣性管理 Management of Ecosystems and Biodiversity	◎			◎

農學院生物資源博士班 課程與核心能力之關聯檢核表

核心能力	能力指標與 核心素養	對應課程	檢核機制
1. 具備生物資源之創新研究能力。			
1-1 保育管理	1.具生物資源保育管理研究之知識 2.具備獨立研究及統合分析之能力	專業必修： 專題討論、生物資源研究法與論文習作、博士論文 專業選修： 演化生物學分析、休閒研究方法論、維管束植物光合作用、植被生態學、陸域生態系生態學、生態統計學、保育生物學特論、專題研究(1)、地理資訊系統特論、地理資訊系統特論實習、動物生殖生理特論、國際保育事務特論、專題研究(2)、生態旅遊研究、生態系統及生物多樣性管理	1.考試/隨堂測驗 2.書面報告及專題報告審查 3.實驗室與野外測定操作 4.野外調查或實習
1-2 開發利用	1.具生物資源開發利用研究之知識 2. 具備獨立研究及統合分析之能力	專業必修： 專題討論、生物資源研究法與論文習作、博士論文 專業選修： 木質纖維材料化學改質特論、分子生物學特論、農林廢料再利用特論、動物幹細胞建立與應用、基因表達系統、應用微生物特論、生質能源特論、線性模式與育種、專題研究(1)、動物生殖生理特論、活性天然物特論、標記輔助選拔與基因選種、生物技術與產業實務、室內聲學設計特論、專題研究(2)、經濟動物繁殖管理特論、碳材料特論、木質材料加工特論	1.考試/隨堂測驗 2.書面報告及專題報告審查 3.實作訓練與測驗 4.儀器操作與數值分析

核心能力	能力指標與核心素養	對應課程	檢核機制
2. 具備領導、溝通、協調與團隊合作之能力。	1. 團隊組織的管理與領導 2. 良好的溝通能力	專業必修： 專題討論、生物資源研究法與論文習作 專業選修： 休閒研究方法論、專題研究(1)、地理資訊系統特論、地理資訊系統特論實習、生物技術與產業實務、專題研究(2)、生態旅遊研究	1. 專題報告審查 2. 野外調查或實習 3. 系統操作與專題實作 4. 小組討論及協辦研討會
3. 具備外國語文及國際視野能力。	1. 具備外語聽說讀寫能力 2. 掌握國際資訊	專業必修： 專題討論、生物資源研究法與論文習作、博士論文 專業選修： 木質纖維材料化學改質特論、分子生物學特論、演化生物學分析、休閒研究方法論、農林廢料再利用特論、維管束植物光合作用、植被生態學、陸域生態系生態學、動物幹細胞建立與應用、基因表達系統、應用微生物特論、生質能源特論、生態統計學、保育生物學特論、線性模式與育種、專題研究(1)、地理資訊系統特論、地理資訊系統特論實習、動物生殖生理特論、活性天然物特論、國際保育事務特論、標記輔助選拔與基因選種、生物技術與產業實務、室內聲學設計特論、專題研究(2)、生態旅遊研究、經濟動物繁殖管理特論、碳材料特論、木質材料加工特論、生態系統及生物多樣性管理	1. 考試/隨堂測驗 2. 書面報告及專題報告審查 3. 文獻解讀及協辦研討會 4. 外語檢定合格

生物資源研究所

Graduate Institute of Bioresource

一、必修科目 Required Courses

專題討論、4、必、全體教師

本課程旨在訓練研究生對資料蒐集、整理及表達的能力。學生選擇與論文有關的題目，蒐集文獻、閱讀、整理成摘要，然後提出報告討論，並由參與教師評分。

Seminar、4、R、All Faculties

This course is designed to train graduate students the ability in searching literature, organization of material and presentation. Students are required to select a topic in their thesis, search and review literature and drew up a brief. This presentation is scheduled for every student once a semester. Their performance valuated by the faculty member.

博士論文、1 2、必、各教師

每位博士班研究生選定論文題目，在指導教授指導下進行實驗、研究、依據實驗研究結果完成論文。

Dissertation、1 2、R、All Teachers

Graduate students propose their research project, complete experiment and write a thesis under advisor supervision.

生物資源研究法與論文習作、4、必

本課程旨在介紹生物多樣性、生物資源及其研究的方法。此為一通論性的研究方法論，目的在讓具不同背景及研究興趣的學生，可對生物資源的保育與永續經營學習基本的知識與建立觀念。內容包涵生物多樣性與保育、生物資源範籌及其利用與開發、生物多樣性的系統調查研究、各類生物資料與標本蒐集法、實例研討、生物資源的保存等。

本課程將先講授論文寫作的論理學、必要守則及重要關鍵，再透過研讀各種不同知識領域的期刊論文來精鍊技術論文的寫作技巧。

Bioresources Research and Thesis Writing、4、R

This course introduces biodiversity, biological resources and relevant approach methods for bioresources. The goal of this course introduces basic and essential general knowledge of bioresources and establish concept of conservation and sustainable use to students with various research interests and backgrounds. The contents include biodiversity and conservation, utilization and development of biological resources, systematic inventory and assessment of bioresources, data and specimens collection for various organisms, case study and preservation of bioresources.

This course will teach graduate students the logic, sufficient and necessary conditions, and key points of technical writing first. And then via reviews of a variety of different excellent papers from technical and scientific journals to further master the ability of technical writing and familiarize the methodology underlying research and development.

二、選修科目 Elective Courses

木質纖維材料化學改質特論、3、選、李鴻麟、上

木質纖維材料主要是由纖維素、半纖維素與木質素等組成分所構成的一種生物有機性聚合材料，而其組成分的物理與化學性質影響其材料之特性與用途。木質纖維材料極易受到外在環境因素影響而劣化，以化學改質方法可以有效改善與提升其性質與用途。本課程探討內容包括：木質纖維材料之組成分及其物理與化學性質、化學改質方法、化學改質後之材料性質與其用途等。

Special Topics on Chemical Modification of Lignocellulosic Materials、3、E、H. L. Li、F

Lignocellulosic material, made up primarily of cellulose, hemicellulose, and lignin, is a bio-polymeric composite and its properties and performance in application are relatively influenced by physical and chemistry properties of its components. Deterioration of lignocellulosic material readily occurred when it is exposed into the natural environment. Improved properties and extended usage of these polymers can be achieved through the technology of chemical modification. The main topics of this course include: main components of lignocellulosic material and their physical and chemical properties, the technology of chemical modification, and the properties and application of chemically modified materials.

分子生物學特論、2、選、洪國翔、上

本課程將以基本分子生物學為基礎，針對學生研究之主體，選擇適合之專題研究報告探討其在分子生物學上之意義，以加深學生在分子生物學上的知識。課程主要著重在：1)基因的基本理論結構 2)基因的表現及其控制理論 3)基因轉殖 4)細胞結構。

Special Topics on Molecular Biology、2、E、K. H. Hung、F

Based on the fundamental principles of molecular biology, the course will be focused on the following topics. 1) special topics in gene structure; 2) special topics in gene expression and regulation; 3) special topics in gene transformation; 4) special topics in cell structure.

演化生物學分析、3、選、洪國翔、上

本課程主要探討生物長時間的變遷，包括物種的分化與演變，生物類群的親緣關係，生物地理學，生物演化的遺傳基礎，分析生物族群之基因變異，基因頻度改變之選擇，種的起源與形成的機制，種與種間相互作用，天擇和適應之過程。這些內容不僅對於瞭解生命現象之組成與運作十分重要，更與解決人類所面對的環境問題密切相關，包括生物多樣性如何受自然與人類活動影響而變化，以及針對這些變化提出適當的因應策略等。

Analysis of Evolution Biology、3、E、K. H. Hung、F

This course mainly discusses the changes by the time, including the differentiation and phylogeny of species, biogeography, the genetic basis of evolution, analysis of genetic variation, changes of gene frequency, pattern and process of speciation, the process of natural

selection and adaptation. These elements are very important to understand the composition and operation of life, and resolve environmental problems, including changes of biodiversity by natural and human activities and how to make appropriate response to these changes.

休閒研究方法論、3、選、陳美惠、上

本課程將提供研究生完成其論文所需的基本研究方法知識與技能。這些技巧包括 (1) 研究程序 (2) 研究問題之建構 (3) 研究設計 (4) 資料搜集與分析的方法 (5) 研究結果的展現與報告的撰寫 (6) 學術論文實務探討。此外，本課程內容除授與研究方法有關的知識外，還特別著重於實例的操練，包括使用電腦統計軟體進行資料的處理與分析。

Research Methods in Leisure Studies、3、E、M. H. Chen、F

This course provides basic knowledge and skills needed for graduate students. These knowledge and skill shall include, but not limited to, (1) procedure of research (2) problem development (3) study design (4) methods of data collection and analysis, and (5) the reporting of research findings and conclusions (6) discussion for research articles. In addition, this course shall emphasize, through example practice and the application of statistical software to analyze data.

農林廢料再利用特論、3、選、蔡文田、上

本專業課程之主要目的，在討論國內農林部門生質廢料種類、來源與產生量現況、生質廢料利用現況與相關再利用法令、生質物化學與物理特性及其分析原理、一些案例探討(包括咖啡渣、畜糞、廢白土、牡蠣殼、稻草/稻殼、竹、魚鱗等)、期刊論文討論等

Special Topics on Utilization of Agricultural & Forest Residues、3、E、W. T. Tsai、F

The main objective of this professional course is to discuss the types, sources and amounts of the domestic biomass residues from agricultural and forestry sectors, current status of biomass resource utilization and regulatory systems regarding biomass utilization, chemical and physical properties of biomass and its analytical principles, and some case studies, including coffee residue, livestock manure, spent bleaching earth, oyster shell, rice straw/husk, bamboo, and fish scale, seminar on journal papers and so on.

維管束植物光合作用、3、選、賴宜鈴、上

維管束植物比細菌或是藻類發展出更繁複的組織和機制來調控光合作用，有許多研究利用葉片光合作用的測量和光合參數來代表植物的生長表現和健康，葉片的光合作用能力也常用以推估生態系的生產力，因此光合作用的測量普遍的應用在農業、生態與環境科學上。本課程旨在幫助學生更深入了解光合作用的原理和測量的方法，將包含光合作用的概念、參與光合作用的胞器和酵素系統調控，課程也將包含儀器操作及在實務上的應用。

Advanced Studies in Photosynthesis、3、E、I. L. Lai、F

Vascular plants developed more complicated tissues and mechanisms to regulate photosynthesis than bacteria or algae. The measurements and the parameters of leaf photosynthesis were applied to present plant performance and health. The ecosystem productivities could be further modeled by plant photosynthetic ability. The measurements of photosynthesis were widely applied in agriculture, ecology and environmental science. This course was aimed to help students more aware of the principles and methods of photosynthesis measurements. The course would include the introduction of concept of photosynthesis, involved organelles and enzyme systems and controlling factors. The course would also include the operation of instruments and the practical use.

植被生態學、3、選、賴宜鈴、下

本課程旨在介紹全球主要的植被型內植物種類的多樣性和分佈。先介紹其分區的依據、生態系特徵及影響的環境因子，接著介紹每個植被型的氣候、地形、土壤特徵、主要分佈的植物和動物種類。最後介紹過去氣候改變與植物分類群的分布、植物分布與演化的關係及全球的植相地理區系，對於台灣有分佈的溫帶和熱帶起源的植物科屬做進一步的討論。

Vegetation Community Ecology、3、E、I. L. Lai、S

The goal of this course is to introduce the plant species diversity, distribution in major vegetation community zones of the world. Their partition bases, characteristics of ecosystems and important environmental factors would be addressed first. Then the climate, geography, and soil characters of each vegetation community zone would be presented. The climatic changes affected on past distributions of plant taxa, relations of evolution and distribution of plants and the division of world floristic regions would be in last. The tropics and temperate originated plant taxa which distributed in Taiwan would be further discussed.

陸域生態系生態學、3、選、賴宜鈴、下

「陸域生態系生態學」主要在研究陸域生物和與他們構成一個生態系統的物理環境間的交互作用關係，本課程分為三個部份，第一部份介紹構成地球系統內容的大氣、海洋、氣候和地理系統如何影響生態系功能和造成全球的變異。第二部份介紹生態系的功能機制，包含能量和水的流動、碳和養分的循環。第三部份將會包含生態系歷程的時空變化及其與全球尺度的關係。

Terrestrial Ecosystem Ecology、3、E、I. L. Lai、S

The Terrestrial Ecosystem Ecology is the study of interactions among organisms and their physical environment as an integrated system. This course will separate to three parts. The first part introduces the context of Earth System - the atmosphere, ocean, climate and geological systems- affects ecosystem processes and contributes to the global variation. The second part considers the mechanisms by which terrestrial ecosystems function and focus on the flow of water and energy and the cycling of carbon and nutrients. The third part addresses temporal and spatial patterns in ecosystem processes and considers the integrated effects of these processes at the global scale.

動物幹細胞建立與應用、2、選、許岩得、下

於「動物幹細胞建立與應用」課程中教授與胚胎幹細胞建立與應用之學理與目前在

生物科技、藥物及再生醫學之應用，包括介紹胚胎學、胚胎幹細胞之建立與最新胚胎幹細胞相關科技應用等內容。

Application and Establishment of Stem Cells、2、E、T. D. Hsuuw、S

The course will present the establishment of embryonic stem cells from preimplantation embryos, and its new insights of applications in biotechnology, pharmaceuticals and regenerative medicine. Lectures include the embryology, embryo culture, establishment of embryonic stem cells, and the current cell biology and biotechnology in embryonic cell differentiations.

基因表達系統、2、選、陳又嘉、下

本課程將著重於原核基因及真核基因之表達，並介紹常用之宿主表達系統。

Genetic Expression System、2、E、Y. C. Chen、S

This course emphasize the expression of prokaryotic and eukaryotic genes, and introduce the common use of host expression system.

應用微生物特論、2、選、陳又嘉、下

本課程為提供學生學習應用微生物學中的進階技術與學理，課程中將介紹特殊環境微生物、真菌交配模式、微生物重組酵素表達、微生物代謝物產生與分析、發酵理論等內容。

Special Topics on Applied Microbiology、2、E、Y. C. Chen、S

The course is designed to offer students advanced techniques and theories of applied microbiology. The course includes extremely environmental microorganisms, fungal mating types, recombinant enzymes production, the analysis and production of microorganism metabolites and fermentation theories.

生質能源特論、2、選、蔡文田、下

林業廢棄物為一相當重要的生質能源料源，故本專業課程之主要內容包括下列主題：國內能源供需現況、生質能源與環境議題、生質能利用相關法令、木材生質物種類與產生量現況、木材生質物化學特性及其分析原理、木材生質物物理特性及其分析原理、木材生質物直接焚化技術、木材生質物熱解技術、木材生質物氣化技術、木材生質物液化技術、木材生質物衍生固體燃料技術(RDF)、氣電共生技術(CHP)等領域。

Special Topics on Biomass Energy、2、E、W. T. Tsai、S

Forestry waste is a very important feedstock for biomass energy. The main topics of this professional course include the following elements: current status of the domestic energy supply and demand, biomass energy and environmental issues, regulatory systems regarding biomass energy utilization, types of woody biomass and its generation status, chemical properties of biomass and its analytical principles, physical properties of woody biomass and its analytical principles, direct incineration of woody biomass, pyrolysis of woody biomass, gasification of woody biomass, liquefaction of woody biomass, woody fuel (refuse derived-fuel, RDF), combined heat & power and so on.

生態統計學、3、選、楊勝任、陳朝圳、下

本課程主要介紹族群與植群空間分布研究法。其授課內容包括生態植物社會資料收集、空間變化分析、分布法、樣區-變異數分析法、距離法、物種與豐富度間的關係、分布類型、歧異度指數、物種的親源性關係、隙區重疊指數、植物社會與相似性關係、關聯性分析、矩陣群團分析、植物社會分布序列、極點分布序列、主成分分析、典型相關分析、非線性分布序列。

Statistical Ecolog、3、E、S.Z. Yang、C. T. Chen)、S

The course is designed to provide the methods of studying population and community distribution. The course includes ecological community data collection, spatial pattern analysis, distribution methods, quadrat-variance methods, distance methods, species-abundance relations, distribution models, diversities indices, species affinity, niche overlap indices, community classification resemblance functions, association analysis, cluster analysis, community ordination, polar ordination, principle components analysis, correspondence analysis, nonlinear ordination.

保育生物學特論、3、選、洪國翔、下

保育生物學特論乃專為大學部高年級和研究生設計。這門課程之設計不僅在探索保育生物多樣性所必要的所有生物學的原理（遺傳學、族群生物學、生態學、演化），也將介紹與保育成效攸關的社會及文化議題。課程的目標包括：(1) 瞭解所有保育生物學家都應該知道的生物學理及科學發現，以及相關的人文範疇；(2) 藉由課堂討論及其他活動，整合從網路和主要的科學期刊所獲得之資訊；(3) 將所學的學理概念和研究發現與真實世界的保育問題連結，以期尋找消弭危機之策略。

Special Topics on Conservation Biology、3、E、K. H. Hung、S

Special Topics in Conservation Biology is a senior- and graduate-level course. This course is only designed to seek all principles of biology (including Genetics, Population Biology, Ecology, Evolution) that are essential to protect biodiversity, but also to introduce broader societal and cultural issues. The course objectives are (1) to explore the biological principles and finding, and humanities that all conservation biologists should know; (2) to integrate current information from the web and key journals by class discussion and other activities; and (3) to connect the concepts and research findings to conservation problems of world in order to seek strategies to minimize the crisis.

線性模式與育種、2、選、張秀鑾、下

本課程主要目的在探討線性統計模式之一般估計量與統計假說之檢定，及其於遺傳育種之應用。內容除著重於統計育種之理論基礎外，尚包括應用矩陣代數於線性模式之統計分析與 SAS 電腦套裝軟體之理論背景闡釋，建立統計分析正確理念與提升學生應用 SAS 系統之純熟能力。

Linear Model and Breeding、2、E、H. L. Chang、S

The aims of this course will be emphasis on the study of the general estimation problems and test the testable hypothesis for linear statistical model, and thus applied to the genetic and breeding aspects. In addition to theory of statistical breeding, topics will cover useful matrix

algebra for linear model methodology and statistical insights of SAS package, and thus enhance the students' ability when the statistical package employed.

專題研究(1)、2、選、上

本課程目的在提供各種特殊技術和知識，以解決研究生實驗和研讀時之特殊問題。除此，此課程在訓練研究生獨立研究之能力，以及與指導教授間之論文研究進度討論。

Independent Study(1)、2、E、F

The purpose of the course is to offer varieties of special techniques and knowledge used to solve special problems occurring during research or graduate study for graduate students. In addition, the course trains graduate students to have capability of independent study, and also aims to scheme the research schedule with the advisor.

地理資訊系統特論、2、選、陳朝圳、上

本課程為研究所一學期之課程，使學生具有空間資料之概念及相關文獻之閱讀能力，並以自然資源為對象講解如何應用地理資訊系統處理空間性問題。

其課程內容包括：空間資料與地理資訊系統、空間資料統計與分析、空間資源決策系統與地理資訊系統、遙測技術與地理資訊系統、全球定位系統與地理資訊系統

Special Topics of Geographic Information Systems、2、E、C. T. Chen、F

This course is designed for a one-semester course on the graduate level. It attempts to offer students the fundamental aspects of Geographic Information Systems (GIS) and to train the reading ability of literature of GIS. This course is offered cover: Spatial data and GIS; Statistics and analysis of spatial data; Spatial resource decision system and GIS; Remote sensing and GIS; GPS and GIS.

地理資訊系統特論實習、1、選、陳朝圳、上

本課程為研究所一學期之課程，使學生具有空間資料處理之能力，並以自然資源為對象練習學生應用地理資訊系統解決空間性問題。其課程內容包括：主題圖之資料結構；數位高程與地理資訊系統；資料輸入、校正、儲存與輸出；資料分析方法與空間模擬；資料品質、誤差與自然變異；分類方法；空間內差方法

Practice of Special Topics of Geographic Information Systems、1、E、C. T. Chen、F

This course is designed for a one-semester course on the graduate level. It attempts to train students the ability of treatment of spatial datum. This course is offered cover: Data structure for thematic maps; Digital elevation models and GIS; Data input, verification, storage, and output; Methods of data analysis and spatial modeling; Data quality, errors, and natural variation; Classification methods; Methods of spatial interpolation.

動物生殖生理特論、2、選、沈朋志、上

由於動物生殖現象存有相當程度之變化，本課程將試著引導學生充分了解一般共同生殖要點及各動物生殖細節之不同，並著重生殖技術方法之介紹，使學生對哺乳動物生

殖有全面認識。課程內容著重於性別、性腺功能、懷孕分娩；一般生殖技術；生物技術應用於生殖。

Special Topics on Animal Reproductive Physiology、2、E、P. C. Shen、F

A lot of variation in the reproduction is observed amongst different species. The objection of this course attempt to discuss the general fundamental facts and details differ on reproductive events for students can take a whole picture on mammalian reproduction. We also emphasize to introduce the research or farm practice technique on reproduction. Course contents include: Sex, gland function and pregnancy and parturition; Basic reproductive technique; Modern biological technique on reproduction

活性天然物特論、3、S、黃卓治、上

本課程將介紹具有生物活性之生物二次代謝產物，如生物鹼、類黃酮、萜類等重要天然物之生物合成、分離純化技術、構造鑑定與生物活性資訊，內容亦配合期刊論文等資料，探討其生理作用機制，對這些天然資源在保健食品與新藥開發之應用也舉例說明進行討論。

Special Topics in Bioactive Natural Products、3、E、T. C. Hiang、F

The course will introduce the biosynthesis, purification, structural determination and biological activities of some important bioactive natural products, including alkaloids, flavonoids and terpenoids. Signal transduction pathway about the functionality will be discussed. The topics also discuss the applications of some bioactive compounds to healthy food in human diet and new drugs development using recent scientific literature (journals, reviews, books, etc).

國際保育事務特論、3、選、裴家騏、孫元勳、上

本課程之宗旨在使學生認識國際自然保育工作之內容。課程內容則包括目前世界上重要的有關自然保育的政府間協定和國際組織的特性與功能、臺灣在過去與現在對自然保育所做的努力及措施。

International Affairs on Natural Conservation、3、E、J. C. Pei、Y. H. Sun、F

This course introduces international issues in natural conservation. It broadly discusses the types and functions of existing inter-governmental treaties and international organizations that concern natural conservation, and the previous and present efforts in natural conservation in Taiwan.

標記輔助選拔與基因選種、2、選、張秀鑾、上

本課程旨在培養研究生具備科技選種之理論基礎與技術，內容主要包括四部分；(1) 應用表型性能記錄與系譜之傳統評估法、最佳線性預測法（BLP）與最佳線性無偏預測法（BLUP）等遺傳評估方法之回顧與複習；(2) 分子遺傳資訊介紹，包括應用孟德爾模式與主效基因模式於已知基因之效應分析；(3) 標記輔助選拔介紹，包括理論基礎、直接與間接標記應用、數量性狀基因座之遺傳評估，以及基因選種之應用；(4) 最佳化的選種策略。

Marker assisted selection and genomic breeding、2、E、H. L. Chang、F

The objective of this course is to educate graduate students with solid science and technology background in breeding and selection. Course content mainly covers four parts: (1) recall traditional genetic evaluation, using phenotype and pedigree, BLP and BLUP; (2) introduce molecular information, including Mendelian models and major gene models for known gene; (3) introduction to marker assisted selection with focus on basic principles, consequences and application with direct and indirect markers, genetic evaluation of QTL-BLUP, and its application on genomic breeding; (4) optimize selection strategy.

生物技術與產業實務、3、選、上

本課程旨在加強學生對生物技術的瞭解，其範圍涵蓋遺傳工程技術、細胞融合技術和蛋白質工程技術等三大領域的理論和臨床上應用。

Biotechnology and Bioindustry、3、E、F

The course will emphasize three major areas, including genetic engineering, hybridoma techniques and protein engineering. This class is going to train students to understand the concepts and applications of biotechnology.

室內聲學設計特論、2、選、林芳銘、上

內容為室內音響基礎理論介紹，音響建材之種類特性與選定原則，室內音響設計目標與基準，最佳迴響時間與室形設計，音響性能評估指標與量測方法，防音防振原理與對策，以及電氣音響基本原理。本課程的教學儘量以實際室內聲學設計案例解析來配合室內聲學原理與設計方法的學習，課程期末目標為小型音樂聆聽室的設計實作演練，使學生將所學設計原理與實務應用結合。

Special Topics on Room Acoustics Design、2、E、F. M. Lin、F

The objective of this course is to introduce the students to the design method and countermeasure of room acoustics design. The course content includes introduction to room acoustics design theory, the properties of and the guidelines of choosing acoustics materials, objective and principles of room acoustics design, reverberation time and room dimension, evaluation of sound performance and measuring method, theory and countermeasure of sound and vibration insulation, and basic principles of the electro acoustics. The course goal at the end of the term is the practice design of a family listening room that will allow the students to combine the design principles acquired in class with actual design.

專題研究(2)、2、選、下

本課程目的在提供各種特殊技術和知識，以解決研究生實驗和研讀時之特殊問題。除此，此課程在訓練研究生獨立研究之能力，以及與指導教授間之論文研究進度討論。

Independent Study(2)、2、E、S

The purpose of the course is to offer varieties of special techniques and knowledge used to solve special problems occurring during research or graduate study for graduate students. In addition, the course trains graduate students to have capability of independent study, and also aims to scheme the research schedule with the advisor.

生態旅遊研究、3、選、羅凱安、上

台灣的位置與地形特殊，有許多寶貴的生態與人文資源，如何保育與合理利用是相當重要的研究課題。生態旅遊是一種當前環境保育、發展觀光與社區發展三個重要方向發展下的產物，其不僅為國內外的發展趨勢，也是各種生態文化產業提供新的發展契機。本課程主要涵蓋五部份，即生態與旅遊之導論、生態旅遊之資源與調查、遊憩觀光之衝擊與評估、生態旅遊規劃與管理、以及生態旅遊案例與省思，培養學生具有研究與操作生態旅遊之能力。

Ecotourism Research、3、E、K. A. Lo、F

Taiwan has important location and unique landscape. There are many treasure embedded in ecological and cultural resources. How to preserve and conserve those resources are quite important research topics. Ecotourism is a new concept to deal with environmental conservation, tourism, and community development. It is not only domestic and foreign trend; also provide turning points for various ecological and cultural industries development. Of this curriculum mainly covers five parts, namely introduction, the ecotourism resources and the investigation, recreational impact and the monitoring, the eco-tourism planning and management, as well as the case studies and reconsiderations. It can enhance the students' research and operation ability on ecotourism.

經濟動物繁殖管理特論、2、選、劉炳燦、下

本課程係以文獻檢討之方式，介紹近年來在家畜繁殖技術方面之進展。課程內容包括：發情與配種之人工控制，包括發情同期化及排卵時間之控制；季節性繁殖家畜之季節外配種控制，特別是在綿羊與山羊；家畜胚之體外生產技術，包括卵母細胞之體外成熟、體外受精及受精卵體外培養至囊胚階段；家畜精液與胚之冷凍保存技術，由傳統慢速冷凍發展至玻璃化冷凍；精子與胚之性別鑑定，包括 flowcytometry 與 PCR 技術之應用；胚操作與移置相關技術；家畜之複製，以細胞核移置及複製後之相關問題為主。

Special Topics on Farm Animal Reproductive Management、2、E、B. T. Liu、S

This subject provides the introduction of the progress on reproductive technology in farm animals in recent years through reference reviewing. The contents of the subject includes: Artificial control of estrus and breeding, including estrus synchronization and control of ovulation timing. Control of breeding in seasonal breeders out of season particularly in sheep and goat. Production of embryos in vitro including maturation and fertilization of oocytes, and culture of embryos until blastocyst stage. Cryopreservation of semen and embryos, development of vitrification method out of conventional slow freezing method. Sexing of spermatozoa and embryos including the application of flowcytometry and PCR techniques. Manipulation and transplantation of embryos. Cloning of farm animals mainly the nuclear transfer and associated problems after cloning.

碳材料特論、3、選、蔡文田、下

本專業課程之主要目的，在討論碳材料(包括粉狀/粒狀活性碳及生質炭)構造、生物資源前驅物與製造、表面化學性質、物理(孔洞)性質、試驗標準、再生以及產業應用。

產業應用上將焦點於碳材料在環境保護(空氣品質控制及水/污水淨化)及農業等領域。

Special topics on Carbon Materials、3、E、W. T. Tsai、S

The main objective of this professional course is to discuss the structure, biomass resource precursor/manufacturing, chemical surface properties, physical (pore) properties, test standards, regeneration and applications of carbon materials including powder/granular activated carbon and biochar. Their applications will focus on environmental protection (air quality control and water/wastewater purification) and agricultural industries.

木質材料加工特論、2、選、藍浩繁、下

有關木質材料之特定用途，或是利用木材之特性所進行之加工技術，介紹曲木加工技術及應用，包括加熱彎曲、藥劑軟化彎曲、層積彎曲，也介紹強化木材及尺寸安定木材之處理技術，以及木材產品之特殊機械加工或切削技術。介紹木質工字樑、箱型樑、桁架樑、集成材、OSB、單板層積材之製造與品質性能。

Special Topics on Processing of Wood-based Materials、2、E、H. F. Lan、S

This course is to familiarize students with physical or chemical means on their combination to modify wood. The contents of this course include impregnation with chemicals or/and physical treatments to retain cell walls and wood structure and to endurance decay resistance, fire retardation, dimensional stability, or structural strength of wood.

生態系統及生物多樣性管理、3、選、賴宜鈴、下

本課程將介紹經營管理生態系統及生物多樣性所需之知識及方法基礎。課程內容包含：生物多樣性與生態系統之觀念、現況及面臨的威脅，其研究方法、監測方法、經營管理原則及氣候變遷下的管理策略。

Management of Ecosystems and Biodiversity、3、E、I. L. Lai、S

The goal of this course is to introduce the knowledge bases and tools for management of ecosystems and biodiversity. Content: concepts of ecosystem and biodiversity, current status and threats, research and monitoring methods, management principles and strategies under global change circumstances.

103 學年度課程規劃

二年制食品科學系(草案)

(一)教育目標

培育食品科學理論與加工技術兼修之高級食品加工人才。

(二)校定共同必修科目

中 英 文 科 目 名 稱	學 分 數	第一學年		第二學年		備 註
		上	下	上	下	
二技英文 Freshman English	2		2			大一英文(2)
通識課程 General Education	4	2	2			
英語聽講練習 103~104 Oral-Aural Training in English	2	1	1			
生活服務教育 Student Life Service Education	0	0	0			
二技國文 Chinese	2		2			國文(2)
通識教育講座 Lectures on General Education	1					各系依序開課，開課學 期不定
合 計	11	3	7			

(三)學院共同必修科目

中 英 文 科 目 名 稱	學 分 數	第一學年		第二學年		備 註
		上	下	上	下	
生物統計 Biometry	2	2				
生物統計實習 Biometry Lab.	1	1				
合 計	3	3				

(四)專業必修科目

文 科 目 中 英 名 稱	學 分 數	第一學年		第二學年		備 註
		上	下	上	下	
電腦在食品科技之應用 Application of Computer in Food Technology	2	2				
電腦在食品科技之應用實習 Application of Computer in Food Technology Lab.	1	1				
食品微生物 Food Microbiology	3	3				
生物學 Biology	2	2				
食品法規 Food Law	2		2			
食品工程學(1) Food Engineering(1)	3		3			
生物化學(2) Biochemistry (2)	3		3			
食品加工(1) Food Processing (1)	2		2			
食品加工實習(1) Food Processing Lab.	1		1			
食品科技英文 Professional English in Food Science	2		2			
食品加工(2) Food Processing (2)	2			2		
食品加工實習(2) Food Processing Lab.(2)	1			1		
合 計	24	8	13	3	0	

(五)專業選修科目

文 科 目 中 英 名 稱	學 分 數	第一學年		第二學年		備 註
		上	下	上	下	
烘焙學 Baking Technology	2	2				
烘焙學實習 Baking Technology Lab.	1	1				
食品添加物 Food Additives	2	2				
食品行銷 Food Marketing	2	2				
食品生物技術產業與經營 Industrial Business and Management for Food Biotechnology Processing	2	2				
食品分析 Food Analysis	2	2				
食品分析實驗 Food Analysis Lab.	2	2				
食品品質管制 Quality Assurance of Food Products	2	2				
營養學 Nutrition	2	2				
食品殺菌技術 Food Sterilization	2	2				
食品殺菌技術實習 Food Sterilization Lab.	1	1				
食品微生物實驗 Food Microbiology Lab.	1	1				
機能性食品理論與應用 Functional Foods	2		2			
應用電工學與實習 Applied Electric Engineering and Lab.	2		2			
保健食材之加工與應用 Processing and Application of Health Materials	3		3			
食品調理技術 Techniques of Prepared Foods	2		2			

傳閱附件 3--配合陸生來台就讀本校二技學制課程，訂定食品系二技 103
學年度入學課程規劃案

文 科 目 中 英 名 稱	學 分 數	第一學年		第二學年		備 註
		上	下	上	下	
食品調理技術實習 Techniques of Prepared Foods Lab.	1		1			
食品加工自動化元件與實習 (1) Food Process Automation and Lab.(1)	3		3			
物理化學 Physical Chemistry	3		3			
微生物檢驗技術 Microbes Detection	2		2			
微生物檢驗技術實習 Microbes Detection Lab.	1		1			
食品化學 Food Chemistry	3		3			
食物學原理 Principles of Food	2		2			
食品冷凍學 Food Freezing Technology	3		3			
食品工廠管理 Food Factory Management	2		2			
實務專題 Practical Projects	2		1	1		
酵素應用技術 Enzyme Methodology	2			2		
酵素應用技術實習 Enzyme Methodology Lab.	1			1		
食品包裝 Food Packaging	2			2		
分子生物概論 Introduction to Molecular Biology	3			3		
新產品開發與實習 Food Product Development and Lab.	3			3		
食品衛生與安全 Food Hygiene and Safety	2			2		
食品機械 Food Machinery	2			2		

傳閱附件 3--配合陸生來台就讀本校二技學制課程，訂定食品系二技 103
學年度入學課程規劃案

文 科 目 中 英 名 稱	學 分 數	第一學年		第二學年		備 註
		上	下	上	下	
醱酵學 Fermentation	2			2		
醱酵學實習 Fermentation Lab.	1			1		
感官品評學與實習 Sensory Evaluation and Lab.	3			3		
食品工程學(2) Food Engineering(2)	3				3	
食品儀器分析 Instrumental Analysis of Foods	2				2	
食品儀器分析實驗 Instrumental Analysis of Foods Lab.	1				1	
食品生鮮處理技術 Post-harvest Technology	2				2	
食品生鮮處理技術實習 Post-harvest Technology Lab.	1				1	
食品生物化學 Food Biochemistry	2				2	
合 計	84	21	30	22	11	

**362007 Food Processing Lab.(1) 1 R W. K. Chiu,
C. Y. Tsai, S**

The lab provides the chance to practice the processing of dried pork bundle、sausage、cured meat、fish ball、dehydrated fish stick and shrimp sauce products.

**362013 食品加工(2) 2 必 蔡碧仁、
楊季清，上**

本課程主要包含穀類加工及蔬果加工二部分。第一部分介紹穀類之種類、特性及加工原則，並說明各種穀類之處理、貯存，一次加工與再加工成品及利用，第二部份則介紹蔬果中影響色香味質地相關成份與其在加工貯存過程中之變化與防止方法。

**362013 Food Processing(2) 2 R P. J. Tsai,
C. C. Yang, F**

The class includes two part of lessons. Part I emphasizes on the variety, characteristics and principles of processing in cereals. All the handling, storage, preliminary processing of the materials and further utilization of the above products, such as bread, cake, noodle etc. are also mentioned. Part2 emphasizes on the characteristic of constituents related to the color, flavor and texture of fruits and vegetables. The quality change during processing and storage and prevention of it are also introduced.

**362014 食品加工實習(2) 1 必 蔡碧仁、
楊季清，上**

本實習課程第一部分為穀類加工實習，包含各種穀類之認識及品質判斷，各種配方對產品品質之影響，加工方法，程序之設設與開發。第二部分為蔬果加工實習，包含以各種蔬果進行各式加工，經由操作過程讓學生了解加工成品品質與加工操作間之關係，俾理論與實際能相印證。

**362014 Food Processing Lab.(2) 1 R P. J. Tsai,
C. C. Yang, F**

Part1 will on (1) the quality judgment of the grain, flour of cereals(2) effect of formulation on the quality of product(3) development and optimization of processing method, and procedure in cereal products.

Part2 will on relations processing by using fruit and vegetables. Students may understand the relation between quality and processing method and the quality change duving processing and storage.

**362015 食品工程學(1) 3 必 古源光、林貞信、
劉展岡 下**

食品工程為介紹學生食品生產製造過程中所涉及和相關的工程概念和理論。課程內容包括數學理論與應用、單位與因次、物質平衡、能量平衡、蒸汽表、黏度概念與流變學、流體的輸送、基礎熱傳學、溼度學和食品熱處理等。

C. C. Liu, S

3 必 謝寶全、邱秋霞、
郭嘉信，上

**3 R P. C. Shieh,
C.H.Chiu,
J. H. Guo, F**

3 必 許祥純、
吳美莉 下

3 R S. C. Sheu,
M. L. Wu, S

2 選 劉展罔、
林貞信，上

41

362041 Application of Computer Technology in Food **2 E** **C. C. Liu,
J. S. Lin, F**

This course introduces the application of personal computer and assorted softwares in the field of food technology, such as data acquisition, statistical treatment on quality control, mathematical modeling involved in various food processing technologies. Contents include chart and figure generation by computer, probability and sampling, statistical analysis, regression, optimization, response surface method, applied numerical analysis in food engineering. Focus will be emphasized on practical applications of computer software instead of sophisticated theories.

362042 電腦在食品科技之應用實習 **1 選** **劉展岡、
林貞信，上**

本實習目標配合正課而實施，共設計有食品科學研究暨食品工業生產上所需應用到之 10 項練習題，分別為直方圖製作；管制圖製作；信賴區間；直條圖與 x-y 圖製作；假設檢定之施行；線性回歸與變異數分析；反應活化能計算；線性規劃應用於營養調配；反應區面法；相關性與相關係數分析。

362042 Application of Computer Technology in Food Lab. **1 E** **C. C. Liu,
J. S. Lin, S**

The lab is specifically designed to complement with the lecture, there are totally 10 practices listed as follows: Histogram Chart; Statistical Process Control; Confidence Interval; Bar Chart and X-Y Representation of scientific data; Validation of Hypothesis; Linear regression and Variance Analysis; Calculation of Activation Energy by Linear Regression; Linear Programming for Nutrition Formulation; Response Surface Methodology; Analyses on the Correlation Coefficient.

362039 食品科技英文 **2 選** **許祥純，下**

本課程目的在給予學生食品科技專業英文知識，提升其聽說讀寫能力。課程內容將介紹日常生活常用之食品字彙、食品科學各專業領域之專有名詞、食品科學研究報告之閱讀與撰寫，並利用課堂討論及專題報告，提昇學生食品專業英文的聽說能力。

362039 Professional English in Food Science **2 E** **S. C. Sheu, S**

The purpose of this course is to improve students' listening, speaking, reading and writing abilities of professional English in food science. Several topics will be introduced in this course including living English in food science, terminology of different fields of food science and reading and writing of research paper of food science. Moreover, the students' listening and writing abilities will also be improved by group discussion and oral presentation.

二、選修科目 Elective Courses

362034 烘焙學 **2 選** **蔡錦燕，上**

本課程以教授各種類烘焙產品之製作原理為主，介紹各項食品組成分在烘培

產品中所展現的功能特性。課程內空依產品特性，分麵包、蛋糕與西點三大類。以單項產品之製作為主軸；從麵粉的選擇，配方的計算、麵糰醱酵時間、濕度與溫度之判斷，和烘焙溫度與時間的決定等因素來探討產品的烘焙體積、口感、顏色、外觀及味道等。更希望藉由此項課程之傳授，培養學生對新產品研發的興趣。

362034 Baking **2 E** **C. Y. Tasi, F**

Objectives of this course are to introduce the baking principles and functional characteristics of various bakery products from different food ingredients. The course is divided into three major categories including breads, cakes and desserts. On the basis of sole product preparation, study of baking volume, texture, color and appearance are completely conducted by investigating flour screening, recipe calculation, judgment of dough fermentation temperature, humidity and time, and determination of baking temperature and time. As a result, the current course training should enhance the capability of student for new product development.

362035 烘焙學實習 **1 選** **蔡錦燕，上**

本課程之開設在於印證烘焙理論與實際操作之相互關係。讓學生從實習操作中，去瞭解各項食品成份對製成產品品質的影響。實習課程採小組教學與分工，共分成八組，各式麵包、蛋糕及西點共三大類，二十四項產品將列入理論設計中逐項實習反覆演練。

362035 Baking Lab. **1 E** **C. Y. Tasi, F**

This course is provided for illustrating the relationship between baking theories and practices. To make students understand the effect on quality of baking products by knowing various food ingredients. This class is classified as unit teaching and operation, and the attendees are divided into 8 groups for practicing. Selected twelve products focusing will be covered and repeatedly practiced in Lab class.

362040 食品添加物 **2 選** **邱文貴，上**

該課程討論食品加工中常用之配料，如修飾澱粉、特殊功能蛋白質、膠質及加工油脂及少量使用但功能特殊之添加物，如香料、乳化劑、抗氧化劑等物理性質及其生產技術。而整合各配料主要食品加工過程中，搭配使用，發揮整體最大功能，則是本課程之討論重點。

362040 Food Ingredients **2 E** **W. K. Chiu, F**

The commonly used ingredients in food processing are discussed, including modified starch, protein with functional properties, gum and gelling material and modified fatty ingredients. The special functional ingredients such as spices, emulsifier, antioxidants are also covered. Pasteurizing and sterilizing equipments, cooling machines, drying machines, extruder, packing machines and some advanced automatic machines in food industry are mentioned too.

362046 食品行銷 **2 選** **吳明昌、
楊季清 上**

362046 Food Marketing

2 E

The objective of this course was designed to teach food marketing basic concepts and principles. So that student could also specialize in marketing as well as food science and technology .The courses included:(A)marketing management procedure 、strategic planning 、marketing research 、marketing information system 、distribution channels 、product promotion 、competitive marketing strategy 、international marketing (B)Individual food enterprise marketing.

362060 食品生物技術產業與經營

2 選

郭嘉信，上

本課程內容主要介紹國內外食品生物技術產業的現況與發展、新穎保健食品的開發與應用、基因改造食品的過去與未來、台灣食品生技產業的規範與智財權、以及經營策略等。

362060 Industrial Business and Management for Food Biotechnology

2 E

J. H. Guo, F

This course will provide an overview of global food biotechnology businesses, critical developments of novel healthy foods and genetically modified foods, regulations and intellectual property protections of food biotechnology businesses, and strategy and management for running a food biotechnology business.

362023 食品分析

2 必

林頌生、黃卓治、黃至君，上

本課程分二方面討論，其一為基礎分析化學之複習，重點包括各種濃度單位之換算、試藥溶液之配製方法及定性、定量化學反應之原理與計算等；其二為針對食品分析實習項目之實驗原理與計算的講解，俾使學生在操作實驗之餘，能知其然，並融會貫通實驗的設計原理與目的。

362023 Food Analysis

 $2 \quad \mathbb{R}$

**C. S. Lin 、 T.C.Huang 、
C.C.Huang, F**

Designed to acquaint the students with the basic knowledge and fundamental principles of analytical chemistry commonly used by food analysts. Emphasis is on understanding the theoretical and practical aspects of volumetric and spectro photometric methods. Procedures for routine quality control and official tests on food components are also introduced.

362024 食品分析實驗

2 必

林頌生、黃卓治、

黃至君，上

實習項目包括食品系之一般成分分析及油脂、蛋白質食品之品管等方面。一般成分包括水分、灰分、粗蛋白、粗脂肪、磷、鈣等成分之定量；油脂之品質測定包括酸價、碘價、過氧化價及皂化價等；蛋白質之鮮度及品質測定則包括揮發性鹽基態氮及胺基態氮等。讓學生藉實際之操作過程，對相關食品之一般成分測定及品管工作有基本的認識。

362024 Food Analysis Lab. $2 \quad \mathbb{R}$

**C. S. Lin 、 T.C.Huang 、
C.C.Huang, F**

Designed to acquaint the students with the practical operation for routine quality control and official tests used by food analysts. Students work in small groups to be familiar with the proximate analysis of food products. Techniques training of quality control on selected items in fat-containing food (such as acid value, peroxide value, iodine value and saponification value) and protein-containing food (such as volatile basic nitrogen and amino nitrogen) is also the objectives of this course.

362049 食品品質管制

2 選

廖遠東，上

由統計之觀點，討論食品工廠中之品質管制事項，包括管制圖之製作原理、實際應用建立。管制要點，經由食品良好作業規範，延伸品管項目原料、製程以迄售後品質，注重製造過程中預先管制，並顧及顧客反應以求追縱改進。危害因子管制，則由加工過程中特別重要的管制點著手，以維護產品之安全性。最後，則充分運用統計數據，建立 ISO9000 系列管制制度，達到食品品質之全面品質保證。

362049 Food Quality Control

2 E

E. T. Liaw, F

From the view point of statistical technique, quality control in food processing is important. Control charts, involving X and R charts will be discussed theoretically. Application of these charts is emphasized. In good manufacturing process, food quality protection will be discussed from raw material, processing and shelf-life. Some of the major steps to maintain food quality should be achieved by applying HACCP system. Finally, use the statistical data to match ISO9000 control system. So, the food quality will be assured entirely.

362022 營養學

2 必

陳與國，下

本課程除講授營養學基本原理和正常營養之實際運用外，更藉由親自操作實習來明瞭食物的特性與營養學上的觀念和理論。主要講授內容包括介紹食物營養與健康，消化吸收與代謝，蛋白質及胺基酸、醣類、脂類、能量代謝、礦物質元素、水分及電解質平衡、脂溶性和水溶性維生素。主要實習內容包括：米飯、麵條、米粉和粉絲類吸水率之計算與製備；蛋之乳化作用及蛋黃醬之製作；肉類之收縮率與廢棄率之計算方法與製備；豆類與奶類的特性及其製品與各類食物代換單位和代換表應用練習。

362022 Nutrition

2 R

Yu-Kuo.Chen , S

The objective of this course is not only to introduce fundamentals of nutrition science

and practical applications of the principles for normal nutrition but also to elucidate properties of different kinds of food and nutrition concepts and theory by practical manipulation. Lecture contents cover: food, nutrition and health; digestion, absorption and metabolism; proteins and amino acids; carbohydrates; lipids; energy metabolism; mineral elements; fluid and electrolyte balance; fat—and water-soluble vitamins. Laboratory work includes: preparation and water absorption ratio of different kinds of rice and noodle; dumpling making; practice of “as purchased” and “edible portion” in eggs, vegetables and fruits; emulsification of egg and predation of mayonnaise; shrinkage ratio and waste ratio of meats; properties of soybean an milk and their products an practice of exchange list of different kinds of foods.

362050 食品殺菌技術

2 選

吳明昌，上

本課程在探討食品品質變化最小的條件下，惰化或殺滅食品中所含微生物而得以商業保存的技術。其內容包括利用熱、電磁波殺菌之原理及應用，放射線殺菌之理論、應用及安全性，化學藥劑之使用方法及安全性，水活性調節、超薄過濾、超高速遠心分離等之物理除菌原理、應用及無菌包裝等加工技術。

362050 Food Sterilization

2 E

M. C. Wu, F

The course discusses the techniques to achieve the preservation of food. The food sterilization can be processed under a minimized deterioration condition to reduce or remove the existing microorganism, the outlines included the heat, electromagnetic wave, radiation sterilization, the aseptic packaging and carefully control of water activity, ultrafiltration, ultrapressure, and ultrahigh speed centrifugation are also covered.

362051 食品殺菌技術實習

1 選

吳明昌，上

本課程配合食品殺菌技術之課程內容，作實際之操作、試驗或參觀等其內容包括各類食品之熱傳導速率測定、微生物耐熱性曲線製作、加熱殺菌值測定、各種密封食品加熱殺菌條件之探討、化學藥劑對食品之保存與安全性試驗、物理除菌等試驗及至加工廠或相關單位參觀，以瞭解食品生產之殺菌實務。

362051 Food Sterilization Lab.

1 E

M. C. Wu, F

The lab is to match the lecture to have the practice to run the food sterilization techniques. The thermal conductivity rate was determined to evaluate the thermal death curve and lethal rate of microorganisms. The chemical and physical sterilization were also tested and setup a field trip for students.

362026 食品微生物實驗

**1 必 謝寶全、邱秋霞、
郭嘉信，上**

講授食品中微生物數之計測方法，有用食品微生物之分離、培養方法，以及單獨利用細菌、酵母、黴菌或混合菌來製造食品的方法，食物中毒菌之分離鑑定及其計測。

362026 Food Microbiology Lab.

**1 R P. C. Shieh, C. H. Chiu,
J. H. Guo, F**

The lab technique covers the cell count of microbes in food, the isolation and cultivation

of food microbes. Bacteria、yeast、mold or mixed of them were applied on food processing, the isolation, identification and counting of food poisoning microbes were also involved.

362057 機能性食品理論與應用 **2 選** **楊季清、
謝寶全，下**

此課程包含特殊營養食品、機能性食品、計劃性食物及藥劑營養食品之加工、生理功能介紹。由於男人、女人和小孩之特異生理構造不同，因此所需之營養要求也不大相同。而針對老年人所開發之機能性食品強調抗老化之作用及免疫系統之建立。在西方國家植物化學食品包含天然生理活性等物質較普遍化，而中國之藥用植物在未來健康食品市場扮演一重要的角色。此課程將說明這些功能特性食品之物理(身體)的及化學的功能。

362057 Functional Foods **2 E** **C. C. Yang,
P. C. Hsieh, S**

The course comprise the physiological function and process of nutritional supplements、functional foods、designers foods and pharma foods. Men women and children are different in nutritional requirements due to their distinct physiological structure. The functional foods for aged people emphasize the effect of anti-aging and building the immune system. Physiochemical which contain natural physiological active ingredients are more popular in western countries. The Chinese herb should play an important role for the future healthy food market. This course will illustrate their physical and chemical functions .

362036 應用電工學與實習 **2 選** **陳和賢，上**

本課程目的主要內容為:

基本直流電路的認識、各種量表的認識、過電流裝置、各種電驛之認識。交直流輸配電的介紹、基礎電路設計與認識、歐姆定律及其應用、三用電錶之認識及應用、NFB 之認識與應用、馬達轉速與輸出功率、汽車電路系統、計時繼電器之認識與應用、發電機之認識、基礎供電設計。

362036 Applied Electric Engineering And Lab **2 E** **H. H. Chen, F**

The top of this course:

Fundamental circuits.(D.C & A.C.) Introduced meters: (Amp. Voltage. Ohm. Waft.) Introduced: Fuse & N.F.B. Introduced: Relays (Thermal overload Relay, Time relay etc.) Introduced: Transmission & Distribution, Fundamental circuits, Ohm's law, Use of meters (A.V), Fuse & NFB, Speed & power of a meter, Electrical system of Auto, The use of Rwlays, Generator, Fundametal Design of Transmission & Distribution system.

362047 保健食材之加工與應用 **3 選** **蔡碧仁，下**

使學生了解食品材料與保健科學的基本特性及具備在保健科學應用之基礎及技術，並有效掌管保健食材的加工、產品貯存及流通。內容包括：蔬菜、水果、豆類與穀類的基本特性及保健功能、東西方保健食材，如中草藥、菇蕈類、香草類、幾丁聚糖、蜂膠等、生物技術產品，如膠原蛋白、酵素類、.乳酸製品、果

寡糖、色素等之介紹、營養補充劑，如維生素、亞麻油酸、DHA、卵磷脂等

362047 Processing and Application of Health Materials 3 E P. J. Tsai, S

The aim of this course is to introduce the characteristics of food materials and their application in Health Science. Handling skills during processing, storage and transportation are also mentioned. Contents include : characteristics and functions of fruits, vegetables, beans and cereals、 Health foods in orient and west word like Chinese medicine, mushroom, herb, chitosan、 Biotechnical products like collagen, enzyme, lactic acid, oligosaccharide and pigments. 4. Nutrient supplement like vitamin, linoleic acid, DHA and lecithin.

362044 食品調理技術 2 選 邱文貴，下

本課程在指導學生利用食品材料、調配、冷熱處理、脫水、發酵、烘焙等食品調理技術，配合烹飪學原理，將各類食品加以調製、包裝期能增加保存期限。其內容包括蛋白質系、碳水化合物系、油脂系食品汁調理原理及調理法、合理營養及適當色香味與物性的調配、產品品質鑑定、保藏及新產品開發等技術。

362044 Techniques of Prepared Foods 2 E W. K. Chiu, S

The goal of this course is to teach the students the knowledge of raw material, formulation, dehydration, baking, fermentation in food cooking. It also combines with the packaging technique to extend the shelf-life of foods.

362045 食品調理技術實習 1 選 邱文貴，下

本課程配合食品調理技術之理論,習作各類食品,並以食品保存技術製成即食調理食品。其內容包括穀類、根莖類之碳水化合物食品,魚、肉、乳、蛋及豆類之蛋白質性食品、高油食品等之調配技術過程中之調理化學變化測定、包裝材料、包裝方法及保存性測驗、產品品質測定、調味醬類之配合與習作、調理食品研發等。

362045 Techniques of Prepared Foods Lab. 1 E W. K. Chiu, S

The course covers the theoretical aspect of the techniques of food preparation. Several kinds of prepared foods are formulated. Preservation and Preparation of the ready-to-eat food are practiced.

362048 食品加工自動化元件與實習(一) 3 選 陳和賢，下

簡介食品工業上所應用之各種自動控制系統及其組成元件。課程包含自動控制系統之組成元件分類概述，順序與回饋控制簡述，各種電力與氣壓感測控制元件介紹，各項系統元件之工作原理，以及簡易控制程式之編輯驅動。實習內容包括電氣與氣壓元件，交直流馬達，感測器，以及可程式化邏輯控制器(PLC)等模組化之教學實習套件。本課程為「機電整合與自動化」系列課程之基礎，目標是以生動之實習操作，來使學生瞭解控制系統之組成與功用。

362048 Element of Food Processing 3 E H. H. Chen, S

Automation and Lab. (I)

This course is designed to introduce the control systems and components applied in the automatic manufacturing processes. Topics covered are: characteristics of elements for automatic process control; sequential and feedback controls; introduction of electrical, pneumatic control elements and their operation principles; and basic programming techniques. Contents of the laboratories are: integrated systems such as electrically- and pneumatically-driven elements; DC and AC motors; sensor devices, and programmable logic controllers (PLC). This course aims to lay the foundation for a series of courses related to “process control and automation” through the innovative hand-on experiences.

362053 物理化學

3 選

劉展岡，上

本課程之教學目標為教授基礎物理化學原理與實驗方法。課程內容涵蓋：物質三態定義與變化；熱力學第一、二、三定律涵義與應用；反映熱化學與化學平衡；自由能與平衡常數；化學勢與自由能；物理性平衡與相律；溶液蒸氣壓、沸點、凝固點與滲透壓；界面化學序論；化學動力學概述。

362053 Physical Chemistry

3 E

C. C. Liu, F

The course is to offer the fundamental theories and experimental methods in the category of physical chemistry. Topics cover: States and changes of pure compounds; The first, second, and third laws of thermodynamics and their applications; Thermo-chemistry and chemical equilibrium; Free energy and equilibrium constant; Chemical potential and free energy; Physical equilibrium and phase rule; Vapor pressure, boiling temperature, condensing temperature, and osmotic pressure of solutions; Introduction to interfacial chemistry; Brief on chemical kinetics.

362055 微生物檢驗技術

2 選

**郭嘉信、
邱秋霞，下**

本課程內容包括：

重要的食品微生物。微生物的物質代謝。應用微生物的工業，包括微生物的代謝生產物、微生物的酵素、生產、菌體的利用。微生物的特殊利用。食品儲存與敗壞之原理。各種不同食物之污染。食品衛生。

262055 Microbes Detection

2 E

**J. H. Guo,
C. H. Chiu, S**

This course is offered to cover:

Important microorganisms in food microbiology. Substance metabolism for microorganisms. Applied microbiology: production of culture for food fermentations. Foods and enzymes for microorganisms. Special utilization for microorganisms. Principles of food preservation and spoilage. Contamination and spoilage of different kinds of foods. Food sanitation and control.

362056 微生物檢驗技術實習

1 選

**郭嘉信、
邱秋霞，下**

本課程內容包括：

總生菌數的測定。大腸桿菌群、大腸桿菌的測定。黴菌及酵母菌數之檢驗。
包裝飲用水中微生物之檢驗法—糞便性鏈球菌之檢驗、綠膿桿菌之檢驗。鮮肉之
抗生物質殘留檢驗法。乳品檢驗法—細菌之檢驗、次甲藍還原試驗。生乳中抗生
物質殘留檢驗法

362056 Microbes Detection Lab.

1 E

**J. H. Guo,
C. H. Chiu, S**

This course is offered to cover:

Methods of tests for food microbiology—test of standard plate count. Test for coliform bacteria and *Escherichia coli*. Methods of test for Food Microbiology—Test of mold and yeast count. Method of test for Microbiology in Bottled Water—Test of *fecal streptococci*, Test of *Pseudomonas aeruginosa*. Method of test for Residual Antibiotic substances in Fresh Meat. Methods of test for Milk and Milk products: Test of bacteria, methylene blue reduction test..Method of test for the Residual Antibiotic Substances in Raw milk.

362029 食品化學

3 必

廖遠東，下

本課程介紹基礎食品化學概論，設計給主修食品專長學生並可提供基本知識去克服食品工業上的技術問題，課程內容涵蓋水分、醣類、蛋白質與脂肪等四大基本營養素。並且將食品化學的理論與食品加工結合，著重在加工和貯藏上的變化，並應用於食品成分對品質促進的影響。

362029 Food Chemistry

3 R

E. T. Liaw, S

The course is designed for students who are majoring in food science. It provides basic knowledge to overcome technical problems occurred in food industry. Topics include water in foods, carbohydrates, proteins and amino acids, lipids and fatty acids. Basic chemical and functional properties are emphasized in the changes during postharvest and food processing, and the application of food ingredients as quality improvement.

362071 食物學原理

2 選

蔡錦燕，下

此課程介紹食物材料的特性，包括糖、澱粉、蔬菜、肉、蛋、豆類、乳品及油脂，並比較食物材料在烹製過程中發生的變化。內容包括：糖的褐變，澱粉的糊化，蛋的起泡力、乳化力，油溫與炸物質地的關係....等等。

362071 Principles of Food

2 E

C. Y. Tasi, S

This course will introduce the basic properties of food ingredients and the chemical, physical change at the process of preparation. The aim of this course is to provide students with the ability to compare the change of food ingredients, that includes of the browning of sugar, gelatinization of starch, beating foam and emulsification of egg, fat/oil heating and deepfryings etc.

362058 食品冷凍學

3 選

楊季清，下

課程包括介紹冷凍物理現象原理及冷凍食品的保鮮技術，課程包含 1. 冷凍的

362058 Freezing of Food	3	E	C. C. Yang, S
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362065 食品工廠管理 2 選 林貞信、上

362065	Management of food factory	2	E	J. S. Lin, F
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362062 酵素應用技術 2 選 許祥純，上

362062 Enzyme Methodology	2	E	S. C. Sheu, F
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362063 酵素應用技術實習 1 選 許祥純，上

362063 Enzyme Methodology Lab.	1	E	S. C. Sheu, F
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51

362064 食品包裝

2 選

吳明昌，上

本課程著重於訓練學生瞭解各種不同食品該用何種包裝材料方能保護食品；另外訓練食品包裝設計，針對消費者之需要，而設計出各種商品的包裝。因為消費者到市場上購買食品，已經從以前生理上的需要演變成心理上的需求。因此今日食品包裝在食品之銷售上佔了很重要的地位。食品包裝技術講授內容包括：各類食品之包裝材質、食品包裝之管理、最新食品包裝設計以及某些特殊功能食品在特殊用途上之包裝發展、貯存、市場。

362064 Food Packaging

2 E

M. C. Wu, F

The course is designed to train students to understand "the packaging needs of foods" and the package design. Contents of the course includes packaging material of food; the packaging needs of foods, the restriction of food packaging, the new food package design and aspects of packaging technology that are relevant to the preservation, distribution and marketing of a specific food.

362059 分子生物概論

3 選

吳美莉，上

本課程主要是提供學生有關分子生物學的基本知識及最新的訊息。其內容包括三大部分：首先是簡介組成細胞之主要分子的構造及其功能。第二部分是討論原核及真核基因構造、功能及表現。最後是介紹有關研究分子生物的現代技術。

362059 Introduction to Molecular Biology

3 E

M. L. Wu, F

This course provides the students with the basic knowledge and gives them the newest information which surrounds molecular biology. It is divided three parts. Part I outlines the structure and function of molecules that make up all cells. Part II discuss the structure, function and expression of both prokaryotic and eukaryotic genes. Part III focuses on modern techniques for molecular biology.

362066 新產品開發與實習

3 選

楊季清，上

本課程主要介紹開發新產品之步驟與方法。結合基本的食品化學、微生物和加工技術於新產品開發。課程並介紹如何應用電腦去設計食品配方。學生必須能夠把以往所學的知識結合與應用於新產品開發。

362066 Food Product Development and Lab.

3 E

C. C. Yang, F

The objectives of this course included procedure new product development and the approach to achieve the R&D. the use of food chemistry, microbiology and food processing techniques were combined with the computer formulation methods to formulate new products.

362031 食品衛生與安全

2 必

郭嘉信，上

講授食品從生產原料，經加工過程、包裝，直到人類攝食為止之各階段過程中，確保人類食生活上之衛生與安全的問題；食品與微生物、食品之腐敗、食物

中毒、食品添加物，經口傳染病、人畜共通傳染病、食品與寄生蟲、食品之放射線能污染、食品衛生上之對策以及食品法規等。

362031 Food Hygiene and Safety 2 R J. H. Guo, F

Food hygiene and safety is to teach the means necessary for ensuring the hygiene and safety of human being, the food at all stages from its growth, products or processing, packaging, until its final consumption. It contains food and microorganisms, food deterioration, food poisoning, food additives, oral infection, zoonosis, food and parasite, food and sanitary insects, contamination of radiation substance, the measurement of food hygiene and the laws and regulations of food.

362038 食品機械 2 選 陳和賢，上

本課程將介紹食品與相關機械之原理與應用。課程內容包括工廠電力系統，工程圖學，機械原理，電動機械，量測與控制，流體機械，加熱機具，殺菌機具，冷凍機具，乾燥機械，擠壓機，包裝機械 及其他食品自動化機械。

362038 Food Machinery 2 E H. H. Chen, F

Objectives of this course are to introduce the principles and applications of food machinery. Scope of this course includes factory electricity, engineering drawing, the principles of machinery, electrical machines, measurement and control, fluid machinery, heating equipments, pasteurization and sterilization equipments, freezing equipments, dehydration equipments, extruders, packaging systems and other food process automotive machinery.

**362069 醱酵學 2 選 謝寶全、
邱秋霞，上**

講授以應用微生物的醱酵技術製造各種發酵產品之生產技術，如酒類工業、有機酸工業、發酵食品工業、胺基酸工業、酵素工業、菌體生產工業、抗生物質工業、核酸相關物質工業、微生物轉換醱酵工業、生理活性物質生產工業等，以及利用微生物之醱酵技術於培養植物細胞生產有用物質與生產細胞的方法。

**362069 Fermentation 2 E P. C. Hsieh,
C. H. Chiu, F**

The course based on the knowledge of applied microbiology to discuss the related fermentation industry: brewing, organic acids, food fermentation, amino acids, enzymes, antibiotic, etc. The course also covered the technique of cell production.

362070 醱酵學實習 1 選 邱秋霞，上

使學生練習生產單細胞蛋白質之培養技術、酒精醱酵技術、有機酸醱酵技術、胺基酸醱酵技術、酵素生產醱酵技術、抗生物質生產技術、醱酵食品製造之技術以及培養植物細胞生產有用物質與大量生產有用細胞之培養技術等。

362070 Fermentation Lab. 1 E C. H. Chiu, F

The lab covers the single cell protein, technique in alcohol fermentation, amino acids,

enzymes、antibiotics production and food fermentation, and the cell production technique.

362067 感官品評學與實習 **3 選** **林順生，上**

以實用方式，配合理論的資料，輔以實物品評方式，來介紹何謂感官品評。針對學生將來在工業界或研究單位的需求，教授感官品評的基本生理、實驗環境的要求條件，樣品取樣及準備等硬體教育，再從軟體方面之人員選擇及訓練以及數據的收集及分析逐步加強。針對影響感官測驗精確度的因素加以說明，再進一步的實際操演各類型的感官測驗，包括差異選別試驗(Difference Test)，特性敘述試驗(Descriptive analysis)及嗜好性測驗(Preference Test)等。並以品評組長訓練方式分組實作品評實驗，包括實驗設計、預備工作數據收集、統計分析與研判。

362067 Sensory Evaluation and Lab. **3 E** **C. S. Lin, F**

Students are separated into several discussion panel groups. Tasting and discussions of primary source materials according sensory evaluation methods, including historical perspectives, psychophysics, perceptual biases, sensory environment. Concepts influencing detection of sensory differences, use of rating scales, and characterization of sensory properties will also be emphasized. Further studies include sensory techniques and statistical methods for analyzing results in order to establish a full sensory evaluation program.

362071 食品工程學(2) **3 選** **古源光、林貞信、
劉展岡，下**

食品工程為介紹學生食品生產製造過程中所涉及和相關的工程概念和理論。課程內容包括數學理論與應用、單位與因次、物質平衡、能量平衡、蒸汽表、黏度概念與流變學、流體的輸送、基礎熱傳學、溼度學和食品熱處理等。

362071 Food Engineering(2) **3 E** **Y. K. Guu, J. S. Lin,
C. C. Liu, S**

Objectives of this course are to introduce the concepts and principles of chemical engineering involved in the food manufacturing processes. Contents of this course include a review of mathematical principles and the applications in food engineering, units and dimensions, material and energy balances, steam and steam tables, viscosity and rheology, transport of fluids, basic heat transfer, psychrometry, and heat treatments of foods.

362075 食品儀器分析 **2 選** **黃卓治，下**

本課程主要是討論有關食品分析所使用儀器之基本原理及功能。重點著重在了解儀器之結構、分析原理及應用範疇。討論之儀器包括光度計及層析儀二大類，其中光度計包括紫外--可見光光度計、螢光光度計及原子吸收光譜儀等；層析儀包括薄層色層分析儀、氣相層析儀及高效率液相層析儀等。

362075 Instrumental Analysis of Foods **2 E** **T. C. Huang, S**

Designed to acquaint the students with the basic knowledge and fundamental principles of analytical instruments commonly used by food analysts. Emphasis is on understanding the theoretical and practical aspects of spectroscopy (UV Visible, fluorescence, and atomic absorption spectrophotometer) and chromatography (TLC, GC, and HPLC).

362076 食品儀器分析實習 **1 選** **黃卓治，下**

本實習課程提供親自操作有關食品分析領域裡，慣常使用之精密儀器，訓練重點著重在對儀器之實際了解，操作使用及維護等方面。學生將以小組方式，分組練習有關食品成分之分析及鑑定，所使用之儀器包括紫外--可見光光度計、螢光光度計、原子吸收光譜儀、氣相層析儀及高效率液相層析儀等。

362076 Instrumental Analysis of Foods **1 E** **T. C. Huang, S**
Lab.

Designed to introduce the students with the practical operation of analytical instruments used by food analysts. Students work in small groups to be familiar with the application of spectrophotometers (such as UV-Visible, fluorescence, and atomic absorption spectrophotometer). Operation of GC and HPLC on the components analysis of food products.

362073 食品生鮮處理技術 **2 選** **蔡碧仁，下**

本課程在探討生鮮食品市場之食品處理技術，其內容包括新鮮魚肉之性質、品質保持處理包裝及衛生安全；蔬果採收後之熟成老化、呼吸率之控制，寒害及腐敗之避免；以及生鮮食品進入市場前之處理、包裝、冷處理等鮮度保持法。

362073 Post-harvest Technology **2 E** **P. J. Tsai, S**

The course is designed to discuss the skill of treatment needed in the fresh food supply market including appropriate postharvest treatments, packaging and cold storage prior to the market. The subjects include the postharvest physiology of fruits and vegetables, control of respiration, chilling injury and decay through temperature, humidity, gas atmosphere storage, irradiation and edible film technology. The characteristics of fresh meat, seafood and milk are also covered besides quality maintenance, package and sanitation.

362074 食品生鮮處理技術實習 **1 選** **蔡碧仁，下**

本課程配合食品生鮮處理之課程來操作試驗，使學生能深入瞭解處理技術。其內容包括蔬果採收後之處理方法，如保鮮環境（溫度、濕度、氣體組成等）之條件；魚肉類鮮度判斷，影響熟成、自體分解、腐敗速率之因素試驗；生鮮材料之清淨、處理、調理包裝及貯存等實習。

362074 Post-harvest Technology Lab. **1 E** **P. J. Tsai, S**

The course is designed to match the lecture of "Postharvest Technology" and make students understand the typical technique required in cleaning, package, storage and quality analysis. The skills included the postharvest treatment of fruits and vegetable (proper handling such as storage temperature, humidity, gas environment and edible film) and quality analysis; practices on the test of the freshness of meat, fish and milk. Factors influencing self-decomposition and decay of fish and meat etc. are also covered.

362072 食品生物化學 **2 選** **許祥純、**
吳美莉 下

本課程在銜接生物化學之課程，提供修讀食品科學學生各類不同食物在加工前後及貯藏間生物化學變化的知識。課程內容包括肉類、魚類、蔬果、穀類、烘焙產品、乳製品等原料物質的變化。

362072 Food Biochemistry

2 E

**S. C. Sheu,
M. L. Wu, S**

In order to connect biochemistry course for food science students, this course is to provide knowledge of biochemical reaction usually occurring in various foods. The course contents include the biochemical changes of raw meat, fish, vegetables and fruits, cereal, baking and dairy products before and after processing or during storage.

傳閱附件 4--104 學年度新增「財務金融國際學士學位學程」課程規劃案

104-106 學年度財務金融國際學士學位學程

International Bachelor's Degree Program in Finance, 2015-2017

畢業學分總表

必修科目總稱 Names of Courses in Chinese and English	學 分 數 No. Credits	第一學年 1 st Academic Year		第二學年 2 nd Academic Year		第三學年 3 rd Academic Year		第四學年 4 th Academic Year		備註 Remarks
		1st semester	2nd semester	1st semester	2nd semester	1st semester	2nd semester	1st semester	2nd semester	
校定共同必修 學分（一） Required credits for the university	32	10	8	5	5	2	0	2	0	外籍生 Foreign Students
	29	8	8	5	4	2	0	2	0	本國生 Local Students
管理學院共同必修 學分（二） Required credits for the college	13	9	0	2	2	0	0	0	0	
系共同必修學分 （三） Required credits for the department	44	6	9	7	7	9	6	0	0	
畢業學分 Credits counted for graduation	外國生必修學分數 Required Credits for Foreign Students89									合計 Total132
	本國生必修學分數 Required Credits for Local Students86									
	外國生選修學分數 Elective Credits for Foreign Students43									
	本國生選修學分數 Elective Credits for Local Students46									

(一)校定共同必修科目 (Required credits for the University)

必修科目總稱 Names of Courses in Chinese and English	學 分 數 No. Credits	第一學年 1 st Academic Year		第二學年 2 nd Academic Year		第三學年 3 rd Academic Year		第四學年 4 th Academic Year		備註 Remarks
		1 st semester	2 nd semester	1 st semester	2 nd semester	1 st semester	2 nd semester	1 st semester	2 nd semester	
外籍生必修 Required Courses for Foreign Students										
應用華語（1） Applied Mandarin (1)	2	2								
應用華語（2） Applied Mandarin (2)	2		2							
應用華語（3） Applied Mandarin (3)	2			2						
應用華語（4） Applied Mandarin (4)	2				2					
台灣歷史、地理與 文化 History, Geography and Culture in Taiwan	2	2								
本國生必修 Required Courses for Local Students										
國文 Chinese	4	2	2							國文(閱讀與寫作)(1) 國文(閱讀與寫作)(2)
憲法 Constitution	2			2						
通識教育講座 Lectures on General Education	1				1					各系依序開 課，開課學期不 定，畢業前修畢
外語實務 Foreign Language Proficiency Test	0	0								畢業前修畢 通過標準依 「外語實務課 程實施要點」 規定
共同必修 Required Courses All Students										
體育 Physical Education	4	1	1	1	1					一年級： 大一體育(1)、 大一體育(2) 二年級： 體育選項(需修讀不 同興趣體育課程)

必修科目總稱 Names of Courses in Chinese and English	學 分 數 No. Credits	第一學年 1 st Academic Year		第二學年 2 nd Academic Year		第三學年 3 rd Academic Year		第四學年 4 th Academic Year		備註 Remarks
		1st semester	2nd semester	1st semester	2nd semester	1st semester	2nd semester	1st semester	2nd semester	
通識課程 General Education	12	2	2	2	2	2		2		通識選項課程： 人文學科：2 門 社會科學：2 門 自然與生命科學：1 門 數理與應用科學：1 門
生活服務教育 Student Life Service Education	0	0	0							每週上課 2 小時
大一英文 Freshman English	4	2	2							大一英文(1) 大一英文(2)
英語聽講練習 101~102 English Listening & Speaking Practice	2	1	1							英語聽講練習 101 英語聽講練習 102
合 計 Total	32	10	8	5	5	2	0	2	0	外籍生 Foreign Students
	29	8	8	5	4	2	0	2	0	本國生 Local Students

(二)管理學院共同必修科目 (Required Courses for the College)

必修科目總稱 Names of Courses in Chinese and English	學 分 數 No. Credits	第一學年 1 st Academic Year		第二學年 2 nd Academic Year		第三學年 3 rd Academic Year		第四學年 4 th Academic Year		備註 Remarks
		1 st semester	2 nd semester	1 st semester	2 nd semester	1 st semester	2 nd semester	1 st semester	2 nd semester	
管理學 Management	3	3								
經濟學 (1) Economics (1)	3	3								
會計學 (1) Accounting(1)	3	3								
統計學 (1) Statistics (1)	2			2						
統計學 (2) Statistics (2)	2				2					
電子計算機概論 Introduction to Computers	0			0						
合 計 Total	13	9	0	2	2	0	0	0	0	

(三)系共同必修 (Required Courses for the Department)

必修科目總稱 Names of Courses in Chinese and English	學 分 數 No. Credits	第一學年 1 st Academic Year		第二學年 2 nd Academic Year		第三學年 3 rd Academic Year		第四學年 4 th Academic Year		備註 Remarks
		1 st semester	2 nd semester	1 st semester	2 nd semester	1 st semester	2 nd semester	1 st semester	2 nd semester	
金融市場與機構 Financial Markets	3	3								
微積分 Calculus	3	3								
經濟學 (2) Economics (2)	3		3							
會計學 (2) Accounting(2)	3		3							
財務軟體應用 Applied Software for Finance	3		3							
投資學 Investment	3			3						
貨幣銀行學 Money and Banking	3			3						
統計學實習 (1) Practice of Statistics (1)	1			1						
公司財務管理 Financial Management	3				3					
債券市場 Bond Market	3				3					
統計學實習 (2) Practice of Statistics (2)	1				1					
風險管理 Risk Management	3					3				
期貨與選擇權 Futures and Options	3					3				
國際財務管理 International Corporate Finance	3					3				

必修科目總稱 Names of Courses in Chinese and English	學 分 數 No. Credits	第一學年 1 st Academic Year		第二學年 2 nd Academic Year		第三學年 3 rd Academic Year		第四學年 4 th Academic Year		備註 Remarks
		1 st semester	2 nd semester	1 st semester	2 nd semester	1 st semester	2 nd semester	1 st semester	2 nd semester	
財務分析與企業評價 Financial Analysis and Business Valuation	3						3			
公司治理 Corporate Governance	3						3			
合 計 Total	44	6	9	7	7	9	6	0	0	

(四)專業選修 (Elective Courses)

選修科目總稱 Names of Courses in Chinese and English	學 分 數 No. Credits	第一學年 1 st Academic Year		第二學年 2 nd Academic Year		第三學年 3 rd Academic Year		第四學年 4 th Academic Year		備註 Remarks
		1st semester	2nd semester	1st semester	2nd semester	1st semester	2nd semester	1st semester	2nd semester	
英語寫作(1) English Writing(1)	2	2								
英語寫作(2) English Writing(2)	2		2							
英語會話(1) English Conversation(1)	2		2							
民法概要 Introduction to The Civil Law	2		2							
保險學 Insurance	3		3							
英語寫作(3) English Writing(3)	2			2						
英語會話(2) English Conversation(2)	2			2						
進階英語聽力(1) Advanced English Listening Practice(1)	2			2						
中級會計學(1) Intermediate Accounting(1)	3			3						
個體經濟學 Microeconomics	3			3						
保險實務 Practice of Insurance	3			3						
英語寫作(4) English Writing(4)	2				2					
進階英語聽力(2) Advanced English Listening Practice(2)	2				2					

選修科目總稱 Names of Courses in Chinese and English	學 分 數 No. Credits	第一學年 1 st Academic Year		第二學年 2 nd Academic Year		第三學年 3 rd Academic Year		第四學年 4 th Academic Year		備註 Remarks
		1st semester	2nd semester	1st semester	2nd semester	1st semester	2nd semester	1st semester	2nd semester	
中級會計學(2) Intermediate Accounting(2)	3				3					
商事法 Business Law	3				3					
總體經濟學 Macroeconomic	3				3					
金融倫理 Ethics in Finance	1				1					
商用英語溝通 English For Business Communication						2				
應用華語（5） Applied Mandarin (5)	2					2				外籍生 Foreign Students
計量經濟學 Econometrics	3					3				
國際金融市場 International Financial Market	3					3				
證券投資分析 Security Analysis	3					3				
金融法規 Financial Laws And Regulations	3					3				
商用英語簡報 English for Business presentation	2						2			
應用華語（6） Applied Mandarin (6)	2						2			外籍生 Foreign Students
衍生性金融商品 Financial Derivatives	3						3			

選修科目總稱 Names of Courses in Chinese and English	學 分 數 No. Credits	第一學年 1 st Academic Year		第二學年 2 nd Academic Year		第三學年 3 rd Academic Year		第四學年 4 th Academic Year		備註 Remarks
		1st semester	2nd semester	1st semester	2nd semester	1st semester	2nd semester	1st semester	2nd semester	
財金計量 The Econometrics of Financial Markets	3						3			
資產證券化理論 與實務 Theory and Practice of Asset Securitization	3						3			
企業合併與收購 Corporate Mergers and Acquisitions	3						3			
應用華語 (7) Applied Mandarin (7)	2							2		外籍生 Foreign Students
行為財務學 Behavioral Finance	3							3		
財富管理 Wealth Management	3							3		
創業投資管理 Venture Capital Management	3							3		
財務管理個案分 析 Case Study in Finance	3							3		
校外實習 Practice of Industrial Training	9								9	
合 計 Total	95	2	9	15	14	16	16	14	9	外籍生 Foreign Students
	89	2	9	15	14	14	14	12	9	本國生 Local Students

財務金融國際學士學位學程課程與核心能力關聯表

【專業必修】						
科目名稱 \ 核心能力項目	1. 基礎理論能力	2. 資料分析與運算能力	3. 理論擴衍應用能力	4. 財金外語能力	5. 溝通合作能力	6. 專業倫理與態度
管理學	●					
經濟學(1)(2)	●					
會計學(1)(2)	●					
金融市場與機構	●					●
微積分	●	●				
財務軟體應用		●				
統計學(1)(2)	●	●				
統計學實習	●	●				
電子計算機概論		●				
投資學	●		●			
貨幣銀行學	●		●			
公司財務管理	●		●			
債券市場			●			
風險管理		●	●			
期貨與選擇權	●		●			
國際財務管理			●			
財務分析與企業評價		●	●			
公司治理			●			

財務金融國際學士學位學程課程與核心能力關聯表

【選修科目】						
科目名稱 \ 核心能力項目	1. 基礎理論能力	2. 資料分析與運算能力	3. 理論擴衍應用能力	4. 財金外語能力	5. 溝通合作能力	6. 專業倫理與態度
英語寫作(1)(2)(3)(4)				●	●	
英語會話(1)(2)				●	●	
進階英語聽力(1)(2)				●	●	
商用英語溝通				●	●	
商用英語簡報				●	●	
民法概要					●	●
保險學	●					
保險實務			●		●	●
金融倫理						●
中級會計(1)(2)	●	●	●			
個體經濟學	●		●			
商事法					●	●
總體經濟學	●		●			
計量經濟學	●	●	●			
國際金融市場			●			
證券投資分析			●			
衍生性金融商品			●			
金融法規					●	●
財金計量		●	●			
資產證券化理論			●			
企業合併與收購			●			
行為財務學			●			
財富管理			●			
創業投資管理			●			
財務管理個案分析			●		●	●
校外實習			●		●	●

財務金融國際學士學位學程 課程與核心能力之關聯檢核表

核心能力	能力指標與核心素養	對應課程	檢核機制
1.基礎理論能力	1. 完成本系畢業應修學分。	專業必修： 管理學、經濟學(1)(2)、會計學(1)(2)、金融市場與機構、微積分、統計學(1)(2)、統計學實習、投資學、貨幣銀行學、公司財務管理、期貨與選擇權 專業選修： 保險學、中級會計(1)(2)、個體經濟學、總體經濟學、計量經濟學	1. 修畢本學程課程必修課程共 86 學分。 2. 修畢本所專業選修共 46 學分。 3. 完成各科書面與口頭報告。 4. 「外語實務」每學期皆開放修課，並須於畢業前依本校「外語實務課程實施要點」規定修畢。
2.資料分析與運算能力	1. 通過暨執行完成國科會大專生計畫或其他學術性研究計畫 2. 申請國科會大專生計畫或其他學術性研究計畫 3. 取得「微積分」、「財務軟體應用」、「計量經濟學」、「財金計量」等課程學分。 4. 「統計學」課程學年平均成績達 70 分(含)以上 5. 取得特定 Excel 證照	專業必修： 微積分、財務軟體應用、統計學(1)(2)、統計學實習、電子計算機概論、風險管理、財務分析與企業評價 專業選修： 中級會計(1)(2)、計量經濟學、財金計量	
3.理論擴衍應用能力	1. 取得特定財金專業證照五張(含)以上 2. 參加校內、外金融模擬競賽活動 3. 取得「校外實習」課程成績達 70 分(含)以上	專業必修： 投資學、貨幣銀行學、公司財務管理、債券市場、風險管理、期貨與選擇權、國際財務理論、財務分析與企業評價、公司治理 專業選修：	

財務金融國際學士學位學程 課程與核心能力之關聯檢核表

核心能力	能力指標與核心素養	對應課程	檢核機制
		保險實務、中級會計(1)(2)、個體經濟學、總體經濟學、計量經濟學、國際金融市場、證券投資分析、衍生性金融商品、財金計量、資產證券化理論、企業合併與收購、行為財務學、財富管理、創業投資管理、財務管理個案分析、校外實習	
4.財金外語能力	1. 多益成績 650 分(含)以上	專業選修： 英文寫作(1)(2)(3)(4)、英語會話(1)(2)、進階英語聽力(1)(2)、商用英語溝通、商用英語簡報	
5.溝通合作能力	1. 參與校內、外(含系學會、啦啦隊、團隊競賽)團隊活動獲得敘獎者 2. 取得擔任學校社團幹部證明書 3. 擔任班級幹部並獲得敘獎者	專業選修： 英文寫作(1)(2)(3)(4)、英語會話(1)(2)、進階英語聽力(1)(2)、商用英語溝通、商用英語簡報、民法概要、保險實務、商事法、金融法規、財務管理個案分析、校外實習	
6.專業倫理與態度	1. 通過證基會等單位舉辦的「金融市場常識與職業道德測驗」 2. 「金融倫理」課程成績達 70 分(含)以上	專業必修： 金融市場與機構 專業選修： 民法概要、保險實務、金融倫理、商事法、金融法規、財務管理個案分析、校外實習	

財務金融國際學士學位學程中英文課程內容摘要

International Bachelor's Degree Program in Finance

一、必修科目 Required Courses

金融市場與機構

3

必

呂素蓮師，上

本課程旨在使學生了解、熟悉金融市場之體系與各項金融工具及其交易實務等有關之知識。本課程內容包括金融市場概論、金融體系、資本市場、貨幣市場、外匯市場、期貨及選擇權市場。

Financial Markets

3

R

S. L. LU, F

The main objective of the course is to make the students understand and become familiar with the system of the financial markets , and its financial instruments and related knowledge in theory and practice. The course includes the introduction of the financial markets , the system of financial markets , capital market , money markets , foreign Exchange market and futures and options markets.

微積分

3

必

潘璟靜師，上

本課程主要在教導與研討有關微積分相關的學理與主題，及養成學生數學推理與計算能力，使選修同學們瞭解有關微積分學術領域及其運用。

Calculus

3

R

G. G. Pan, F

The main purpose of this course is discussing and comprehending topics. The issues include theoretical discuss, practical application and enhancing the ability of mathematical inference and calculation skills. Through this course, the students will have more clearly understanding the practical application and development for products and institutions.

財務軟體應用

3

必

潘璟靜師，下

授課目標在訓練同學能以最基本的試算表來處理財務計算及財務規劃。基本軟體是教授同學 Microsoft Excel 內建的財務函數，以及 Excel 的基本函數運算。內容涵蓋：基本格式設定、資料整理、試算表的基本運算結構（四則運算）、函數群（數學、統計、邏輯和財務函數）、WORD 的整合應用。

Applied Software for Finance

3

R

G. G. Pan, S

The objective of this lecture is to train students dealing with financial calculation and planning by Spread Sheet. Basically, teach the financial functions built-in Microsoft Excel, and the fundamental functions of Excel. Topic will cover: format setting, data arrangement, the basic calculation of Spread Sheet (the four fundamental operations of arithmetic), functions (mathematical, statistical, logical, and financial functions), and the integrated application with WORD.

投資學

3

必

林坤輝師，上

本課程在介紹投資觀念，討論各種投資工具的特質，資本市場結構與理論，風險的估測與報酬間的關係。基本分析部份是探討公司獲利能力、競爭力、財務流動能力、管理能力、本益比與未來的估測。技術分析則介紹市場分析各種採用分析方法並就投資組合分析理論來探討投資的選擇與風險的分散。

Investment

3

S

K. H. Lin, F

The course introduces the investment concepts, the characteristics of each investment instruments in the market, the theory and structure of capital market, market indicators, and risk estimation and its relationship with return. In the fundamental analysis, we discuss the profit-ability, competitiveness, financial liquidity, capital structure, management ability, price-earnings ratio and its future estimates for a firm. In the technical analysis, we introduce the various methods of the market analysis. Besides, the investment portfolio theory is introduced for the asset selection and risk diversification.

貨幣銀行學

3

必

潘璟靜師，上

本課程主要在教導與研討有關貨幣銀行學相關的學理與實務主題，使同學瞭解有關貨幣銀行學領域中學術與實務的現況與發展。

Money and Banking

3

R

G. G. Pan, F

The main purpose of this course is discussing and comprehending topics in money and banking. The issues include theoretical discuss and practical application. Through this course, the students will have more clearly understanding the practical application and development of money and banking.

公司財務管理

3

必

林坤輝師，下

本課程主要在教導與研討有關財務管理文獻相關的學理與實務主題，使選修同學瞭解有關財務管理文獻與機構領域中學術與實務的現況與發展。

Financial Management

3

R

K. H. Lin, S

The main purpose of this course is discussing and comprehending topics in Literatures on Financial Management. The issues include theoretical discuss and practical application. Through this course, the students will have more clearly understanding the practical application and development of Literatures on Financial Management for financial products and institutions.

債券市場

3

必

潘璟靜師，下

本課程旨在增進學生固定收益證券的瞭解。本課程內容包括債券的定價、收益率的衡量、債券市場分析、債券交易策略及不動產抵押證券。

Bond Market

3

R

G. G. Pan, S

The course is designed to provide students with understanding of fixed-income securities. The contents include bond pricing, yield measurements, bond market analysis, bond trading strategies and mortgage-backed securities.

風險管理

3

必

呂素蓮師，上

本課程旨在協助同學瞭解風險管理基本原理及概念以及能運用風險管理工具進行風險管理。課程內容包括風險管理之意義及類別、金融災難與其啟示、風險值以及風險管理系統之應用等。

Risk Management

3

R

S. L. LU, F

The purposes of this course are to help students with better understandings of the principles and concepts of risk management and to help students to proceed to the risk management by using the risk management tools. The contents include the introduction of risk management, financial disasters and their implications, Value at Risk and the application of risk management system.

期貨與選擇權

3

必

潘璟靜師，上

本課程規劃以衍生性金融商品之學理與實務探討為主軸，其中包括如何利用金融期貨商品進行避險、套利與投機活動。期使選修同學對衍生性商品的特性與操作有初步的認識。授課內容主要為：選擇權與期貨市場簡介、選擇權與期貨的訂價原則、選擇權與期貨的訂價原則、選擇權與期貨的避險策略、選擇權與期貨的套利策略及其他衍生性商品的介紹等。

Futures and Options

3

R

G. G. Pan, F

This course discusses the theory concept and technology of financial derivatives. The main issues discussing in this course are: concept and technology of hedge, arbitrage and speculation for options and futures. The course covers the following subjects: Options and Futures markets; Options and Futures pricing model; Hedging with options and Futures; Options and Futures strategies: speculation and spreading.

國際財務管理

3

必

林坤輝師，上

本課程主要探討國際企業之財務管理概念與技巧。共分成三大部分：首先針對國際金融市場與經濟環境作一介紹；第二部分對從事國際操作之企業風險進行深入討論；第三部分探討國際資產的管理。課程內容包括：國際貨幣制度、國際金融市場、國際銀行業務、外匯市場、匯率預測、衡量外幣的風險、外幣風險管理、交換合約、期貨與選擇權、國際貿易的管理與財務、國際投資的政策與策略、國際資本預算、政治風險、全球移轉訂價。

International Corporate Finance 3

R

K.

K. H. Lin, F

This course discusses the concept and technology of financial management for international business. The main issues discussing in this course are: the international financial markets and institutions , international risk management , and International asset management. The course covers the following subjects: 1. The international monetary system; 2. International financial markets; 3. International banking; 4. The foreign exchange market; 5.Forecasting exchange rates; 6.Measurement of foreign currency exposure; 7.Management of foreign currency exposure; 8.SWAPS; 9.Futures and Options; 10.The management and finance of international trade; 11.International investment policy and

本課程旨在探討企業如何建立及應用企業評價模式解決證券投資及購併之評價問題。並探討不同常用模式，如自由現金流量折現評價模式(FCF)、超常盈餘折現評價模式(AE)及相對價值評價法中之本益比法(PE)之適用性。

This course is designed to provide the students with the understanding of business valuation, mainly on the issue of how business establishes and employs business valuation models to solve the valuation problems involving security investment and merger and acquisition. The comparison of different commonly used models, such as the discounted free cash flow model, abnormal earning model and price to earning ratio model are also discussed.

公司治理概念一般泛指公司管理與監控的方法。公司治理運作不上軌道，是企業無法提昇國際競爭力之關鍵因素之一。2001 年美國恩龍案（Enron）後陸續引發的金融危機，更突顯公司治理的重要性。本課程首先研討公司治理的機制以及其重要性，具有優良的公司治理機制的企業，能為股東製造更高的獲利機會，在面對金融危機時，亦較具競爭力及應變能力。繼而深入探討會計資訊在公司治理機制中扮演的角色，以及相關的研究。

The main purpose of this course is to provide the students with in-depth understanding of the role of publicly reported financial accounting information in the governance processes of corporations. The first part focuses on the issue of corporate governance, which encompasses the internal policies and practices by which a company is operated and controlled on behalf of its shareholders. The advantages of sound corporate governance are discussed as well as a good system of corporate governance that helps maintain the confidence of investors, which allows companies to raise capital efficiently. The second part concentrates on the research that examines the role of accounting information in specific governance mechanisms.

本課程旨在討論人壽保險、財產保險和責任保險的某些特定主題。在各種保險商品下，課程內容主要集中於保險定價、保險經濟和保險經營。

This course discusses related topics on the life insurance, property insurance and liability insurance. Under various insurances, the main contents focus on the insurance pricing,

3

潘璟靜師，上、下

Intermediate Accounting

3

E

G. G. Pan, F,S

個體經濟學

3

選

呂素蓮師，上

Microeconomics

3

E

S. L. LU, F

保險實務

3

選

林坤輝師，上

Practice of Insurance

3

E

K. H. Lin, F

74

金融倫理

3

選

呂素蓮師，上

本課旨在充實學生對財金倫理與規範的認知，培養誠實及具國際觀的觀念，並掌握最新時事訊息，以提升我國未來財金人員的素質。

Ethics in Finance

3

E

S. L. LU, F

The purposes of this course are to help students with better understandings of the principles and concepts of Ethics in Finance. We hope students have social responsibility in the future.

總體經濟學

3

選

呂素蓮師，下

本課程旨在介紹消費、投資、貨幣需求與供給、通貨膨脹、失業率與經濟成長之理論模型與實證研究，並討論各種財政政策與貨幣政策之適用時機與效果；另探討理性預期理論及其對總體經濟之影響。

Macroeconomic

3

E

S. L. LU, S

The purpose of this course is to provide the theoretical models and their empirical studies in consumption, investment, demand for and supply of money, inflation, unemployment, and economic growth. The effects of monetary and fiscal policy in the extended models are also discussed. In addition, the theory of rational expectation and its effect on macro economy are explained in the last part of the course.

計量經濟學

3

選

潘璟靜師，上

本課程將提供學生如何應用實際的資料，建構適當的模型，以及進行模型推估結果的檢定，主要內容包括 1.迴歸模型：(1)簡單線形迴歸模型、(2)複迴歸模型、(3)序列相關與非均齊變異、(4)工具變數與模型設定、(5)單一函數迴歸模型之其他進階主題、(6)聯立方程式之迴歸模型；2.時間序列模型：(1)時間序列資料的性質與時間序列模型、(2)時間序列模型之推估與檢驗、(3)時間序列模型之應用。

Econometrics

3

E

G. G. Pan, F

The purpose of this course focused upon models of processes that occur in business and economics. Quantitative tools that are used to construct and then test mathematical representations of the real world would be introduced. With the training of this course, the students would gain some understanding of the science and art of determining what type of model to be build, building the model which is most appropriate, testing the model statistically, and then finally applying the model to practical problems in analysis. The major contents of this course include: 1. Regression models: (1)Simple Linear Regression Model, (2)Multiple Regression Model, (3)Serial Correlation and Heteroscedasticity, (4)Instrumental Variables and Model Specifications, (5)Advanced Topics in Single Equation Estimation, (6)Simultaneous-Equation Estimation. 2.Time-series models(1)Properties of Time Series Data and Linear Time-Series Models, (2)Estimating and Checking Time-Series Models.

國際金融市場

3

選

呂素蓮師，上

本課程將以金融市場為基礎進一步深入探討國際金融市場，包括企業之國際資金流動，外匯風險及避險工具，國際籌資及投資決策，多國資金成本及資本預算決策，以及長短期資產負債管理等課題，冀期同學對近期世界金融市場高度整合及企業國際化之趨勢能有更深入的瞭解。

International Financial Market 3 E S. L. LU, F

This course is based on financial market, and further, to analyze the international financial market, including capital flows of multinational enterprises, the risk and hedging instruments of exchange, international funding and investment decision, multinational capital cost and budgeting, and the management of assets and debts in the long term and short term. Let students understand the high integration of international financial markets in recent years and the trend of enterprise internationalization.

證券投資分析 3 選 洪仁杰師，上

本課程旨在探討證券分析相關議題。內容包括有價證券價格決定理論、總體經濟分析、產業分析、公司分析、技術分析、投資機會管理及風險管理等議題。

Security Analysis 3 E R. J. Hung, F

This course aims to discuss the related issues of security analysis. The contents include the price determining theories, macro economy analysis, industry analysis, company analysis, technical analysis, portfolios management and risk management, etc.

衍生性金融商品 3 選 潘璟靜師，下

本課程涵蓋以下內容：衍生性金融產品介紹、衍生性金融資產交易、衍生性金融資產價格之決定。

Financial Derivatives 3 E G. G. Pan, S

This program covers the following topics: 1. Introductions of derivatives, 2.Trading of derivatives securities, 3.Pricing derivatives securities.

財金計量 3 選 呂素蓮師，下

本課程涵蓋以下內容：1.金融資產價格之短期時間序列行為、2.金融資產價格之橫斷面行為、3.衍生性金融證券及金融資產價格之非線性模型

The Econometrics of Financial Markets 3 E S. L. LU, S

This program covers the following topics:
1.Short-run time-series behavior of financial asset prices.
2.Cross-sectional models of financial asset prices.
3.Derivative securities and nonlinear methods of financial asset prices.

資產證券化理論與實務**3****選****洪仁杰師，下**

本課程旨在探討資產證券化相關議題。內容包括資產證券化流程及架構、證券評價、不動產抵押證券、證券化衍生性商品及金融機構與證券化等議題。

Theory and Practice of Asset Securitization**3****E****R. J. Hung, S**

This course aims to discuss the related issues of asset securitization. The contents include the operating flows and framework of asset securitization, valuation of securities, mortgage-backed security (MBS), derivatives on MBS and financial institutions and asset securitization.

企業合併與收購**3****選****洪仁杰師，下**

本課程旨在探討企業購併相關議題。內容包括購併交易流程及架構、購併價值評估、購併投資專案評估與風險分析、購併策略以及防禦策略等議題。

Corporate Mergers and Acquisitions**3****E****R. J. Hung, S**

This course aims to discuss the related issues of corporate mergers and acquisitions. The contents include the trading flows and framework of corporate mergers and acquisitions, valuation of corporate mergers and acquisitions, project valuation and risk analysis of corporate mergers and acquisitions, corporate mergers and acquisitions strategies and defense strategies for corporate mergers and acquisitions.

行為財務學**3****選****呂素蓮師，上**

近年來金融市場上有愈來愈多的「異常現象」令人難以用傳統的財務理論去解釋，即「理性的投資人」與「效率的投資市場」的假設被破壞，本課程將對這些「異常現象」做探討，課程內容包含傳統的投資組合理論、CAPM 理論、及 CAPM 難以解釋的現象。

Behavioral Finance**3****E****S. L. LU, F**

Recently, more evidences show, market anomalies are not so unusual that we can not ignore there may be some other unexplained reasons behind traditional theories, including "rational investor" and "efficient market". The unmasked theory is finally called "behavioral finance". The course will discuss all the relevant market anomalies. However, before we discuss the anomalies, we had better to equip ourselves with previous traditional finance theories. Therefore, I also will teach Markowitz's portfolio theory, and CAPM theory.

財富管理**3****選****洪仁杰師，上**

本課程旨在探討與財富管理相關之專題，內容包括全球財富管理市場、資產配置、財富管理相關金融商品、風險管理、稅務專題及理財人員職能與職業倫理等專題。

Wealth Management**3****E****R. J. Hung, F**

This course aims to discuss the related issues on wealth management. The contents include the global wealth management market, asset allocation, wealth management related financial commodities, risk management, taxes related issues and ethics issues, etc.

The general concept of civil law is one of the fundamental capacities for modern citizens. It is because the amicable nature of civil law for legal relations such as sale of goods, lease of house, internship for wages, and the establishment of relationship based on marriage, which are all regulated by civil law. In other words, one might not be involved with criminal law in his/her whole life, but everything in our daily life will be attributed to the discipline of civil law, which makes the basic understanding of civil law become the general core ability of modern civic citizen for the college student to contribute to our society. Notwithstanding this course is focused on educating students with some basic understanding by introducing comprehensive examples due to the complex and extensive settings of civil code, students are expected to use the common knowledge learned in class and apply them in the future.

商事法

3

選

呂素蓮師，下

本課程著重於瞭解在商事交易的社會生活中，或為強化企業組織，或為保護交易安全，或為促進交易敏活而制定各種規範。

Business Law

3

E

S. L. LU, S

This course is designed to induce the business law to the students who wish to understand the basic concepts and techniques of related laws and regulation in the field of business management.

金融法規

3

選

洪仁杰師，下

本課程旨在提供同學有關金融法律專業知識。授課內容包括：(1)銀行法；(2)金控法；(3)信託法；(4)電子銀行與證券交易相關之法律問題；及(5)衍生性金融商品法律問題等。

Financial Laws And Regulations 3

3

E

R. J. Hung, S

The course is designed to provide students with understanding of financial laws and related regulations.

傳閱附件 5--104 學年度增設「農企業管理國際碩士學位學程」課程規劃案

碩士班 農企業管理國際碩士學位學程**(一)教育目標**

農企業管理國際碩士學位學程是全英語授課的學程。本學程設置目的在提供具國際視野全球化環境下的農企業管理教育，促進熱帶地區發展中國家農業與食品永續經營。本學程的課程內容結合農企業管理理論之養成和實務能力之培養使其具備從事中小規模農企業之經營，農民組織和農產品行銷專業知識的要求。使畢業生在區域經濟化和全球化的環境下能具有就業競爭力。

(二) 必修科目

中 英 文 科 目 名 稱	學 分 數	第一學年		第二學年		備 註
		上	下	上	下	
全球農企業管理議題研討 Global Issues in Agribusiness Management	2	2				
農企業研究法 Agribusiness Research Methods	2		2			
專題討論 Seminar	2		1	1		
碩士論文 Thesis	6			3	3	
農企業管理實務 Practical Affairs for Agribusiness Management	1			1		暑期校外實習
永續發展趨勢 Trends in Sustainable Development	0	0				
應用華語 Applied Mandarin	0	0				僅外國學生 Foreign students only
科技英文寫作 Technology English Writing	2		2			
合 計	15	2	5	5	3	

(三) 選修科目

中 英 文 科 目 名 稱	學 分 數	第一學年		第二學年		備 註
		上	下	上	下	
獨立研究 Independent Studies	4	1	1	1	1	
農業發展與政策 Agricultural Development and Policy	3	3				
供應鏈管理 Supply Chain Management	3	3				
農企業資源規劃管理專題 Seminar on Agribusiness Resource Planning Management	3	3				
計畫評估與管理 Project Appraised and Management	3	3				
糧食安全 Food Security	3	3				
數量方法 Quantitative Methods	3		3			
農企業行銷管理專題 Seminar on Marketing Management of Agribusiness	3		3			
農民組織專題 Seminar on Farmers' Organization	3		3			
談判與溝通 The Guide to Negotiating Strategies and Tactics for Business	3		3			
農企業人力資源管理 Human Resources Management of Agribusiness	3		3			
園藝產品經營專題 Seminar on Managing Business of Horticultural Products	3			3		
區域經濟與政策分析 Regional Economics and Policy Analysis	3			3		

傳閱附件 5--104 學年度增設「農企業管理國際碩士學位學程」課程規劃案

中 英 文 科 目 名 稱	學 分 數	第一學年		第二學年		備 註
		上	下	上	下	
畜產品經營專題 Seminar on of Livestock Enterprises Management	3			3		
食品行銷 Food Marketing	3			3		
跨國性農企業專題 Seminar on Transnational Agribusiness	3			3		
農企業財務管理 Finance Management of Agribusiness	3				3	
休閒農業經營管理專題 Seminar on Leisure Farm Management	3				3	
食品經營專題 Seminar on Food Business Management	3				3	
國際農產品市場專題 Seminar on International Market of Agricultural Products	3				3	
農企業投資分析 Agribusiness Investment Analysis	3				3	
合 計	64	16	16	16	16	

農企業管理系(所) 國際碩士學位學程課程與核心能力關聯表

【專業必修】						
科目名稱	核心能力項目					3.具有撰寫科學研究報告與論文之能力。
	(1)具全球視野	(2)實務應用能力	(1)農民組織	(2)中小型農企業經營	(3)行銷與貿易	
全球農企業管理議題研討 Global Issues in Agribusiness Management	V		V	V	V	
農企業研究法 Agribusiness Research Methods			V	V	V	V
專題討論 Seminar						V
碩士論文 Thesis						V
農企業管理實務 Practical Affairs for Agribusiness Management		V	V	V	V	
永續發展趨勢 Trends in Sustainable Development	V					
科技英文寫作 Technology English Writing						V

【專業選修】						
科目名稱	核心能力項目	1.具全球視野之農企業管理理論之養成和實務能力之培養。		2.中小規模農企業之經營，農民組織和農產品行銷專業知識的要求。		
		(1)具全球視野	(2)實務应用能力	(1)農民組織	(2)中小型農企業經營	(3)行銷與貿易
獨立研究 Independent Studies				V	V	V
農業發展與政策 Agricultural Development and Policy				V		
供應鏈管理 Supply Chain Management						V
農企業資源規劃管理專題 Seminar on Agribusiness Resource Planning Management						
計畫評估與管理 Project Appraised and Management			V	V	V	V
糧食安全 Food Security		V				
數量方法 Quantitative Methods						V
農企業行銷管理專題 Seminar on Marketing Management of Agribusiness						V
農民組織專題 Seminar on Farmers' Organization				V		
談判與溝通 The Guide to Negotiating Strategies and Tactics for Business		V				V
園藝產品經營專題 Seminar on Managing Business of Horticultural Products					V	

【專業選修】						
科目名稱	核心能力項目	1.具全球視野之農企業管理理論之養成和實務能力之培養。		2.中小規模農企業之經營，農民組織和農產品行銷專業知識的要求。		
		(1)具全球視野	(2)實務应用能力	(1)農民組織	(2)中小型農企業經營	(3)行銷與貿易
區域經濟與政策分析 Regional Economics and Policy Analysis		V				
畜產品經營專題 Seminar on of Livestock Enterprises Management					V	
食品行銷 Food Marketing						V
跨國性農企業專題 Seminar on Transnational Agribusiness						V
農企業財務管理 Finance Management of Agribusiness					V	
休閒農業經營管理專題 Seminar on Leisure Farm Management					V	
食品經營專題 Seminar on Food Business Management					V	
國際農產品市場專題 Seminar on International Market of Agricultural Products						V
農企業投資分析 Agribusiness Investment Analysis					V	
農企業人力資源管理 Human Resources Management of Agribusiness					V	

農企業管理系(所) 國際碩士班學位學程課程與核心能力之關聯檢核表

核心能力 Core Capabilities	能力指標與核心素養 Capabilities Index and Core Accomplishment	對應課程 Related Courses
1.具全球視野之農企業管理理論之養成和實務能力之培養。	(1)具全球視野 (2)實務應用能力	(1)國際觀 全球農企業管理議題研討 Global Issues in Agribusiness Management 永續發展趨勢 Trends in Sustainable Development 糧食安全 Food Security 區域經濟與政策分析 Regional Economics and Policy Analysis
		(2)實務應用能力 計畫評估與管理 Project Appraised and Management 農企業管理實務 Practical Affairs for Agribusiness Management
2.中小規模農企業之經營，農民組織和農產品行銷專業知識的要求。	專業能力 (1)農民組織 (2)中小型農企業經營 (3)行銷與貿易	(1)農民組織 全球農企業管理議題研討 Global Issues in Agribusiness Management 農企業管理實務 Practical Affairs for Agribusiness Management 獨立研究 Independent Studies 農民組織專題 Seminar on Farmers' Organization 農業發展與政策 Agricultural Development and Policy 計畫評估與管理 Project Appraised and Management
		(2)中小型農企業經營 全球農企業管理議題研討

		<p>Global Issues in Agribusiness Management 農企業管理實務 Practical Affairs for Agribusiness Management 獨立研究 Independent Studies 農企業財務管理 Finance Management of Agribusiness 農企業投資分析 Agribusiness Investment Analysis 農企業人力資源管理 Human Resources Management of Agribusiness 園藝產品經營專題 Seminar on Managing Business of Horticultural Products 畜產品經營專題 Seminar on of Livestock Enterprises Management 食品經營專題 Seminar on Food Business Management 休閒農業經營管理專題 Seminar on Leisure Farm Management 計畫評估與管理 Project Appraised and Management</p>
		<p>(3)行銷與貿易 全球農企業管理議題研討 Global Issues in Agribusiness Management 農企業管理實務 Practical Affairs for Agribusiness Management 獨立研究 Independent Studies 跨國性農企業專題 Seminar on Transnational Agribusiness 國際農產品市場專題 Seminar on International Market of Agricultural Product</p>

		農企業行銷管理專題 Seminar on Marketing Management of Agribusiness 供應鏈管理 Supply Chain Management 食品行銷 Food Marketing 計畫評估與管理 Project Appraised and Management 談判與溝通 The Guide to Negotiating Strategies and Tactics for Business
3.具有撰寫科學研究報告與論文之能力。	獨立研究與報告撰寫	農企業研究法 Agribusiness Research Method 專題討論 Seminar 碩士論文 Thesis 科技英文寫作 Technology English Writing 數量方法 Quantitative Methods 獨立研究 Independent Studies

農企業管理國際碩士學位學程

International Master's Degree Program in Agribusiness Management

一、必修科目 Required Courses

2 必

一上

本課程之目的，在使學生瞭解農企業管理之主要研究問題以及現階段所面臨的全球性議題。本課程採輪授方式進行。

Global Issues in Agribusiness Management 2 R 1st F

The purpose of this course is to discuss the special problems in agribusiness management that stemmed from the biological properties of agricultural products. The contents of the course cover the current global issues on agribusiness management. The course is jointly offered by the faculty of this program.

2 必

一下

本課程之目的，在幫助學生了解農企業研究的過程，使其能順利且有效地執行一項研究計畫，以解決管理上的各種問題。課程內容包括研究計畫書的撰寫與評估、研究設計的方法、資料收集的方式、資料分析、以及研究成果報告的表達。

Agribusiness Research Methods **2** **R** **1stS**

The purpose of this course is to provide students with the knowledge and skills of scientific method they need to solve the problems and meet the challenges of a fast-paced decision-making environment. The contents of this course include introduction to agribusiness research, design of research, the sources and collection of data, and analysis and presentation.

2

必

指導教授

一下，二上

本課程之目的，在使學生瞭解當前農企業管理之主要理論與思潮，在農企業之企業功能與管理功能的互動架構下，探討農企業管理的各種問題，並透過評論相關的實證研究，整理出農企業管理的未來新趨勢與理論。本課程安排在第二及第三學期講授，每次開課以 1 學分為原則，授課時數則視實際需要另行安排。

Seminar	2	R	Thesis Advisor, 1st S, 2nd F
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The purpose of this course is to explore the contemporary topics in theory and practice of agribusiness management by a global perspective. Under the framework of interrelationship between managerial functions and business functions, the major contents include the evolution of management thought and the patterns of management analysis, management and society, global and comparative management, etc. Several reviews of relative empirical study will be made to find the future tendency in agribusiness management. This course will be arranged in the second and the third semester with 1 credit hour work each semester.

農企業管理實務

1 必

指導教授 二上

本課程目的在使學生了解農企業實際的營運狀況，學習經營管理的實際技能，以求理論與實務的結合。實施方式是由學生論文的指導教授依據論文的性質，選擇適當的農企業機構，分派學生前往實習。實習期間至少一個月，老師與實習單位共同負責輔導並考評。

Practical Affairs for Agribusiness Management 1 R Thesis Advisor, 2nd F

The purpose of this course is to provide student experience to understand the practical affairs of agribusiness management, in order to integrate the theory and practice of agribusiness management. The students who take the agribusiness is the course is to required go to the agribusiness to practice in the fields, under the suspension of the advisor, for selected based on the relevance of the topic of the thesis at least one month.

永續發展趨勢

0 必

一下

本課程介紹環境政策與管理對經濟發展與開發建設之影響，可達到永續發展之效能。從自然經濟資源、氣候、環境、能源、交通運輸、產業與人口結構等作整體性的政策思考與規劃，以達環境保護與經濟發展兼顧之永續發展目標。

Trends in Sustainable Development 0 R 1st S

The objective of this course is to provide students to understand the environmental management, domestic environmental policy and global environmental protection topic. The subjects of the course will include : Environmental management and policy ; Environmental economics ; Risk assessment ; Ecological balance ; National environmental policy ; Environmental impact assessment ; Sustainable development ; The issue on environmental protection and International Conventions etc. This course introduces environmental policy management for the enterprise development process, to prevent environmental pollution. From climate, transportation, industrial structure, and diverse environment in which the integrity of reference for thinking and planning.

碩士論文

6 必

指導教授 二上，二下

碩士班學生在教授的指導下，撰寫論文，經口試及格後，才能獲得碩士學位。

Thesis Research 6 R Major or Thesis Advisor, 2nd F, 2nd S

Under the direction of the Thesis Advisor, the student who seeks the masters' degree must complete the thesis and pass the final oral examination.

應用華語

0 必

一下

本課程透過非常生活化的主題內容與語彙之教學，增進外籍學生對華語之聽、說、讀、寫能力為教學目標。

Applied Mandarin 0 R 1st S

The main purpose of this course aims to promote foreign students' abilities of listening, speaking, reading, and writing in Mandarin.

科技英文寫作 2 必 一下

本課程有系統的介紹英文論文的寫作格式，利用例子與練習，輔以實際寫作練習與錯誤訂正，輔助學生學習英文論文寫作之技巧，正確組織文章的各個片段，同時強調學生文章撰寫經驗之累積，以完整學術文章之撰寫為課程目標，使能更有效率的利用英文寫出科技論文之佳作。

Technology English Writing 2 R 1st S

Scientific and technical writing must be written for a specific audience. Graduate students often find it difficult to write for the specific audience and identify problems in their writing and frequently lack tools to deal with them effectively. This course will provide instructions in the strategies and tactics for effective scientific writing and suggestions as well based on the common problems in manuscripts people easily make.

二、選修科目 Elective Courses

獨立研究 4 選 一上，一下，
二上，二下

本課程由教師輔導學生選定其有興趣之研究題目，進行文獻收集、討論及實驗設計，並將研究結果撰寫報告。

Independent Studies 4 E 1st F, 1st S, 2nd F, 2nd S

Each student will select his/her research topic of interest and be requested to search literature, discuss with faculty members, and design experiment. Finally, a report of research results will be required.

數量方法 3 選 一下

本課程內容包含建立量化分析模型、量化資料收集、整理、利用統計方法及其它量化分析工具進行資料分析、驗證模型及做成決策建議。透過實務問題的說明，來介紹分析技術的使用。

Quantitative Methods 3 E 1st S

This course covers statistical and other qualitative methods designed to elicit

information, data reduction, description and induction, model verification and decision making. Through the explanation of empirical problems, several analytical techniques will be introduced.

供應鏈管理

3 選 一上

本課程目的在使學生瞭解農企業如何將商品或原料自供應商至顧客，有效率且有效果地規劃、執行、控制產品和服務的流通和儲存。課程內容包括：導論、供應鏈網路結構、顧客服務、供應鏈之貨源規畫、供應鏈之資訊科技、委外策略、全球供應鏈、整合供應鏈管理之執行、供應鏈之績效評量。

Supply Chain Management

3 E 1st F

The objective of this course is to realize an agribusiness how to plan, implement, and control the efficient and effective flow and storage of goods and services. Course contents include: introduction, supply chain network structure, customer service, sourcing planning of supply chain, information technology of supply chain, outsourcing strategy, global supply chain, implementing integrated supply chain management, and supply chain performance measurement.

農業發展與政策

3 選 一上

本課程旨在探討台灣農業發展及因應不同發展階段之農業政策，以為農企業經營環境之分析。本課程包括：概論、經濟發展理論、政策理論、台灣農業發展階段、農地政策之轉變、農業結構之轉變、農業人口之轉變、台灣農業政策之內涵、農業政策在農業發展中的角色、農業發展和政策與農企業經營之關係、農業發展與政策之分析

Agricultural Development and Policy

3 E 1st F

The objective of this course is to discuss agricultural developments in Taiwan and the agricultural policies corresponding to different stages of agricultural developments and to analyze agricultural development and policy as parts of agribusiness environments. The contents of this course are: Introduction ; Economic development theory ; Policy theory ; Agricultural development stages in Taiwan ; Changes of agricultural land policy ; Changes of agricultural structure ; Changes of agricultural population ; Implication of agricultural policy in Taiwan ; Roles of agricultural policy in agricultural development ; Agricultural development, policy, and agribusiness management ; Policy analysis.

農企業行銷管理專題

3 選 一下

本課程將以農場投入部門、農產品生產與加工部門、及食品部門等三大部門之行銷管理學與技術作一深入探討。其中包括：行銷規劃、市場區隔、行銷組合、農產品的行銷特質、運銷職能、運銷成本、運銷制度、消費市場之變化、國際貿易等；本課程以討論方式進行。

Seminar on Marketing Management of Agribusiness 3 E 1st S

This course targets at the theory and technique of marketing management for agribusinesses. The content investigates the marketing planning, market segmentation, marketing mix, marketing attributes of agricultural products, marketing functions, marketing costs, marketing system, changes of consumer market, and international trade. The course is in a free discussion format.

農民組織專題 3 選 一下

在使學生明瞭農民組織之組織成員、組織功能與組織體系，並討論其經營管理之現況與轉型發展策略。本課程內容包含：農會、漁會、農田水利會、農業合作社場以及區域性、國際性之農民組織之經營管理。

Seminar on Farmers' Organization 3 E 1st S

The purpose of this course is to understand the formation and operation of farmers' organization, the membership, functions, and systems of farmers' organizations, and to discuss their management situations and development strategies. The contents of this course include: farmers' associations, fishermen's associations, irrigation associations, and agricultural cooperatives as well as international and regional farmer's organizations.

農企業資源規劃管理專題 3 選 一上

本課程旨在探討如何將企業營運上的核心流程加以整合，將過去以企業功能導向的組織設計轉化為流程導向的設計理念落實在系統中，並發揮其深具彈性的特質，配合企業整體策略與營運方針，在系統架構上做調適性的修改。本課程內容包括：導論、企業資源規劃系統在供應鏈管理中所扮演的角色、企業資源規劃系統之演進、企業資源規劃系統之功能與特色、企業如何導入企業資源規劃系統、企業資源規劃之績效評估、企業資源規劃系統之發展趨勢及企業資源規劃之個案研究。

Seminar on Agribusiness Resource Planning Management 3 E 1st F

The purpose of this course is to explain how to integrate the core procedures of business operation into a flow oriented procedure using the system design concept of enterprise resource planning, ERP. By transforming the function oriented system design to the new ERP approach, the enterprise could adjust the system flexibly to respond to new development strategies of the enterprise. The contents of the course include: Introduction; The role of ERP on supply chain management; Evolution of ERP; Features and functions of ERP; How to introduce ERP in businesses; Performance evaluation for ERP; Development trend of ERP; Case studies of ERP.

跨國性農企業專題 3 選 二上

本課程係為使小型農企業發展成為跨國性農企業，具經營管理上的必要途徑考量，其目的有充分利用國際資源：原料、人才、資金、機器、管理。擴大市場：台灣只有二千三百萬人口，唯有跨國性企業才具規模經濟，以提昇競爭力。其重點包括：

跨國性農企業的基本概念、跨國性農企業的理論及環境、跨國性農企業的策略、跨國性農企業的組織、領導及文化、跨國性農企業的管理。

Seminar on Transnational Agribusiness 3 E 2nd F

The purpose of Transnational Agribusiness is to fully use of informational resources and market. It includes: Basic concepts for Transnational Agribusiness. ; Theories and environment for Transnational Agribusiness ; Strategy for Transnational Agribusiness ; Organization, leadership and culture for Transnational Agribusiness ; Transnational Agribusiness management.

國際農產品市場專題 3 選 二下

本課程目的在使學生瞭解國際農產品市場之運作原理與現況，以及討論其對農企業之策略管理意涵。本課程內容包含國際的大宗穀物市場、蔬果市場、花卉市場、畜禽市場、林產市場、水產品市場等。

Seminar on International Market of Agricultural Products 3 E 2nd S

The purpose of this course is to realize the operation principle and the current situation of international markets of agricultural products, and to discuss the strategic implication of international market of agricultural products. The contents of this course include: international markets of gross grain, vegetables and fruits, ornamental plants, livestock products, forestry products, and fishery products.

食品行銷 3 選 二上

本課程宗旨在以食品農企業經理人的立場，引領學生將農企業行銷管理的學理與實務，應用在食品農企業上，使其能以市場導向的觀念，落實食品行銷的理念與做法。本課程內容包括：食品行銷導論、食品行銷功能、食品行銷效用、食品行銷策略規劃、食品行銷實務：範例與實作。

Food Marketing 3 E 2nd F

This course aims to guide students that can apply the theories and practices of agribusiness marketing management at the position of food agribusiness managers. The emphasis would be on how to apply market oriented approach for food marketing. This course contents include: Introduction of food marketing; Function of food marketing; Utility of food marketing. Strategic planning of food marketing; Food marketing practice.

園藝產品經營專題 3 選 二上

本課程之重點在探討於國際貿易自由化之趨勢下：園藝產品業應如何因應市場需求、穩定產銷，以促進產業永續發展。探討運用企業經營理念於園藝產品業之研究專題：相關政策與法規、規劃與決策、成本收益與獲益力分析、行銷規劃與管理、組織與領導、管制與評估。

Seminar on Managing Business of Horticultural Products 3 E 2nd F

This course is designed to discuss the following issues of horticultural products under the international trade liberalization circumstance: How to stabilize the production and marketing of horticultural products by adapting to the market supply and demand situation that will promote the sustainable development of domestic horticultural products. Investigate the following research subjects applying business management concepts: The related agricultural policy and regulations. ; Planning and decision. ; Cost, benefit, and profit analysis. ; Capital and finance. ; Marketing planning and management. ; Organization and leadership. ; Control and evaluation.

畜水產品經營專題

3 選 二上

本課程透過專題研討的方式，使學習者了解台灣地區主要畜水產品業之實際經營狀況、面臨問題及可能的解決之道。本課程將首先提供畜水產品業之一般經營管理架構，再由學習者收集實際的個案資料，以對特定問題進行研討，並提出或尋求經營問題的解決對策。本課程的主要內容包含：台灣主要畜水產品業之簡介、畜水產品業之一般經營架構、畜水產品業經營之問題、個案研討、應用與經營策略分析。

Seminar on Animal Enterprises Management 3 E 2nd F

This course provides a forum of discussion on the issues related to the management of animal products. General frameworks for management practices for animal products will be provided to the students at the first part of the course; the students will be asked to collect data for case studies for discussion on specific issues raised in this course. The major contents of the course include: Introduction to the major animal products in Taiwan. ; General framework for the animal products management. ; Issues for management of the animal products. ; Case studies and discussion. ; Application and analysis of management strategy.

食品經營專題

3 選 二下

本課程之目的，在使學生獲得食品業經營之理論與實務的相關知識，課程主要內容包括食品產業之介紹，食品保存方法，決策，溝通，食品品質，成本分析，人際關係處理技巧、說明、激勵、與領導，企業功能，以及食品公司之規劃、執行與控制。

Seminar on Food Business Management 3 E 2nd S

The objective of this course is designed to teach the related knowledge of the theory and practice of food company management. The major contents includes introduction to food industry, the methods of food preservation, decision, communication, food quality, cost analysis, the skills of the human relationship, business functions and food company planning , execution, and controlling.

休閒農業經營專題

3 選 二下

本課程旨在使學習者了解休閒農業之意義與發展背景，理論與類型，規劃設計的原理與方法，經營管理的策略與實務，解說服務的功能和技巧，教宣導的原則和方法，有關法令和規定，以及診斷評估的技術和方法，以增進學習者對休閒農業之知識及經營管理之能力。課程架構如下：休閒農業理論、休閒農業之範圍與計畫、休閒農業相

關法規與計畫、休閒農業之規劃與設計、休閒農業之經營策略、休閒農業經營管理、休閒農業之解說服務、休閒農業之教育宣導、休閒農業與農村文化發展、休閒農業之經營診斷與評估。

Seminar on Leisure Agriculture 3 E 2nd S

This course provides a comprehensive introduction to the management of leisure agriculture. The structure of this course is as following: theory of leisure agriculture ; Scope and pattern of leisure agriculture ; Law and plan concerns with leisure agriculture ; Planning and design of leisure agriculture ; Strategy of leisure agriculture ; Operation of leisure aquiculture ; Explanation of leisure agriculture ; Promotion of leisure agriculture ; Village folk and leisure agriculture ; Diagnosis and appraisal to leisure agriculture

農企業財務管理 3 選 二下

本課程之目的在於探討農企業財務管理之程序、實務及政策。課程內容包含公司財務領域中幾個重要部分，包括進行財務決策時面臨之環境、財務計畫與資本預算、如何在不確定下作決策、風險與報酬、營運資金管理策略及長期資金管理策略等。課程中亦將輔以個案研討以協助學生更進一步了解農企業之財務決策。

Finance Management of Agribusiness 3 E 2nd S

The purpose of this course is to explain the procedures, practices, and policies by which financial management can contribute to the superior performance of agribusiness. Its focus is on strategies associated with seeking to market decision that maximize the value of the agribusiness. This course covers major parts in finance theory, including the environment for financial decisions, the basic financial planning and investment, decision making under uncertainty, risk and return, financial strategies for working capital management, and long term financial strategies, etc. The course will offer several case studies for students to better understand the financial decision making strategies in agribusiness.

談判與溝通 3 選 一下

本課程旨在幫助學生瞭解談判的奧妙，訓練如何將談判的觀念、策略與技術運用於企業和私人的商業交易，以增強管理能力、提高經營績效。課程內容包括：談判的本質與內涵、談判解題的基本模式、談判與溝通、談判力量與施壓、談判資訊搜尋與封鎖技術、資訊的可信度分析、談判常用的策略與戰術、克服談判詭計的對策、談判僵局的處理、結束談判方法。

The Negotiating Strategies and Tactics for Business 3 E 1st S

The object of this course is to help student understand the subtleties of negotiation and apply the ideas in their business and personal transactions. The main topics are as follows : 1.Introduction, 2.Basic modes of conflict resolution,3.Communication and persuasion, 4.Power and influence, 5.Information 6.Credibility 7.Common strategies and tactics for negotiation, 8.Taming the hard

bargainer, 9.Causes and cures for negotiation breakdowns, 10.Techniques of agreeing and closing negotiation

糧食安全

3 選 一上

本課程目的在增進學生對全球之糧食供應及人口問題的了解，進一步探討這些議題對國家發展政策及國際合作的意涵。課程中鼓勵學生應用各種量化及質化研究工具探討此一議題。

Food Security

3 E 1st F

The goal of this course is to increase student's knowledge and understanding the global food and population issues and its relevance for national development policy as well as international cooperation. Both qualitative and quantitative methods would be encouraged to be used as the research tools in investigating the issues

區域經濟與政策分析

3 選 二上

本課程旨在使學生具有分析區域經濟問題所需具備的觀念與方法，以及訓練學生面對區域經濟發展及區域經濟整合問題，能提出有效的解決方案。

Regional Economics and Policy Analysis

3 E 2nd F

This course is to provide students with a better understanding of why regional economics behave as they do. Its contents include: the fundamental concepts of regional economy; regional theory and economic growth; regional trade; the origins and objectives of regional policy; regional policy instruments; new direction in regional policy; the rationale for regional integration

計畫評估與管理

3 選 一上

專案管理專題課程說明專案管理在管理發展時所扮演的角色與環境，介紹工作規劃、控制與評估等相關技能與會使用到的工具。專案管理專題課程的設計目標如下：定義專案案的特性及解釋專案管理的需求、熟悉專案管理流程、整合專案管理方式。

Project Appraised and Management

3 E 1st F

This course examines the major roles and environment of project management. To achieve project objectives, various techniques of work planning, control and evaluation will be introduced in this course, such as the ways groups are organized into a project, the responsibilities of a project team member, and the relationship between project leader and team member, especially in terms of the division of responsibility and authority. Main topics include: define the characteristics of a project and to explain the need for project management, understand the major project management processes, including initial process, plan process, execution process, control process and closing process.

農企業人力資源管理

3 選 一下

本課程旨在探討農企業經理人及人力資源部門如何管理人力資源，並瞭解農企業

經營和人力資源的管理活動必須創造出吸引工作應徵者、留住優秀員工、激勵員工與員工再訓練之功能，以提昇組織整體的生產力，獲取競爭優勢，進而達成企業生存、發展與獲利的目標。

Human Resources Management of Agribusiness 3 E 1st S

The purpose of this course is to discuss how manager and human resource department of agribusiness manage personnel/human resource and what they have to do for accomplishing the goals of making profit and sustainable development for business. In order to achieve the goals of profit and development of agribusiness, human resource department must take the responsibility of creating incentives to attract job applicants, to retain excellent employees and motivate them.

農企業投資分析 3 選 二下

本課程之目的，在使學生瞭解農企業投資的重要概念與投資分析方法，主要內容包括現值模型之性質、現值模型之建構、現值模型之經濟分析、貸款分析、財務投資、交易成本與土地買賣決策、重置原則與租賃決策、計畫分析、以及研究發展與技術移轉之評價。

Agribusiness Investment Analysis 3 E 2nd S

This course is to provide students with the knowledge and skills for the current models and investment analyses in agribusiness. Its contents include: introduction to present value models; constructing present value models; economic analysis using present models; loan analysis; financial investments; transaction costs and land purchase/sale decisions; replacement principles and leasing decisions; project analysis; and valuation of research, development, and technology transfer.