植物醫學系

Department of Plant Medicine

一、專業必修科目 Required Courses

152001 普通昆蟲學　　2　必　　張萃媖、上

本課程主要介紹昆蟲學的基本知識，課程內容包括昆蟲形態、分類、生理及行為使學生能瞭解昆蟲及其與人類之關係；以提供從事昆蟲相關訓練之基本概念。

152001 General Entomology　　2　R　　T. Y. Chang, F

The objective of this course is to introduce basic knowledge of entomology. Lectures include morphology, physiology, systematics, development and behavior of insects. Students will get practical experience in identifying and managing insects for their professional careers.

152002 普通昆蟲學實習　　1　必　　張萃媖、上

本課程主要介紹昆蟲採集及標本製作方法，由實物觀察瞭解昆蟲外部形態，內部構造，種類及行為等。

152002 Practice of General Entomology　1　R　　T. Y. Chang, F

The objective of this lab is to introduce the collection and preservation of insects. Learning external and internal structures of insects through examining fresh and preserved specimens. Using taxonomic keys to proficiently identify insects to the family level.

152003 作物栽培　　2　必

本課程目的在於使學生瞭解作物生長發育與環境因子之關係，及栽培管理技術。內容包括作物之起源、分類、生長環境與分佈、栽培制度，以及栽種、施肥、灌溉、雜草、病、蟲害及繁殖、採收、貯藏等栽培、管理技術。

152003 Crop Cultivation　　2　R

The course is aimed at giving student a thorough understanding of the impacts of environmental factors and culture management technology on plant growth and development. Topics covered include the origin, classification, distribution of crops and their environmental requirements and cultural systems. Propagation, fertilization, irrigation, pest management, disease control, and post-harvest techniques will be introduced about each individual crop.

152004 作物栽培實習　　1　必

本課程係透過實地操作，使學生熟悉作物栽培之基本技能，諸如：作物種類及栽培方法之選定、農地整備、堆肥製作、生長管理、病蟲害及雜草防治實務等，使學生具備作物栽培之基本能力，並特別加強無農藥栽培技術之訓練，以建立未來從事清潔栽培或有機栽種之能力。

152004 Practice of Crop Cultivation　　1　R

The purpose of the course is to familiarize students with the basic farming techniques through hand-on field training, including the selection of crops and culture methods, land tilling, manure preparation, crop management, disease and weed control etc. Students will also enrich their knowledge and ability in clean culture and organic farming through the training of pesticide-free crop culture.

152005 植物病原細菌學　　2　　必　　趙永椿、下

本課程主要在講授植物病原細菌的分類與鑑定, 以及描述其所引起的病害種類.內容包括植物細菌性病害的基本診斷技術、病原細菌主要屬的區分方法、致病機制、病原細菌的遺傳與突變、噬菌體與細菌素、血清學及它們在植物病原細菌學上的應用、植物病原細菌的生態及植物細菌性病害的管理及防治、使學生在修完本課程後對植物病原細菌及其所引起的病害有更多的瞭解與認知。

152005 Phytopathogenic Bacteriology　2　R　Y. C. Chao,S

The objective of this course is to introduce the taxonomy and identification of plant pathogenic bacteria and the descriptions of the diseases they cause. Contents include the basic techniques for diagnosing plant bacterial diseases, differentiation of the major genera of plant pathogenic bacteria, mechanisms of diseases induction, variation and genetics of plant pathogenic bacteria, bacteriophages and bacteriocin, serology and their application on phytopathogenic bacteria, ecology of phytopathogenic bacteria and control or management of bacterial plant diseases. The students will learn more knowledge about the phytopathogenic bacteria and the diseases they cause from this course.

152006 植物病原真菌學　　2　　必　　梁文進、下

本課程乃以真菌類緣為主幹，分別描述下例真菌－(1) 黏菌綱 (2) 根瘤菌綱(3) 結合菌綱 (4) 卵菌綱 (5) 子囊菌綱 (6) 擔子菌綱 (7) 不完全菌綱的形態、生理、生殖、遺傳、分類、生態及其在農業、醫學及工業上的應用及影響。

152006 Phytopathogenic Fungi　　2　　R　　W. J. Liang, S

The course is to introduce the morphology, physiology, propagation, genetics, ecology, classification and the importance of each group of the fungi, which include : (1) Myxomycetes (2) Plasmodiophoromycetes (3) Zygomycetes (4) Oomycetes (5) Ascomycetes (6) Basidiomycetes and (7) Duteromycetes.

152007 土壤與肥料　　2　　必　　許仁宏、陳光堯、下

本課程的目的，在使學生認識土壤與肥料，並瞭解它們在地球上所扮演的角色。土壤部份的課程內容有認識土壤、土壤的生成與分類、土壤的物理與化學、土壤有機質與生物、土壤水份、土壤與植物及土壤管理。肥料部份的課程內容有認識肥料、肥料元素、有機質肥料與化學肥料、肥料需要量的決定及肥料施用法。

152007 Soil and Fertilizer　　2　　R　　Z. H. Shü, K. Y. Chen, S

The purpose of this course is to know soil and fertilizer and to understand their roles on earth. The contents of the soil part include knowing soils, genesis and classification of soils, soil physics and chemistry, organic matters and soil biology, water in soils, plants and soils and soil management. The contents of the fertilizer part include knowing fertilizers, fertilizer elements,

organic and inorganic fertilizers, decision making for fertilizer requirement and fertilizer application methods.

152008 植物生理學 2 必 古明萱、王均琍、蔡秀隆、上

本課程在使學生獲得有關植物生理學之基本知識，課程內容包括植物生理之概念、植物之吸水及蒸散作用、礦物營養及養分之吸收輸送、光合作用、呼吸作用、氮素、脂質及其他二次代謝物之代謝。

152008 Plant Physiology 2 R M. S. Guu, C. L. Wang, L. Tsai, F

The purpose of this course is to acquaint students with knowledge of basic principles and the application of plant physiology on the agricultural system. The contents include: Introduction of concepts in plant physiology, the process of water absorption and transpiration, absorption and translocation of mineral, nutrient, photosynthesis, respiration, metabolism of nitrogen, lipid and secondary metabolites.

152009 昆蟲生態學 2 必 張念台、上

本課程以生態學原理為基礎，針對影響昆蟲分布、豐度、生命史與演化的生物及非生物環境與昆蟲之交互作用，進行解說。本課程尤其強調昆蟲族群的消長、調節、及昆蟲於生態系能量流動中所扮的角色。

152009 Insect Ecology 2 R N. T. Chang, F

This course is basing on the ecological principles and aimed at the interaction of insects with their biotic and/or abiotic environment as it influences their distribution, abundance, life history and evolution. The emphasis will be on population dynamics, regulations and the role of insects playing in energy flow of an ecosystem.

152010 植物病毒學 2 必 陳滄海、上

本課程除傳統植物病毒學範疇外，並涵蓋從分子層次討論植物病毒之構造，引起之植物病害，田間發生及防治，期能達到理論與實務並重；內容包括植物病毒分子層次的構造及核酸組成，病毒分離、鑑定與純化，在寄主體內之增殖及轉移，媒介傳播、遺傳及變異，其引起之病害及田間發生生態與防治。

152010 Plant Virology 2 R T. H. Chen, F

The course will give conventional and molecular level of plant viruses in order to help the students to get much theoretical and practical knowledge about plant virology. The contents cover the molecular structure of virion and genome, virus isolation, identification and purification, transmission, variation, ecology, nomenclature and classification, diagnosis and control.

152011 植物線蟲學 2 必 鄭光哲、上

植物寄生性線蟲分類上屬於原形動物門，具假體腔，體形呈二側對稱，具有消化，生殖、神經系統，缺乏呼吸及循環系統。此類線蟲大多存活於土壤中，以寄主植物根圈附近族群密度較高，行絕對寄生危害植株根部，主要靠水流、土壤、介質、種苗及器具等傳播；少部分線蟲可危害植株地上部，並藉由種子或特定昆蟲媒介傳播。線蟲

除可單獨危害寄主植物，尚可與其他病原微生物形成複合感染，造成更嚴重之經濟損失。

152011 Plant Nematology 2 R K. C. Cheng, F

Plant parasitic nematodes are long tubular organisms that move over wet surfaces and feed on living plant cells. Most species found in soil are very small, about 0.2-2mm long and less 0.05mm wide should be observed by microscopes. Nematodes have digestive, reproductive and nervous systems, but no respiratory and circulatory systems. They parasite and inhabit all parts of plants, including buds, stems, leaves and roots, usually cause severe economic losses.

152012 生物化學 2 必 許祥純、上

本課程主要介紹生物體構成分子之組成及結構，以提供學生生化分子之基本概念，並建立修習代謝生化及分子生物的基礎。其內容包括：水及緩衝溶液、胺基酸及蛋白質、酵素、核酸、碳水化合物及脂質之介紹。

152012 Biochemistry 2 R S. C. Sheu, F

This course is to introduce the composition and structure of biomolecules. The purpose of this course is to provide students with basic concepts of biomolecules for the further study of metabolism and molecular biology. The topics involved in this course are water and buffer, amino acid and protein, enzyme, nucleic acid, carbohydrate and lipid.

152013 生物化學實習 1 必 許祥純、上

本課程目的在使學生藉由實際操作了解生化分子的特性及生化反應的原理，並學習 pH 計、分光光度計等儀器的操作。實習內容包括：緩衝溶液之製備、胺基酸之滴定、胺基酸及蛋白質之定性分析、蛋白質之定量、醣類之定量分析、酵素活性測定及膠過濾法。

152013 Practice of Biochemistry 1 R S. C. Sheu, F

This course is designed for students to understand the characteristics of biomolecules and the principles of biochemical reactions in the lab. Students also learn how to operate some instruments such as pH meter, spectrophotometer in this course. It includes buffer preparation, titration of amino acid, qualitative and quantitative analysis of amino acid and protein, quantitative analysis of carbohydrates, enzyme assay and gel filtration chromatography.

152014 昆蟲分類學 2 必 張萃媖、下

本課程主要介紹昆蟲綱各目的分類特徵及分類系統；課程內容包括昆蟲分類學之發展史、分類階層、昆蟲命名、昆蟲鑑定、特徵描述、模式標本、32 目各目之外表形態構造及其診斷鑑定特徵、分類系統及分類學說等。

152014 Insect Taxonomy 2 R T.Y.Chang, S

The objective of this course is to introduce taxonomic characters and phylogeny during each orders of Class Insecta. Lectures include the history, catalogue, nomenclature, identification, description, type specimen, external morphological characters of 32 orders, systematic, phylogeny and theory of entomo-taxonomy.

152015 雜草管理　　2　　必　　鄭秋雄、下

本課程主要介紹雜草之認識、分類、鑑定、生理、生態及對作物、環境、人類之影響，繼而說明草害管理之演變及主要管理技術。主要內容包括雜草之起源、雜草之危害與利用、雜草之生理特性與生態、雜草防治、殺草劑之劑型、特性、殺草機制與施用方法。

152015 Weed Management　　2　　R　　C. C. Cheng, S

This course is mainly to recognize weeds and introduce the classification, identification, physiology, ecology of weeds, effects on crops, environment and humanity, and instruct the evolution and management technologies of weeds. The main content includes the origin of weeds, the harm and use of weeds, the physiological characters and ecology of weeds, weed control, and the form, properties, weed control mechanism and use methods of herbicide.

152016 雜草管理實習　　1　　必　　鄭秋雄、下

本實習主要介紹認識雜草及雜草生態相，進而了解各種雜草的管理技術，包括生物性、化學性殺草劑特性及應用。主要內容包括雜草形態、生理、生態環境之觀察、雜草分類、雜草標本製作及殺草劑之施用方法。

152016 Practice of Weed Management　　1　　R　　C. C. Cheng , S

The purposes of this course are to make students understand weeds and ecological distribution, and introduce each management technologies of weeds, which include the properties and application of biological and chemical herbicides. The main content includes the observations of morphology, physiology and ecology of weeds, weed classification, the manufacture of weed specimens and spray methods of herbicide.

152017 植物醫學技術實習　　1　　必　　下

本實習旨在訓練學生有關植物病理學及昆蟲學的基本研究技術，內容包括相關文獻蒐集、利用及論文寫作。培養基之製作、無菌操作技術、病原菌的分離及培養、病害診斷技術、病害的接種及感染、病原菌的保存、田間取樣技術、病害防治技術以及昆蟲飼育、採集標本製作、顯微鏡操作及種類鑑定等。

152017 Practice of technique of plant medicine　　1　　R

This course provides the students with the basic methodology for plant pathological and insect pest studies. The contents includes the literature search and writing skill for research paper. Media preparation and utilization、disinfection and sterilization technique、isolation of plant pathogen、establishment of disease、preservation of plant pathogens as well as the disease management methods、insect rearing, collecting, mounting, microphotography and identification.

152018 遺傳學　　2　必　　陳福旗、陳幼光
吳文雄、下

本課程的目的在介紹遺傳的基本原理及其應用。主要內容包含孟德爾遺傳定律、有絲分裂和減數分裂、基因的連鎖和遺傳定位、DNA 的構造及複製、突變的機制及 DNA 修補、基因的表達、和族群遺傳等。

152018 Genetics　　2　　R　　F. C. Chen, Y. K. Chen,
W. H. Wu, S

This course is aimed at introducing the basic principles and applications of Genetics. The

main content includes Mendelian genetics, mitosis and meiosis, gene linkage and genetic mapping, the structure and replication of DNA, mechanisms of mutation and DNA repair, gene expression, and population genetics.

152019 農業昆蟲學　　4　　必　　張萃媖、上、下

本課程主要介紹昆蟲與農業的關係，瞭解重要農業害蟲之分類地位、形態特徵、生活習性、發生生態、危害狀況、經濟重要性及其防治方法，並介紹綜合防治之原則與實施方法。

152019 Agricultural Entomology　　4　　R　　T. Y. Chang, F , S

This course deals with the relationships of major agricultural insect pests and their crop damaged. For each pest insect, its morphological character, life cycle, seasonal occurrence, injury and damage, economic importance as well as the methods of control are introduced. The strategies and tactics of integrated pest management are also discussed.

152020 農業昆蟲學實習　　2　　必　　張萃媖、上、下

本課程主要包括認識各主要作物之害蟲與其為害徵狀、害蟲之族群消長調查方法、為害損失估算及主要防治方法，使學生實際認知當前重要作物之主要害蟲，及其抑制的方法。

152020 Practice of Agricultural　　2　　R　　T. Y. Chang, F , S

This course includes the introduction of pests and their damages of major crops in Taiwan. The identification, methods to study the population dynamics, analysis of loss and damage of host plant, and the management methods of pest insects on various major crops, for example rice, wheat, fruit, vegetables, flower etc., are emphasized.

152021 植物病理學　　4　　必　　陳滄海、上、下

本課程討論非生物性因素及生物性因素(如毒素、類病毒、原核性細菌、菌質、真菌、高等寄生植物、線蟲、原生物等)造成作物病害之原理，說明寄主與病原間之相互關係，病變過程、致病作用機制，及植物抗病之原理。同時闡明環境因素與病勢發展之關係，繼而以田間主要作物病害、花卉病害、蔬菜病害、果樹病害及溫室病害分別說明，並配合防治原理，討論其防治方法。

152021 Plant Pathology　　4　　R　　T. H. Chen , F , S

The major contents of this course is to discuss the abiotic and biotic factors (including viruses, viroids, prokaryotic bacteria, mollicutes, fungi, parasitic higher plants , nematodes and protozoa) that caused crop diseases. The host-pathogen interaction relationship, pathogenesis, pathogenicity, and mechanisms of plant defense systems are explained in cases. The environmental factors influencing diseases development reveal the knowing of disease principles. The most important diseases of field crops, ornamental plant, fruit trees, vegetable and greenhouse plants would be discussed implicated with the principles of disease management.

152022 植物病理學實習　　2必　　陳滄海、上、下

本實習主要包括病原之分離、培養、鑑定及接種等技術。由田間之採集病害標本進行診斷，判斷病因及確立病害種類之技術方法及相關技術，並以病害診斷及使用農

藥之專家系統電腦程式教導學生，如何應用個人電腦作為作物病害診斷與防治之工具。本課程亦注重病害之病變過程之變化，病徵之認識，病組織之解剖等組織觀察技術。

152022 Practice of Plant Pathology 2 R T. H. Chen, F , S

The major objectives of this lab. are to let student familiar with pathogen isolation, culture, identification, and inoculation techniques for disease diagnosis and chemicals application compiled in personal computer or would be applied for student uses. The micro-observation techniques are also used for disease's tissue anatomy, symptom classification and disease development are also instructed to students.

152023 農業藥劑學 2 必 辛竹英、上

介紹殺蟲劑、殺菌劑、除草劑及其他農藥的特性，劑型及作用機制，並討論農藥使用後對人畜, 作物及環境的影響。

152023 Pesticide 2 R C. Y. Hsin, F

Managerial, physiological and ecological effects of chemicals applied to crops and soils. Includes insecticides, fungicides, herbicides and other pesticides. Types of formulations, proper application, safety, environmental aspects and historical aspects are covered.

152024 農業藥劑學實習 1 必 辛竹英、上

介紹各種毒性測試方法, 製劑, 正確噴藥方法, 安全用藥, 標籤製作及農藥殘量分析方法等。

152024 Practice of Pesticide 1 R C. Y. Hsin, F

Introduce different kinds of toxicity test, formulation, calibration, safe use of pesticides, labeling and pesticide residue analysis. Working in the experimental farm to get practical experience in conducting toxicity trials in the field.

152025 植物非生物性病害 2 必

課程內容涵蓋植物對於環境中各種非生物性因素的影響產生的變化,諸如各種氣象,營養生理,藥害及環境脅迫如污染對植物產生傷害及產量的變化,討論各種因素的為害特性,病因鑑定與各種因應措施,利用不同的策略與方法改善植物生長.

152025 Abiotic Disorders of Plant 2 R

Categories in this course are plants affect by abiotic factors,concerned climate injury, poor or excess nutritions, pesticide's injury, environmental stress especially in pollutions, the characteristic of different abiotic factors, diagnosis and suitable control methods

152026 蟎蜱學 2 必 華 真、下

本課程主要介紹蟎蜱的外部形態、內部構造、族群生態及重要蟎蜱之分類，與植食性蟎類對作物所引起之為害特徵，及經濟有效的綜合管理方法。

152026 Acarology 2 R T. Hua, S

The objective of this course is to introduce basic knowledge of the Acari, Major content includes the morphological characteristics, population ecology, injury and damage,economic

importance as well as the control methods of the Acari, under the principle of integrated pest management.

152027 植物病害診療實習(果樹病害)　　1　　必　　上

本實習課程內容主要有果樹病害診斷技術之介紹及訓練，包括病徵診斷，解剖診斷，病原分離培養接種及鑑定，生理生化診斷，生物診斷，免疫診斷與核酸診斷技術。及介紹果樹病害之計量及損失評估，防治原則，各種防治方法包括化學防治法、生物防治法、耕作防治法、物理防治法、法規防治法及經濟有效的綜合管理策略。

152027 Practice of Diagnosis Management of Plant Disease on fruits

1　　R　　F

The objectives of this course are focused on (1)introduction and training of diagnostic techniques of fruits plant disease, which include symptomatic diagnosis, anatomic diagnosis, isolative and identification of pathogens, biochemical and physiological method, biological method, immunological diagnosis and nucleic acid techniques. (2)introduction of loss assessment, epidemiology, principles and practical control measures including chemical control, biological control, cultural control, physical control and quarantine control and the integrated disease management of fruits plant disease.

152028 植物病害診療實習(蔬菜病害)　　1　　必　　上

本實習課程內容主要有蔬菜病害診斷技術之介紹及訓練，包括病徵診斷，解剖診斷，病原細菌之分離培養接種及鑑定，生理生化診斷，生物診斷，免疫診斷與核酸診斷技術。及介紹蔬菜病害之計量及損失評估，防治原則，各種防治方法包括化學防治法、生物防治法、耕作防治法、物理防治法、法規防治法及經濟有效的綜合管理策略。

152028 Practice of Diagnosis Management of Plant Disease on vegetables

1　　R　　F

The objectives of this course are focused on (1)introduction and training of diagnostic techniques of vegetables plant disease, which include symptomatic diagnosis, anatomic diagnosis, isolative and identification of pathogens, biochemical and physiological method, biological method, immunological diagnosis and nucleic acid techniques. (2)introduction of loss assessment, epidemiology, principles and practical control measures including chemical control, biological control, cultural control, physical control and quarantine control and the integrated disease management of vegetables plant disease.

152029 植物蟲害診療實習(果樹蟲害)　　1　　必　　上

上本課程內容包括各種重要果樹作物害蟲之鑑定，害蟲危害過程及遺留痕跡的診斷，自田間採集蟲害標本，攜回實驗至，在解剖顯微鏡下觀察，依照圖鑑比對特徵來確認害蟲種類。

152029 Practice of Diagnosis and Management of Insect Pests on fruits

1　　R　　F

Introduce the identification of insect species and the diagnosis of insect infestation on fruit trees. Students learned to collect samples from various parts of plants from the field, examine

symptoms and excreta caused by insects. Pests are studied under dissecting microscope and compared with identification keys.

152030 植物蟲害診療實習(蔬菜蟲害)　　1　　必　　上

本課程內容包括各種主要蔬菜作物害蟲之鑑定，害蟲危害過程及遺留痕跡的診斷，自田間採集蟲害標本，攜回實驗至，在解剖顯微鏡下觀察，依照圖鑑比對特徵來確認害蟲種類。

152030 Practice of Diagnosis and management of insect pests on vegetables

1　　R　　F

Introduce the identification of insect species and the diagnosis of insect infestation on vegetables. Students learned to collect samples from various parts of plants from the field, examine symptoms and excreta caused by insects. Pests are studied under dissecting microscope and compared with identification keys.

152031 植物病害診療實習(糧食作物病害)　　1　　必　　下

本實習課程內容主要有糧食作物病害診斷技術之介紹及訓練，包括病徵診斷，解剖診斷，病原分離培養接種及鑑定，生理生化診斷，生物診斷，免疫診斷與核酸診斷技術。及介紹糧食作物病害之計量及損失評估，防治原則，各種防治方法包括化學防治法、生物防治法、耕作防治法、物理防治法、法規防治法及經濟有效的綜合管理策略。

152031 Practice of Diagnosis Management of Plant Disease on Food Crops

1　　R　　S

The objectives of this course are focused on (1)introduction and training of diagnostic techniques of food crops disease, which include symptomatic diagnosis, anatomic diagnosis, isolative and identification of pathogens, biochemical and physiological method, biological method, immunological diagnosis and nucleic acid techniques. (2)introduction of loss assessment, epidemiology, principles and practical control measures including chemical control, biological control, cultural control, physical control and quarantine control and the integrated disease management of food crops disease.

152032 植物病害診療實習(觀賞植物病害)　　1　　必　　下

本實習課程內容主要有觀賞植物病害診斷技術之介紹及訓練，包括病徵診斷，解剖診斷，病原分離培養接種及鑑定，生理生化診斷，生物診斷，免疫診斷與核酸診斷技術。及介紹觀賞植物病害之計量及損失評估，防治原則，各種防治方法包括化學防治法、生物防治法、耕作防治法、物理防治法、法規防治法及經濟有效的綜合管理策略。

152032 Practice of Diagnosis Management of Plant Disease on Ornamental Plants

1　　R　　S

The objectives of this course are focused on (1)introduction and training of diagnostic techniques of ornamental plant disease, which include symptomatic diagnosis, anatomic diagnosis, isolative and identification of pathogens, biochemical and physiological method, biological method, immunological diagnosis and nucleic acid techniques. (2)introduction of loss assessment,

epidemiology, principles and practical control measures including chemical control, biological control, cultural control, physical control and quarantine control and the integrated disease management of ornamental plant disease.

152033 植物蟲害診療實習(糧食作物蟲害) 1 必 下

本課程內容包括各種糧食作物、特用作物、花卉及樹木等作物害蟲之鑑定，害蟲危害過程及遺留痕跡的診斷，自田間採集蟲害標本，攜回實驗至，在解剖顯微鏡下觀察，依照圖鑑比對特徵來確認害蟲種類。

152033 Practice of Diagnosis and management of insect pests on Food Crops 1 R S

Introduce the identification of insect species and the diagnosis of insect infestation on food crops. Students learned to collect samples from various parts of plants from the field, examine symptoms and excreta caused by insects. Pests are studied under dissecting microscope and compared with identification keys.

152034 植物蟲害診療實習(觀賞植物蟲害) 1 必 下

本課程內容包括各種主要觀賞植物蟲害之鑑定，害蟲危害過程及遺留痕跡的診斷，自田間採集蟲害標本，攜回實驗室，在解剖顯微鏡下觀察，依照圖鑑比對特徵來確認害蟲種類。

152034 Practice of Diagnosis and management of insect pests on Ornamental Plants 1 R S

Introduce the identification of insect species and the diagnosis of insect infestation on ornamental plants. Students learned to collect samples from various parts of plants from the field, examine symptoms and excreta caused by insects. Pests are studied under dissecting microscope and compared with identification keys.

152035 植物醫學田野實習 8 必 上、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蟲害現況進行現場診斷示範並教導學生做案例討論。

152035 Field Study of Plant Medicine 8 R F,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 and pests are demonstrated. Case studies by groups of students are also encouraged.

二、專業選修科目 Elective Courses

152036 微生物學　　2　　選　　趙永椿、上

本課程之目的，在使學生瞭解微生物的起源，化學的基本原理，顯微鏡與染色，原核生物與真核生物細胞之形態、構造及功能，微生物的生長與代謝，遺傳與生物技術及微生物的防治，以增進學生未來在研究植物病原微生物之相關基礎。

152036 Microbiology　　2　　S　　Y. C. Chao,F

The purpose of this course is to study the microbiological science and to give students the basic knowledge further study of phytopathogenic microbiology. Course contents include the original of microbiology, chemical principles, microscopy and staining, morphology、structure and function of prokaryotic and eukaryotic cell, microbial growth and metabolism, microbial genetics and biotechnology, and the control of microorganisms.

152037 微生物學實習　　1　　選　　趙永椿、上

本實習之目的在訓練並建立學生在微生物學領域之基本基礎與技術，課程內容包括顯微鏡在微生物大小測量之運用，細菌的染色，培養基之製備，移種技術，微生物之分離、培養及接種技術，微生物之生理生化測試，微生物之定量及物理與化學因子抗微生物活性之評估。

152037 Practice of Microbiology　　1　　S　　Y. C. Chao,F

The purposes of this course are critically selected and tested to instruct students effectively in the basic principles and techniques within microbiological areas. Course contents include the microscopic measurement of microorganisms, bacterial staining, media preparation, culture transfer techniques, techniques for isolation, cultivation, and inoculation of microorganisms, physiological and biochemical tests of microorganisms, determination of cell number of microorganisms, and evaluation of the antimicrobial activity of physical and chemical agents.

152038 園藝學　　2　　選　　何韻詩、陳麗筠、劉福隆、下

這是門概論課程，介紹園藝作物：果樹、蔬菜、花卉的生產、處理、和利用原理；觀賞植物在景觀和環境上的運用。認識相關的科技與產業，它們在經濟上的重要性和在國內的分布情況。了解園藝栽培在世界上對於提供養分和食物，改善環境生活品質，美化景觀，及醫藥利用上所扮演的角色。

152038 Horticulture　　2　　S　　Y. S. Ho, L. Y. Chen, F. L. Liou, S

Basic principles of production, processing and utilization of fruit, vegetable, flower and ornamental crops are introduced in this course. The economic importance and distribution of horticultural enterprises, roles of horticulture in world nutrition and food supply, improvement of

environmental quality in the landscape, aesthetic values, and medicinal uses are also covered.

152039 園藝學實習　　1選　　何韻詩、陳麗筠、劉福隆、下

藉由田間作物的育苗、栽培和管理過程，初步了解所涉及的生產技術、科學、和可能遭遇的問題。認識常見的園藝作物。調查重要作物產銷情況及訪問業者。以此建立對本產業的整體認識。

152039 Practice of Horticulture　　1　　S　　Y. S. Ho, L. Y. Chen, F. L. Liou, S

The goal is to train students by practicing basic methods of plant production in the field, in order to experience technologies involved, and problems encountered; identifying common horticultural crops. Statistical searches are made on important horticultural crops. In the end of the course, students are presenting the results of visiting growers. So a overall understanding of this field is established.

152040 植物分類學　　2　　選　　楊勝任、下

研究植物分類發展史、命名、重要種子植物分類群特徵數辨識、樹種的重要分布。

152040 Plant Taxonomy　　2　　S　　S. Z. Yang, S

This course is designed to introduce the aim of taxonomy, principle and history summary. The content includes taxonomic literatures, nomenclature, concepts of taxa, the construction and use of keys, field collections method and herbarium of PPI introduction, phytography and the terminology of plant description, criteria used in classification of angiosperms and the phylogeny of angiosperms.

152041 植物分類學實習　　1　　選　　楊勝任、下

植物分類學實習乃為使學生在 PPI 標本館與野外具有鑑定維管束植物的能力。其授課內容包括讓學生實際於野外採集並製成臘葉標本、教導學生如何使用科檢索表、以形態術語描述植物外部形態、參訪國內其它標本館並說明其功能與分類的價值、觀察臘葉標本與幻燈片加強野外鑑定能力。

152041 Practice of Plant Taxonomy　　1　　S　　S. Z. Yang, S

This practice of plant taxonomy is to provide the students with the ability to identify the vascular plants by the herbarium of PPI and in the fields. The content includes collecting plants in the fields and specimens made, using the key to the families to identify the unknown plants in the family level, describing the morphology of parts of plants by the terminology, examining the specimens of herbarium and slides to improve the ability of identification, visiting another herbarium of Taiwan to introduce the function and value to the study of taxonomy.

152042 植物組織培養學　　2　　選　　鄭秋雄、上

本課程主要介紹組織培養之基本知識、技術及其在植物抗病、抗蟲、抗藥及抗逆境等品種之選育與保存上之應用。主要內容包括組織培養學簡史、培養基組成分、培養環境、細胞培養、植物再生、莖頂培養、花藥培養、雜種胚胚培養、原生質體培養、

細胞融合、抗病細胞篩選技術及微體繁殖等。

152042 Plant Tissue Culture Techniques 2 S C. C. Cheng, F

The course is to introduce the basic knowledge and techniques of tissue culture, and how to apply in the selection and preservation of disease-resistant, insect-resistant, drug-resistant, and environmental stress-resistant plant. The main content includes the brief history of tissue culture, medium composition, cultural condition, cell culture, plant regeneration, meristem culture, anther culture, hybrid embryo culture, protoplast culture, cell fusion, disease-resistant cell selection and masspropagation.

152043 植物組織培養學實習 1 選 鄭秋雄、上

主要訓練學生在組織培養方面之基本技術，內容包括：培養基之製備、無病植株大量繁殖、細胞培養及器官分化培養、細胞融合與抗病、抗蟲、抗藥、抗逆境品種之選育。

152043 Practice of Plant Tissue Culture Techniques 1 S C. C. Cheng, F

The course concentrates on the training of the basic techniques of tissue culture. It includes the media preparation, the mass propagation of disease-free plant, the cell culture and organ differentiation culture, the cell fusion, the selection of disease-resistant, insect-resistant, drug-resistant and environmental stress-resistant plant.

152044 有害動物 2 選 鄭光哲、上

有害動物的範圍包含除昆蟲，線蟲及原生動物外，可能會危害植物的動物，如囓齒類、鳥類、蝸牛等。討論的範圍有動物所造成的損害嚴重性、危害特性、生態條件、防治策略的制定原則、施行注意事項、效果評估等。目的在使對植物的整體保護概念能更完整。

152044 Noxious Animals 2 S K. C. Cheng, F

Animals besides insects、nematodes、protozoas are termed as noxious animals, i.e. rodents、birds、snails etc. Categories 【】discussed are characteristics of damages to plants, ecological situations, principle、practicing and assessment of control strategies.

152045 資源昆蟲 2 選 華 真、下

本課程包含範圍相當廣泛，對人類有用或有益的昆蟲皆可列為此課程之範圍，然就本省之環境及條件所需，本課程以有用之昆蟲為主，其中包括蠶之養殖、利用，蜂之飼養、蜂產品之介紹及採收，此兩大項為主。其次在介紹與人類相關之藥用昆蟲及相關之藥理；食用昆蟲之種類及其應用；觀賞昆蟲之種類及利用；以及資源保育昆蟲之介紹。至於天敵應用之昆蟲則不在本課程之內。

152045 Insects Resources 2 S T. Hua, S

This course includes useful and beneficial insects, especially in the sericulture, bees keeping, bees products, rearing silkworms, medical insects and edible insects. Also the wildlife resource insects is arranged in this course, exclude the natural enemies and its application.

152046 農業氣象學 2 選 唐 琦、下

本課程先介紹各種氣象要素（如日射、日照、溫度、氣壓、風、雲、霧、降水、蒸發等）應用於農業生產環境之測定方法介紹，其次對於大氣主環流、次環流（季風、氣團、鋒、氣旋）、局部環流（海風、陸風、山風、谷風）、劇烈天氣、颱風、農業氣象災害、農地微氣候形成過程逐章闡述，並由天氣變化觀察，進而使習者將相關氣象學相關知識融入農業耕作及環境關懷。

152046 Agricultural Meteorology 2 S C. Tang,S

This course will introduce the meteorological elements such as solar radiation, sunshine duration, temperature, humidity, air pressure, wind, cloud, fog, precipitation and evaporation in the initial stage. Then the main circulation of the atmosphere, secondary circulation (monsoon, air masses, front, cyclone), local circulation (sea breeze, land breeze, uphill breeze, downhill breeze), violent weather, typhoon, agricultural meteorological disaster, process of microclimate formation on farmland, will be explain chapter by chapter. By means of weather observation is helpful for the learners to apply the knowledge of meteorology in agricultural cultivation and then will be concerned the environment.

152047 昆蟲形態學 2 選 張萃媖、上

本課程主要介紹昆蟲發生之源始及其外表形態各部構造之特徵、功能並推論其演化；課程內容包括昆蟲發生、體壁形成、頭部及其副器之構造與功能、胸部及足與翅之構造與功能、腹部及其副器之構造與功能等。

152047 Insect Morphology 2 S T. Y. Chang, F

The objective of this course is to introduce the origin, character, function and evolution of external morphology structure of insect. Topics includes insect development, the integument and its function, the head structure and its appendages, the thorax structure and its appendages, includes legs and wings, the abdomen and its appendages and inferring the function and evolution of external morphology structure of insect.

152048 食用菌栽培技術 2 選 鄭光哲、上

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。

152048 Edible Fungi Cultivation 2 S K. C. Cheng, F

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.

152049 昆蟲生理學 2 選 辛竹英、下

本課程主要介紹昆蟲營養、呼吸、消化、排泄、循環、神經、生殖及腺體等系統之生理作用及機制。強調昆蟲為適應各種環境而在生理構造及功能上的變化，並比較

昆蟲與哺乳動物生理間的差異。

152049 Insect Physiology 2 S C. Y. Hsin, S

Introduce life process of the insects, including major life system, nervous system, reproductive development and behavior. Emphasize the physiological variation of the structure and function in insects to adapt the living environment. The differences of physiology between insect and mammals are discussed.

152050 生物技術與植物醫學 2 選 鄭秋雄 下

本課程主要介紹生物技術之基本概念及其在植物保護上之應用。課程內容包括基因構造及功能、基因表現及基因重組技術、細胞融合技術、組織細胞培養技術等基本概念及生物技術應用於植物病蟲害之診斷與抗病、抗蟲、抗藥、抗環境逆境品種之選育。

152050 Biotechnology and Plant Medicine 2 S C. C. Cheng

The course is to introduce the concept of biotechnology and applying in the plant protection. The contents of this course include the structure and function of gene, the technologies of gene expression and recombinant DNA, cell fusion, tissue and cell culture, biotechnology applies in the diagnosis of plant diseases and insect pest and the selection and breeding of disease-resistant, insect-resistant, drug-resistant, environmental stress-resistant plants.

152051 植保法規及檢疫 2 選 趙永椿、下

本課程之目的，在使學生瞭解及熟知與植物保護及檢疫相關的各種法規。

152051 Plan Protection Regulations and Quarantine 2 S Y. C. Chao,S

The purpose of this course is to study the laws and regulations of plant protection and to give students the basic knowledge of pest quarantine and how to prevent import and spread of plant pest entry into or passage through our country form other countries. Course contents include the agreement on the application of sanitary and phytosanitary measures、the law and bylaw of commodity inspection and quarantine、the law and bylaw of pesticide 、the law and bylaw of plant quarantine etc.

152052 熱帶植物病蟲害 2 選 辛竹英、上

本課程主要介紹熱帶農園藝作物、果樹及花卉之病蟲害，包括為害特徵、病因、病原菌特性、病蟲害發生生態、診斷技術及防治管理方法等。

152052 Pests and Diseases of Tropical Plants 2 S C. Y. Hsin,F

This course offer a complete profile of the pest and disease occurred in tropical palm trees, fruit trees and flower plants. The major contents included symptoms, etiology of pathogen, ecology, diagnostic techniques and control.

152053 生物防治 2 選 鄭光哲、上

本課程主要廣泛討論目前世界上可能應用之天敵及微生物可以用來作為綜合防治

中之生物防治技術，以代替傳統化學農藥之防治。天敵及微生物個別詳以介紹其應用潛力，並以目前成功之病害、蟲害、草害之生物防治例子說明其成功因素及應用方法，作為發展生物防治之理論基礎。

152053 Biological Control 2 S **K. C. Cheng, F**

The course of biocontrol of plant diseases and pests are attempted to scrutinize very carefully the current status of biological control in agricultural integrated pest management system in a broad sense. The application and implementation of natural enemies and microorganisms for disease and pest control to instead of traditional chemical controls are the objectives. The possible candidates vitae of control agents including natural enemies and microbes would be brought for detail discussion. The components and approaches of successful implementative exemples of biocontrol in the course could serve as revealing perspectives for future of biocontrol practices.

152054 設施園藝病蟲害 2 選 **辛竹英、上**

本課程主要介紹在各種設施中栽培之作物如蔬菜、木瓜、花卉、觀賞植物等之病蟲害種類、發生生態、防治及管理。

152054 Pests in Horticultural Structures 2 S **C. Y. Hsin,F**

This course introduce the pests and diseases found in crops, fruit trees, flowers and ornamental plants under construction. The contents included kinds of pests and disease found in the construction, their occurrence, control and management.

152055 昆蟲病理學 **2** 選

本課程旨在使學生瞭解昆蟲與微生物之間的關係，蟲病發生原理等，俾供發展害蟲微生物防治法，預防或治療有用昆蟲之病害。

152055 Insect Pathology 2 S

The purpose of this course is to illustrate the relationship of insects and microorganism, principle of insect pathogenesis. Making students understand those diseases which can be utilized as micro-biocontrol, prevention and treatment infested insects.

152056 農企業管理 2 選 下

本課程乃系統性地介紹一個農企業經理人應具備之技能，包括：農企業管理學內涵、農企業經營規劃與決策、消息收集與分析、預測方法、農企業產品與生產規劃、農企業資金與預算、農企業成本與收益觀念、不同評價之成本項目與效益分析、農企業行銷、農業政策與環保問題、農企業組織、人力資源、農企業控制原則、農企業經營目標之設計。

502056 Agribusiness Management 2 **S** **S**

The course gives a systematic knowledge for agribusiness manager includes as follows: The contents of Agribusiness; Planning and Decision; Information collection and Analysis; Forecasting; Products and Production planning; Capital and Budget; Cost and Revenue; Cost evaluation and Benefit analysis; Agribusiness marketing; Agricultural policy and environment protection; Agribusiness Organization; Manpower Resources; Controlling; Management Indicators.

152057 植物流行病學 2 選 **梁文進、下**

本課程討論植物疾病之主要因子，寄主病原體，環境因子，人類耕作管理與流行病發生之關聯性；流行病之發生類型與比較，發展過程，模式及電腦模擬；植物流行病之預測及預警與植物病理上專家系統之結合。

152057 Plant Disease Epidemiology 2 S **W. J. Liang, S**

The contents of this course are listed as follows : The plant disease elements (host , pathogen and environment factors) affecting development of plant disease epidemics , the patterns and comparison of epidemics ; the development , modeling and computer simulation of plant disease epidemics；and the forecasting and disease-warning systems of plant disease epidemics combining with expert systems of plant pathology.

152058 樹木病蟲害 2 選 **陳滄海、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。

152058 Forest Pests 2 S **T. H. Chen,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.

152059 蟲害發生預測預報 2 選 **張念台、下**

本課程首先教授包括昆蟲生長發育、休眠滯育、遷移擴散等影響發生之生物學特性，其次探討生物與非生物因子對昆蟲發育與發生的影響，再闡述昆蟲族群數量消長之變動規率，其中包括族群生長速率、生命表製作與分析、害蟲發生預測之數學模式應用、族群消長因素分析，以及族群調查技術與資料處理，最後討論害蟲預測預報之方法與實例。

152059 Monitoring and Forecasting of Insect Pests 2 S **N. T. Chang, S**

The biological characteristics of insect growth, development, diapause and migration are introduced at the begining of this course. Then, the dynamic interactions found among insects and their relationships to both the biotic and abiotic components of the environment are studied. The techniques of population sampling, age-stage-specific life table formating, population dynamics analysizing and modeling are taught to deal with various predictive methods of the insect population dynamics.

152060 居家害蟲 2 選 **張念台、下**

本課程主要介紹與傳播人體疾病相關之重要病媒昆蟲。尤其強調蚊蠅等重要病媒之生物學、其與傳播病原間的關係以及防治策略。

152060 Domestic Pests 2 S **N. T. Chang, S**

This lecture will introduce the major medically important insect vectors. The course highlights the biology of significant insect species, the diseases they transmit as well as the control strategies.