

**216. Adult Health I**

First semester. Three credits. Concurrent or recommended preparation: NURS 214, 217.

Clinical decision-making utilizing functional health patterns, dependent, independent, and interdependent nursing actions related to care of adults with acute non-life threatening and/or life modifying health problems.

**217. Practicum: Adult Health I**

First semester. Five credits. Fifteen laboratory hours. Concurrent or recommended preparation: NURS 216.

Application of functional health patterns to the care of adults with acute, non-life threatening and/or life modifying health problems. Focus is on psychomotor, communication and decision-making skills basic to nursing.

**220. Historical and Contemporary Topics in Nursing**

Either semester. Three credits. Open to non-majors only with the consent of the instructor.

Contemporary topics in nursing will be explored from historical and phenomenological perspectives. The ideas and actions of individuals, the genesis and impact of various professional issues, and pervasive themes throughout nursing will be examined.

**220W. Historical and Contemporary Topics in Nursing****224. Clinical Science III**

Second semester. Four credits. Recommended preparation: NURS 214.

Concepts from pharmacology, microbiology, nutrition and pathophysiology as they relate to the nursing care of adults with life modifying, life threatening health problems.

**225. Theoretical Foundations of Nursing III**

First semester. Three credits. Prerequisite: NURS 206, 227, or RN license.

An exploration of the ethical way of knowing in nursing. Selected models and theories illustrating an ethical approach will be analyzed.

**226. Adult Health II**

Second semester. Two credits. Concurrent or recommended preparation: NURS 224, 227.

Clinical decision-making utilizing functional health patterns, dependent and interdependent nursing actions related to care of adults with life threatening health problems.

**227. Practicum: Adult Health II**

Second semester. Five credits. Fifteen laboratory hours. Concurrent or recommended preparation: NURS 214, 216, 217, 224, and 226.

Application of functional health patterns to the care of adults with life threatening health problems. Focus is on independent decision making.

**234. Clinical Science IV**

Either semester. Two credits. Prerequisite: NURS 224.

Concepts from pharmacology, microbiology, pathophysiology, and nutrition as they relate to child bearing, child rearing families.

**235. Theoretical Foundations of Nursing IV**

Second semester. Three credits. Prerequisite: NURS 225, 227 or RN license.

An exploration of the esthetic way of knowing in nursing. Selected models and theories illustrating an esthetic approach will be analyzed.

**236. Parent-Child Nursing**

Either semester. Four credits. Concurrent or recommended preparation: NURS 224, 226, 234.

Functional health patterns and clinical decision-making related to the care of the child bearing, child

rearing family. Focus is an anticipatory guidance, preventive intervention, and health restoration.

**237. Practicum Parent-Child Nursing**

Either semester. Five credits. Fifteen laboratory hours. Prerequisite: NURS 220 or 220W and NURS 213 or 213W. Concurrent or recommended preparation: NURS 234, 236.

Application of functional health patterns and clinical decision-making in care of the child bearing, child rearing family.

**240. Epidemiology in Nursing Practice: Clinical Science V-A**

Either semester. One credit. Prerequisite: A clinical nursing course or RN license.

An introduction to the principles of epidemiology used in nursing practice.

**241. Community Health Nursing**

Either semester. Two credits. Prerequisite: NURS 226, 206, and 224. Concurrent or recommended preparation: NURS 240.

Analysis of theories from nursing and related disciplines for application to community health nursing. Provide the basis for clinical decision-making for individuals, families, and groups.

**242. Clinical Science in Psychiatric-Mental Health Nursing Practice: Clinical Science V-B**

Either semester. One credit. Prerequisite: A clinical course or RN license.

Concepts from microbiology, pharmacology, nutrition and pathophysiology as they relate to psychiatric-mental health nursing.

**243. Psychiatric-Mental Health Nursing**

Either semester. Two credits. Prerequisite: NURS 226, 206, and 224. Concurrent or recommended preparation: NURS 242.

Analysis of theories from nursing and related disciplines for application to psychiatric-mental health nursing. Focus is on nursing processes for clinical decision-making for individuals, families, and groups.

**244. Clinical Science V**

Either semester. Variable credits. Prerequisite: NURS 224; for RN students: consent of instructor.

Concepts from pharmacology, microbiology, pathophysiology, and nutrition as they relate to mental health. Introduction to principles of epidemiology.

**246. Mental Health/Community Nursing**

Either semester. Variable credits. Prerequisite: 224, 226. Prerequisite or concurrent: NURS 225. Recommended preparation: NURS 244.

Analysis of theory from nursing and related disciplines to provide the basis for mental health nursing and community health nursing. Focus is on the nursing process for clinical decision-making with individuals, families and groups.

**247. Practicum: Mental Health/Community Nursing**

Either semester. Variable credits. Fifteen laboratory hours. Prerequisite: NURS 220 or 220W and NURS 213 or 213W. Recommended preparation: NURS 244, 246.

Clinical application of theory from nursing and related disciplines to mental health nursing and community health nursing. Focus is on nursing care based upon clinical decision-making with individuals, families, and groups.

**248. Community Health Nursing Practice**

Either semester. Credits and hours by arrangement. Prerequisite: NURS 213 or 213W, 220 or 220W, 226 and 227. Required preparation: NURS 240 and NURS 241.

Clinical application of theory from nursing and related disciplines to individuals, families and community groups in a variety of community health settings. Focus is on nursing care applied throughout the wellness illness continuum in collaboration with other members of the health care team.

**249. Psychiatric-Mental Health Nursing Practice**

Either semester. Variable credits. Prerequisite: NURS 213 or 213W, 220 or 220W, 224, 226 and 227. Recommended preparation: NURS 240 and NURS 242.

Focus is on the application of nursing theory, the Caring-Praxis Model and therapeutic communication to psychiatric-mental health nursing. Emphasis on a) application of the lived experience persons with mental illness; b) self-reflective abilities and their significance to affecting the nurse patient encounter; c) therapeutic use of self, and d) actualizing intuitive and rational ways of knowing in responding to the mental health and/or psychiatric illness experience.

**253. Professional Nursing Practice: Leadership, Management and Financial Issues**

Second semester. Two credits.

Designed to examine and prepare individuals for the lived experience of nursing as a business. The course addresses management, leadership and fiscal skills as they relate to health care delivery and the profession of nursing.

**292. Health Perspectives on Alcohol and Other Drug Abuse**

Either semester. Three credits. Open to non-nursing majors.

An interdisciplinary examination of the health consequences of alcohol and other drug abuse across the lifespan with emphasis on: epidemiology; pharmacology; theoretical models; strategies for prevention and treatment; needs of special populations; and, ethical, political and legal ramifications.

**292W. Health Perspectives on Alcohol and Other Drug Abuse****298. Special Topics in Nursing**

Either semester. Credits and hours by arrangement. Open only with consent of instructor. With a change in content, this course may be repeated for credit.

**299. Independent Study**

Either semester. Credits and hours by arrangement. Open only with consent of instructor.

Primarily for qualified students who wish to extend their knowledge by investigating special problems in nursing. With a change in content, this course may be repeated for credit.

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## Nutritional Sciences (NUSC)

*Head of Department:* Professor Carol J. Lammi-Keefe  
*Department Office:* Room 214, Roy E. Jones Building

For major requirements, see the College of Agriculture and Natural Resources section of this *Catalog*.

**160. The Science of Food**

(Also offered as ANSC 160.) Second semester. Three credits. *Faustman, Zhao*

An introductory level course for students interested in the application of science to food. Nutritional and functional attributes of various food constituents are discussed. Issues concerning food processing and food safety are covered.

**165. Fundamentals of Nutrition**

Either semester. Three credits.

An introduction to the principles and concepts of nutrition with emphasis on the nature and function of carbohydrates, fats, proteins, minerals and vitamins, and their application to the human organism.

**166. Food, Culture and Society**

Second semester. Three credits. *Furr*

Social, cultural, and economic factors affecting food intake and nutritional status. Includes contemporary topics such as world food problems, hunger in the United States, dieting and eating disorders, health foods and vegetarianism.

**167. Honors Colloquium in Nutrition**

First semester. One credit. One class period and one 2-hour discussion/laboratory every other week. Concurrent enrollment in NUSC 165 required. *Clark*

Lectures, discussions, and laboratory exercises to complement topics from NUSC 165. Primarily for, but not restricted to, honors students.

**200. Nutrition and Human Development**

Either semester. Three credits. Prerequisite: NUSC 165. Open to sophomores. *Ferris*

Nutritional needs and consequences of nutritional deficiencies throughout the life cycle: periconception, pregnancy, lactation, childhood, adolescence and aging. Maternal and child public health issues in the developed and developing world.

**212. Principles of Food Science**

Second semester. Three credits. Required preparation: Biology: MCB 229. Recommended preparation: Biology: MCB 203 or 204. *Zhao*

Chemical, physical, microbiological, and legal aspects of food production, preservation and processing. Safety, aesthetics and nutrition topics included.

**213. Principles of Food Science Laboratory**

Second semester. Two credits. One class period and one 2-hour laboratory period. Consent of instructor required. Recommended preparation: NUSC 212.

Flavor, color, texture, viscosity and consistency, enzyme reaction, and processing. Field trips.

**233. Food Composition and Preparation**

First semester. Three credits. Prerequisite: NUSC 165. Recommended preparation: CHEM 141 or 243. *Fernandez*

Study of the composition of food and the physical and chemical changes that occur during preparation and/or processing that affect taste, palatability, shelf-life, and nutrient content.

**235. Food Composition and Preparation Laboratory**

First semester. One credit. One 3-hour laboratory period. Prerequisite: NUSC 165 and concurrent registration in NUSC 233. Recommended preparation: CHEM 141 or 243. Enrollment restricted to Nutritional Sciences and Allied Health Dietetic majors. Open to others by consent if space is available. *Fernandez*

Laboratory techniques related to composition of foods, and the physical and chemical changes that occur during preparation.

**236. Principles of Nutrition**

Second semester. Three credits. Prerequisite: NUSC 165. Required preparation: Biology: MCB 203 or 204. Recommended preparation: Biology: PNB 250 or 265. *Clark*

Function and metabolism of carbohydrates, proteins, fats, minerals, and vitamins.

**241. Nutritional Assessment**

Second semester. One credit. One class period and one 2-hour laboratory, every other week. Prerequisite: NUSC 200 and Biology: PNB 250 or 265. Recommended preparation: Biology: MCB 203 or 204. Enrollment restricted to Nutritional Sciences and Education Sport, Leisure and Exercise Science majors. *Clark*

Anthropometric, clinical, and biochemical techniques for assessment of human nutritional status.

**250. Nutrition for Exercise and Sport**

Second semester. Three credits. Prerequisite: NUSC 165 and Biology: PNB 250 or 265. *Rodriguez*

Basic nutrition principles. Physical activity, exercise, sport performance and consequences of nutritional ergogenic aids.

**260. Readings in Human Nutrition**

First semester. Two credits. Two class periods. Prerequisite: NUSC 200.

Readings dealing with utilization and metabolism of nutrients in the human body, with particular emphasis on understanding research methodology.

**265. Medical Nutrition Therapy**

First semester. Three credits. Prerequisite: NUSC 241. Recommended preparation: Biology: MCB 203 or 204. *Rodriguez*

Metabolic basis for medical nutrition therapy. Enteral and parenteral nutrition. Pathology of disease. Role of dietary management of disease.

**266. Medical Nutrition Therapy Recitation**

First semester. One credit. Prerequisite: NUSC 241. NUSC 265 must be taken concurrently. *Rodriguez*

Case studies and presentations. Medical terminology. Practical aspects of medical nutrition therapy administration.

**267. Principles of Community Nutrition**

First semester. Three credits. Prerequisite: NUSC 200 which may be taken concurrently. *Perez-Escamilla*

Role of community structures, agencies, services and the professional nutritionist in community health.

**270W. Food Services Systems Management I**

Second semester. Three credits. Two class periods and one 2-hour laboratory/discussion period. Prerequisite: NUSC 234. Recommended preparation: AH 244 or MGMT 201. *Shanley*

Quantity food procurement, preparation and distribution; recipe standardization; sanitation and safety; portion and quality control; food cost control; computer applications; and personnel management.

**272C. Food Service Systems Management II**

First semester. Three credits. Two class periods and one 2-hour laboratory/discussion period. Prerequisite: NUSC 270W. *Shanley*

Institutional menu development; cost and budgeting; recipe analysis and adaption; equipment layout and design; personnel management; communications skills; computer applications; marketing and merchandising; food delivery systems.

**275. Experience in Food Service Systems Management**

Either semester. One to six credits. Prerequisite: NUSC 270W. Consent of instructor required. May be repeated for credit. No more than six credits of experience or independent study may apply toward the major. *Shanley*

Application of principles of food service management. Supervised off-campus placement.

**281. Experience in Community Nutrition**

Either semester. One to six credits. Prerequisite: NUSC 165. Recommended preparation: NUSC 267. Consent of instructor required. May be repeated for credit. No more than six credits of experience or independent

study may apply toward the major. *Ferris, Perez-Escamilla*

Supervised field work with community nutrition education or problem-solving. Readings and reports.

**295. Seminar**

Second semester. One credit. One class period. Prerequisite: NUSC 200. May be taken twice.

Review, evaluation, and oral and written presentation of contemporary nutrition issues.

**296W. Senior Thesis in Nutrition**

Either semester. Three credits. Hours by arrangement. Enrollment limited to Nutritional Sciences honors students. Consent of honors advisor and department head required.

**298. Special Topics**

Either semester. Credits and hours by arrangement. May be repeated for credit with a change of topic. Consent of instructor required.

Topics and credits to be published prior to the registration period preceding the semester offerings.

**299. Independent Study**

Either semester. One to 3 credits. Consent of instructor and department head required. No more than six credits of experience of independent study may apply toward the major.

Individual study and research with faculty. Written report.

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## Operations and Information Management (OPIM)

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*Head of Department:* Professor James R. Marsden  
*Department Office:* Room 302, School of Business Administration

For major requirements, see the School of Business Administration section of this *Catalog*.

Courses in this department are open to juniors and seniors only.

**203C. Business Information Systems**

Either semester. Three credits. Prerequisite: ACCT 131. Open only to School of Business Administration students; others with the consent of the Operations and Information Management Department Head.

Information needs of managers, the structure of the information systems required to fill these needs, systems development, business computing technology, and management applications within major business functional subsystems.

**204. Operations Management**

Either semester. Three credits. Prerequisite: OPIM 203.

Introduction to concepts, models, and information systems applicable to the planning, design, operation and control of systems which produce goods and services. Topics include process design, facility locations, aggregate planning, inventory control, and scheduling.

**#205. Introduction to Database Management**

Either semester. Three credits. Prerequisite: OPIM 203C or equivalent. Consent of Department Head and BGS Mentor is required. Cannot be used toward fulfilling MIS major requirements.

Introduction to the development and implementation of database applications. Topics covered include costs and benefits of database approach, database design lifecycle, conceptual database design, the relational data model, data administration, database security, database backup and

# Offered only at the Stamford Regional Campus.

recovery, and database management system selection and implementation. Students participate in the hands-on design and implementation of a small database using the relational architecture.

#### #206. Business Application Programming

Either semester. Three credits. Prerequisite: OPIM 203C or equivalent. Consent of Department Head and BGS Mentor is required. Cannot be used toward fulfilling MIS major requirements.

Development of business application software using structured and object oriented programming techniques. The emphasis is on programming logic, rapid application development techniques and personal productivity tools. Topics include program design techniques, programming constructs, interface development techniques, event driven programming, file and database processing, and object linking and embedding.

#### #207. Internet Technologies and Electronic Commerce

Either semester. Three credits. Prerequisite: OPIM 205, OPIM 206. Consent of Department Head and BGS Mentor is required. Cannot be used toward fulfilling MIS major requirements.

This course introduces Internet technology and tools from the perspective of business users. The focus is on providing knowledge base and functional tools for students as workers in the 21st Century. The specific technologies covered in the class will depend upon state-of-the-art at the time of class offering. However, some of the general concepts include: HTML, client side programming such as Javascript or VBscript, dynamic content creation and management, electronic business process management, security concerns and solutions, and regulatory/public policy issues. A significant part of the course will involve hands-on training.

#### #208. System Development and Process Management

Either semester. Three credits. Prerequisite: OPIM 205, OPIM 206. Consent of Department Head and BGS Mentor is required. Cannot be used toward fulfilling MIS major requirements.

The course covers the system development life cycle of business information systems. Topics include business process reengineering, detailed process modeling and data modeling techniques, project management concepts, system architecture, testing and implementation considerations. The potential system issues and relevant up-to-date technologies are also explored in the class. Students participate in a project using supportive software tools.

#### 210. Operations Research for Information Systems Analysis

Either semester. Three credits. Prerequisite: OPIM 203C (may be taken concurrently.)

The philosophy and techniques of Operations Research, including problem definition, modeling, and solution in the context of analysis, design, and implementation of computer-based information systems.

#### 211. Systems Analysis and Design

Either semester. Three credits. Prerequisite: OPIM 203C, 220, 221, 222. Open to MIS majors only.

System development methodologies for business information systems. Project management concepts, hardware and software technology, and organizational considerations are explored. Students participate in a system development project.

#### 212. Advanced Information Technologies

Either semester. Three credits. Prerequisite: OPIM 203C, 220, 221, 222. Open to MIS majors only.

Deepens knowledge of application development tools for the design of decision oriented information systems. Emphasis will be placed on emerging tools and techniques relevant for modern organizational information needs.

#### 220. Business Software Development

Either semester. Three credits. Prerequisite: OPIM 203C (may be taken concurrently). Open to MIS majors only.

The development of computer software for business information processing. Topics include flowcharting, pseudocode, programming with a business oriented computer language, file processing concepts, and on-line and batch processing.

#### 221. Business Data Base Systems

Either semester. Three credits. Prerequisite: OPIM 203C (may be taken concurrently). Open to MIS majors only.

Development and implementation of database applications for business. Topics include: data modeling, relational database concepts, query languages, hands-on design and implementation of a relational database system, database administration, non-relational database models, distributed architectures, and advanced object bases.

#### 222. Network Design and Applications

Either semester. Three credits. Prerequisite: OPIM 203C (may be taken concurrently.) Open to MIS majors only. Open only to juniors and seniors.

Principles and applications of business telecommunications emphasized. Course covers important network systems as well as crucial techniques in building these systems. Students participate in network design and implementation project.

#### 223. Advanced Business Application Development

Three credits. Prerequisite: OPIM 203C, 220, 221, and OPIM 222. Open to MIS majors only. Open only to juniors and seniors.

Course designed to cover structured and object-oriented programming methodologies for developing business applications. Program design techniques and logic emphasized. Students participate in a business application design and implementation project.

#### 230. Management of Production/Operations Systems

Second semester. Three credits. Prerequisite: OPIM 204.

In-depth study of the problems and models applicable to the design, operation and control of systems which produce goods and services. Students will learn to define, relate to, and solve production and operations problems using such media and methods as cases, projects, simulations, behavioral and quantitative models.

#### 252. Industrial Quality Control

Semester by arrangement. Three credits. Prerequisite: STAT 100 or 110, and OPIM 204, or consent of instructor.

The economic control and assurance of quality and reliability with emphasis on management of the quality function. Included are: a conceptual treatment of statistical methods in quality control; control of quality during manufacture and at delivery of finished goods; planning for quality control and reliability; quality

management, to include organization, economics, systems and procedures.

#### †289. Field Study Internship

Either or both semesters. One to six credits. Hours by arrangement. Prerequisite: Completion of Lower Division School of Business Administration Requirements and consent of instructor and Department Head.

Designed to provide students with an opportunity for field work relevant to one or more major areas within the Department. Students will work under the supervision of one or more professionals in the specialty in question. Student performance will be evaluated on the basis of an appraisal by the field supervisor and a detailed written report submitted by the student.

#### 293. Foreign Study

Either or both semesters. Credits and hours by arrangement, up to a maximum of six credits. Consent of Department Head required, prior to the student's departure. These credits must be awarded for regularly scheduled course work at a recognized foreign university in the field of information systems or in the student's Applications Area; if in the Applications Area the consent of both the Department Head and the Head of the Applications Area is required. Prior to taking the course the student must sign up for the course in advance as a course in that Applications Area. No credits can be counted toward required courses in the MIS major.

Special topics taken in a foreign study program.

#### 296W. Senior Thesis in Operations and Information Management

Either semester. Three credits. Hours by arrangement. Open only to OPIM Department Honors Students with consent of instructor and department head.

#### 298. Special Topics

Either semester. Credits and hours by arrangement. Prerequisite: Announced separately for each offering. With a change in content, may be repeated for credit.

Classroom course in special topics in operations management, operations research and information management as announced in advance for each semester.

#### 299. Independent Study

Either semester or both semesters. Credits by arrangement, not to exceed six in any semester. Open only with consent of instructor.

Individual study of special topics in operations management, operations research and information management as mutually arranged between a student and an instructor.

## Pathobiology (PATH)

*Head of Department:* Professor Herbert E. Whiteley  
*Department Office:* Room 103, Animal Pathology Building

For major requirements, see the College of Agriculture and Natural Resources section of this *Catalog*.

**103. The Biology of Human Health and Disease** (Also offered as Biology 103.) First semester. Four credits. Three lecture periods and one 2-hour laboratory. This course may not be combined with BIOL 102 to satisfy the General Education Group VIII Requirement. *Smolin, Terry, Van Kruiningen.*

A laboratory course which introduces the concepts of biology and their application to the individual, society and humankind by focusing on health and disease issues.

#### 113. Biomedical Issues in Pathobiology

Second semester, alternate years (odd). Two credits. *Frasca*

This introductory course focuses on current global issues of health and disease to describe fundamental topics in pathobiology. Global biomedical concerns regarding infectious diseases, population, cancer, biotechnology and environmental health will be addressed. Course content will provide examples of the impact of veterinary and human pathology on world health issues.

### 200. Anatomy and Physiology of Animals

First semester. Four credits. Three class periods and one 2-hour discussion/laboratory period. Open to sophomores. *Bushmich*

A study of the anatomy and physiology of animals with reference to pathological changes of the component parts of the body.

### 202. Health and Disease Management of Animals

Second semester. Three credits. Prerequisite: PATH 200 or consent of instructor. Open to sophomores. *Bushmich*

This course is designed for students who plan to own and work with domestic animals. Its purpose is to develop student competence in disease management and to foster an intelligent working relationship with their veterinarian. The course will cover a systematic study of infectious and noninfectious diseases of domestic animals from the standpoint of economy and public health.

### 235. Clinical Chemistry

Second semester, alternate years (odd). Four credits. Prerequisite: CHEM 141. Recommended preparation: Biochemistry course. *D. Hill*

Deviations in normal concentrations of endogenous chemicals in biological fluids and tissues and use in the diagnosis of disease. Analysis and relationship of these chemicals to diagnostic interpretations.

### 248. Principles of Animal Virology

First semester. Three credits. *Garmendia*

Structure and classification of viruses, cultivation and multiplication, pathogenesis and epidemiology of viral infections, host response, oncogenic viruses, immunization against, and laboratory diagnosis of viral diseases.

### 248W. Principles of Animal Virology

### 252. Pathobiology of the Avian Species

First semester. Three credits. Offered in odd-numbered years. *Khan*

A systematic study of metabolic, nutritional, genetic, and infectious diseases of commercial poultry, avian wildlife, and caged pet birds. Emphasis is placed upon diagnosis and disease prevention. For each system of the body, pertinent anatomy, physiology, histology, pathology, and histopathology will be discussed.

### 256. Systemic Pathology and Microbiology of Finfish and Shellfish

Second semester. Three credits. Offered in odd-numbered years. Two class periods and one 2-hour laboratory. Prerequisites: required BIOL 107/108, PNB 250 or PATH 200/202; recommended MCB 203/204, MCB 229, EEB 200, NRME 298; or consent of instructor. *French/Frasca*

A systematic study of infectious and noninfectious diseases of commercial finfish and shellfish. Emphasis is placed upon the pathology, diagnoses and preventive measures. For each system of the body, pertinent anatomy, physiology, histology, and gross and microscopic pathology will be discussed.

### 295. Seminar

Either or both semesters. One credit. One class period. Open only with consent of instructor. Majors may take

this course in each semester of the senior year. May be repeated for credit. *Whiteley*

### 296. Histologic Structure and Function

First semester. Four credits. Three class periods and one 2-hour laboratory. Open only with consent of instructor. *French*

The course is designed for students in biologic, paramedical and animal sciences, and its purpose is to integrate histologic and cellular structure with function, utilizing tissues from man and other vertebrates.

### 297. Principles of Pathobiology

Second semester. Three credits. *Van Kruiningen*

The body's response to chemical, physical, and microbial injuries including the functional and morphologic alterations in disease of the major organ systems are discussed. Knowledge of anatomy and physiology is recommended.

### 298. Special Topics

Either semester. Credits and hours by arrangement. May be repeated for credit with a change of topic. Open only with consent of instructor.

Topics and credits to be published prior to the registration period preceding the semester offerings.

### 299. Independent Study

Either or both semesters. Credits and laboratory periods by arrangement. May be repeated for credit.

Special problems in connection with departmental research programs and diagnostic procedures for diseases of animals. Some suggested topics are histopathologic laboratory procedures, clinical hematology, diagnostic bacteriology, diagnostic parasitology.

## Pharmacy (PHAR)

For major requirements, see the School of Pharmacy section of this *Catalog*.

The following courses are open only to students enrolled in the professional program (four years) of the School of Pharmacy.

### Drugs and the Diseased State

*Director:* Professor Ronald O. Langner  
*Office:* Room R-301, Pharmacy Building

#### 200. Drugs and the Diseased State I

First semester. Three credits. Prerequisite: PHAR 212 and 229, Biology: MCB 203 and 229. *Nieforth*

Basic principles of physiology and pharmacology, basic organ system anatomy and physiology, receptor theory.

#### 214. Drugs and the Diseased State II

First semester. Five credits. Five class periods. Prerequisite: PHAR 200, which may be taken concurrently. *Henkel*

Nervous system physiology, pharmacology and SAR, hematological pharmacology and SAR.

#### 225. Human Physiology I

First semester. Four credits. Hours by arrangement. Open only with consent of instructor. Not open to pharmacy students. *Fournier*

Basic principles of physiology, basic organ system anatomy and physiology, respiratory and nervous system physiology.

#### 226. Human Physiology II

Second semester. Three credits. Hours by arrangement. Open only with consent of instructor. Not open to pharmacy students. *Fournier*

Cardiovascular, renal, endocrine and GI physiology.

#### 242. Drugs and the Diseased State III

Second semester. Four credits. Four class periods. Prerequisite: PHAR 200 and 214. *Langner*

Cardiovascular, renal and steroid endocrine physiology, pharmacology and SAR.

#### 243. Drugs and the Diseased State IV

Second semester. Four credits. Four class periods. Prerequisite: PHAR 242, which may be taken concurrently. *Manautou*

GI and non-steroidal endocrine physiology, pharmacology and SAR, anti microbial, anti viral, antineoplastics, anti allergic agents and SAR.

#### 243W. Drugs and the Diseased State IV

Open only with consent of the course director. D. *Manautou*

#### 245. Drugs and the Diseased State Laboratory

Second semester. One credit. One 3-hour laboratory period. Taken concurrently with PHAR 242 and 243. *Rosenberg*

#### 254. Mechanisms of Drug Action I

First semester. Three credits. Prerequisite: Biology: PNB 264, 265, Biology: MCB 203, or their equivalents. Open only with consent of instructor. Not open for credit to undergraduate pharmacy students. Not open to sophomores. *Rosenberg*

Basic principles pharmacology, receptor theory, nervous system and respiratory system pharmacology.

#### 255. Mechanisms of Drug Action II

Second semester. Three credits. Prerequisite: PHAR 254. Open only with consent of instructor. Not open for credit to undergraduate pharmacy students. *Langner*

Endocrine, cardiovascular and renal, GI pharmacology, anti microbial, anti viral, antineoplastics, anti allergic agents.

### Drugs and Dosage Forms

*Director:* Associate Professor Kevin R. Sweeney  
*Office:* Room C2019, Health Center (Farmington)

#### 229. Drugs and Dosage Forms I

Second semester. Five credits. Five class periods per week. Prerequisite: PHAR 207, 208, 209 and MATH 110. *Burgess*

Kinetics of drug stability, diffusion, and dissolution; solutions as dosage forms; colloids, suspensions, emulsions, aerosols, suppositories, ointments, parenterals ophthalmics. Oral solid dosage forms, controlled drug delivery systems. Rheology.

#### 230C. Drugs and Dosage Forms II

Second semester. Three credits. One 4-hour laboratory and two 1-hour lectures per week. Prerequisite: PHAR 207, 208, 209 and MATH 110. *Palmer*

Preparation and dispensing of dosage forms. Pharmacy-practice computer systems are utilized for selected clinical and administrative functions.

#### 233. Drugs and Dosage Forms III

First semester. Four credits. Two 2-hour class periods. Prerequisite: PHAR 229, 230C. *Kramer*

Basic principles of pharmacokinetics; compartmental analysis; drug absorption, distribution, and excretion; optimization of both single and multiple dose regimens.

#### 233W. Drugs and Dosage Forms III

## Physico-Chemical Principles of Drug Systems

Director: Professor J. Michael Edwards  
Office: Room 254, Pharmacy Building

### 207. Physico-Chemical Principles of Drug Systems I

First semester. Four credits. Five class periods. Prerequisite: PHYS 122 and CHEM 244. Open only to Pharmacy students enrolled in the Professional Program. *Bogner*

Basic physical and chemical phenomena applied to drug systems. Thermodynamics, solution theory, ionic equilibrium, non-covalent interactions, interfacial phenomena.

### 208. Physico-Chemical Principles of Drug Systems II

First semester. Four credits. Prerequisite: PHYS 122 and CHEM 244. Open only to Pharmacy students enrolled in the Professional Program. *Rhodes*

Identification and analysis of drug molecules. Instrumental and functional group analysis. Chemical reactivity, physical organic chemistry.

### 209. Physico-Chemical Principles of Drug Systems III

First semester. Two credits. One 3-hour laboratory and one 1-hour lecture per week. Prerequisite: PHYS 122 and CHEM 244. Open only to Pharmacy students enrolled in the Professional Program. *Moring*

Pharmaceutical analysis.

### 212. Physico-Chemical Principles of Drug Systems IV

Second semester. Five credits. Five class periods. Prerequisite: Biology: MCB 203 and 229, PHAR 207, 208, 209 and CHEM 245. *Nieforth*

Physical and chemical properties of drug molecules.

### 212W. Physico-Chemical Principles of Drug Systems IV

### 213. Physico-Chemical Principles of Drug Systems V

Second semester. Two credits. One 3-hour laboratory and one 1-hour lecture per week. Prerequisite: PHAR 207, 208, 209 and CHEM 245. *Witczak*

A laboratory for Pharmacy 212.

## Drugs and Society

Director: Associate Professor Kenneth A. Speranza  
Office: Room 136, Pharmacy Building

### 240. Drugs and Society I: Social and Legal Aspects of Pharmacy Practice

First semester. Four credits. Two 2-hour class periods. Prerequisite: ECON 111 and any 100's level, 3 credit Sociology course. Open only to pharmacy majors. *Facchinetti*

The pharmacist's role in society. Principles of pharmaceutical care, pharmaceutical sociology, federal drug law, and pharmacy practice law.

### 246. Drugs and Society II: Pharmaceutical Marketing

Second semester. Three credits. Prerequisite: PHAR 240. *Speranza*

Economic and societal constraints on the delivery of health and pharmaceutical care. Pharmacoeconomics, professional ethics, U.S. health care system, managed care and third party financing.

### 266. Drugs and Society III: Management of Pharmacy Systems

Second semester. Three credits. Prerequisite: PHAR 246. Open only to students who have passed all the

courses of the first professional year. *Kelly*

Organizational theory and the delivery of health and pharmaceutical care. Finance and personnel management in pharmaceutical care systems.

### 266W. Drugs and Society III: Management of Pharmacy Systems

## Other Required Courses

#### 241. Immunology

Second semester. Three credits. Prerequisite: Biology: MCB 229. *Hubbard*

Basic principles of immunity. Mechanisms of B and T cell mediated responses.

#### 280. Therapeutics

First semester. Five credits. Four class periods. Prerequisite: PHAR 214, 242, 243, and PATH 297. *Cardoni*

Basic pathophysiology, diagnosis, and pharmacotherapy of human disease.

#### 280W. Therapeutics

#### 281. Principles of Toxicology

First semester. Three credits. Prerequisite: PHAR 200 and Biology: MCB 203. *Cohen*

Target organs, environmental chemicals and biochemical mechanisms.

#### 291. Institutional Clerkship

Either semester. Five credits. Prerequisite: PHAR 233, 280, and 281. Open only with consent of instructor. *Chapron*

Introduction to the practice of pharmacy in an institutional setting.

#### 292. Community Pharmacy Externship

Either semester. Five credits. Hours and sequencing by arrangement. Prerequisite: Completion of the third and fourth year of the Pharmacy curriculum and attendance at an orientation meeting. Open only with consent of instructor. Site assignments and sequencing arrangements will be made by instructor. Students register for each of the two sections. *Kelly*

#### 293. Hospital Pharmacy Externship

Both semesters and summers. Five credits. Hours by arrangement. Prerequisite: Completion of the third and fourth year of the Pharmacy curriculum. Open only with consent of instructor. *Palmer*

An experience program conducted at participating hospitals. Duties of a hospital pharmacist pertaining primarily to the drug distribution and administrative roles.

## Elective Courses Pharmacy (PHAR)

#### 150. Toxic Chemicals and Health

Second semester. Three credits. Not open to pharmacy students in the Professional Program. *Morris*

An elementary service course which will provide an understanding of the issues and problems associated with evaluating human health risks from voluntary and involuntary exposure to toxic chemicals. An appreciation of toxic chemical risks as compared to other societal health risks, the processes of scientific risk assessment, and social management of toxic chemical risks will be gained.

#### 201. Pharmacy Research Seminar

First semester. One credit. One class period. A divisional grade point of 2.3 or above is normally required for enrollment. May be repeated up to two times for credit. *Bogner*

A seminar series providing an overview of current research areas and contemporary issues in pharmacy practice and the pharmaceutical sciences.

#### 247-248. Pharmacology

Both semesters. Three credits each semester. Prerequisite: Biology: PNB 264, 265, Biology: MCB 203 and CHEM 141, or 243, 244. Not open for credit to pharmacy students. *Gianutsos*

A study of the effect produced by drugs and the mechanisms whereby these effects are produced.

#### 262. Geriatric Pharmacy Practice

Second semester. Three credits. Prerequisite: PHAR 200, 214, and 233. *Kelly*

The course is designed to present basic concepts in aging and their concomitant effects on the drug use process to students of pharmacy. The course deals with physical, social and economic aspects of the aging individual. The population focus is the ambulatory elderly. Basic concepts and applications will be presented to expose the student to potential problem-solving activities in pharmacy practice.

#### 263. Industrial Pharmacy

Either semester. Three credits. Two class periods and one 3-hour laboratory period. Prerequisite: PHAR 207 and 229. *Kalonia*

A study in the formulation and preparation of pharmaceutical dosage forms using modern manufacturing techniques.

#### 269. Non-Prescription Medication

First semester. Three credits. Prerequisite: PHAR 243. Open only with consent of instructor. *Palmer*

Drug products designed for self-medication (non-prescription or over-the-counter drugs). Drugs are discussed and evaluated from a pharmaceutical and pharmacological standpoint.

#### 277. Hospital Pharmacy Administration

Second semester. Three credits. Open to Professional Program Pharmacy students. *Rubino*

A detailed overview of the administration, functions, and organization of contemporary hospital pharmacy services.

#### 294. Advanced Clinical Experience

Second semester. Five credits. Prerequisite: PHAR 291. Open only with consent of instructor. *Kelly*

An advanced level clinical pharmacy practicum in one of a variety of specialized rotations.

#### 295. Introduction to Clinical Pharmacy

Second semester. One credit. Prerequisite: PHAR 214. Open only with consent of instructor. *Cerreto*

A course intended for those students wishing to obtain some exposure to the operations and activities that take place in the clinical environment before enrolling in Pharmacy 291. Physical assessment practices, organization of problem-oriented medical records, patient-practitioner communications skills, and clinical interactions in several therapeutic areas, including the cardiovascular and central nervous systems.

#### 296. Home Health Care

First semester. Two credits. Two class periods. *Toce*

An introduction to the area of home health care with special emphasis on those topics which impact upon pharmacy practice. Emphasis is placed on the devices, aids, and products used in home health care.

#### 297W. Honors Thesis in Pharmacy

Either semester. Three credits. Hours by arrangement. Open only to honors students within the School of Pharmacy with consent of the instructor and Associate Dean. *Bogner*

#### 298. Special Topics

Either semester. Credits by arrangement. Open only with consent of instructor. This course may be repeated for credit. *Fournier*

**299. Undergraduate Research**

Either semester. Credits by arrangement. Open only with consent of instructor and Associate Dean. This course may be repeated for credit.

This course is designed primarily for qualified students who wish to extend their knowledge in the various fields represented in the School of Pharmacy. A divisional and pharmacy cumulative grade point average of 2.8 or above is normally required for enrollment. A written summary of work performed is required at the end of each semester.

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## Pharmacy (PHRM)

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### Courses for the Doctor of Pharmacy (Pharm.D.)

*Associate Dean for Academic Affairs:* Associate Professor Donna J. Fournier

*Office:* Room 152, School of Pharmacy, Hewitt Building

For major requirements, see the School of Pharmacy section of this *Catalog*.

The following courses are open only to students enrolled in the professional program of the School of Pharmacy.

**200. Evaluation Skills**

First semester. Three credits. Three class periods. *Bahr; White*

Development of skills needed to critically evaluate and assess data published in the pharmacy literature. This course will include an introduction to computer-based software programs, fundamentals of biostatistics, drug literature evaluation, literature search programs and fundamentals of epidemiology.

**201. Pharmaceutical Care I**

First and second semester. One credit total. Hours by arrangement. *Kelly*

Provision of a historical perspective of pharmacy practice, development of a theoretical foundation for the practice of pharmaceutical care and experiential opportunities for the student to begin to develop skills in providing pharmaceutical care.

**202. Health Care Organization**

First semester. One credit. One class period. Prerequisite: ECON 111. *Speranza*

A study of the United States health care system, with emphasis given to its historical development, its activities, and the major organizational forms and financing mechanisms supporting it and consideration of pharmacy's role within the current and future United States health care system.

**203. Social And Behavioral Aspects Of Pharmacy**

First semester. Two credits. Two class periods. Prerequisite: SOCI 107 and COMS 105. *Facchinetti*

Social development of pharmacists in the twentieth Century. The need for newer roles. Competence to provide progressive cognitive services. Social and organizational support necessary to provide pharmacy care. Behavioral aspects of patients pertaining to the provision of pharmaceutical care.

**204. Administrative Aspects of Pharmacy Practice & Principles of Pharmacoeconomics**

First semester. Four credits. Four class periods. Prerequisite: ECON 111. *Kelly*

Development of the basic financial and operational management knowledge and skills necessary to practice successfully in any practice setting. Further, to develop an understanding of the complexities,

intricacies and beneficial aspects of pharmacoeconomic studies. To gain understanding of the methodologies of pharmacoeconomic studies and comprehension of the economic forces impacting upon pharmacy practice in varying environments.

**206. Interpersonal Skills Development in Pharmacy Practice**

Second semester. Two credits. One class period and one two hour laboratory. Prerequisite: COMS 105; PHRM 202, 203, 204, 205. *Facchinetti*

Principles of interpersonal communications: effective questioning, empathic listening, reflective responding, assertiveness, and other socio-behavioral aspects of patient care. Skill development in patient counseling and interprofessional communications.

**207. Pharmaceutical Care II**

First and second semester. One credit total. Hours by arrangement. *Silk*

**208. Pharmacy Law and Ethics**

Second semester. Three credits. Three class periods. Prerequisite: PHRM 206. *Speranza*

A study of federal and state laws and ethical principles governing pharmacy practice. Case-study practice scenarios allow students to make pharmaceutical care decisions based upon legal and/or ethical reasoning.

**208W. Pharmacy Law and Ethics****209. Pharmaceutical Care III**

First and second semester. One credit total. Hours by arrangement. Prerequisite: PHRM 207 *Jeffery*

Continuation of historical perspective of pharmacy practice, development of a theoretical foundation for the practice of pharmaceutical care and experiential opportunities for the student to begin to develop skills in providing pharmaceutical care.

**210. Non-Prescription Medication**

Second semester. Three credits. Three class periods. *Retman*

Self-medication based on a foundation of pharmaceutical technology, pharmacology and therapeutics. Emphasis will be placed on the role of the pharmacist in enhancing the rational selection and use of non-prescription (OTC) medications by consumers.

**211. Introduction to Clinical Practice**

Second semester. Two credits. Hours by arrangement. Prerequisite: PHRM 255, concurrent with PHRM 256 *Campbell*

Development of skills necessary in professional practice of pharmacy. Emphasis on patient assessment skills necessary for providing pharmaceutical care and approaches in conducting medication regimen review and pharmacological consultation.

**212. Prescription Processing (lab)**

Second semester. Three credits. One two hour lecture and three hour laboratory period. Prerequisite: PHRM 255, concurrent with PHRM 256. *Kelly*

Practice oriented course focused on prescription processing, home diagnostic and monitoring devices, compliance enhancement programs, computer usage and relevant contemporary issues in pharmacy.

**219. General Principles & Organ System Overview**

First semester. Three credits. Three class periods. Prerequisite: Must have satisfied all science and math requirements of the first two years. *Nieforth*

Basic principles of physiology, pharmacology and receptor site theory and overview of cell biology and all the organ systems.

**220. Nervous System**

Second semester. Five credits. Five class periods. Prerequisite: PHRM 219. *Gianutos*

Functions of the autonomic, somatic and central nervous systems; pharmacological effects and mechanism of action of drugs and biotechnologically-derived products used to treat diseases of the autonomic nervous system, sensory system disorders and neurological and psychiatric diseases, and; structural features imparting biological activity and the design of drugs used to treat diseases of the autonomic nervous system, sensory system disorders, and neurological psychiatric diseases.

**221. Cardiovascular/Renal/Respiratory Systems**

First semester. Four credits. Four class periods. Prerequisite: PHRM 220. *Langner*

A study of the physiology, pharmacology, and structure-activity relationships of drugs affecting the cardiovascular, renal, and respiratory systems.

**221W. Cardiovascular/Renal/Respiratory Systems****222. Endocrine/Gastrointestinal Systems**

Second semester. Three credits. Three class periods. Prerequisite: PHRM 221. *Manautou*

A study of the physiology, pharmacology, and structure-activity relationships of drugs affecting the gastrointestinal and endocrine systems.

**223. Pharmacology Discussion / Lab**

First semester. One credit. Three hours of laboratory/conference. Prerequisite: PHRM 222 *Gianutos*

Continuing development of problem solving based skills. Topics and issues will be related to pharmacology didactic concepts and theory acquired through the first two professional years.

**224. Chemotherapy**

First semester. Two credits. Two class periods. Prerequisite: PHRM 222, 234, 254; PATH 297 *Rosenberg*

Development of an understanding of the clinical indications, pharmacology, adverse drug events and structure activity relationships of drugs used in the treatment of infectious diseases.

**225. Toxicology**

First semester. Two credits. Two class periods. Prerequisite: PHRM 222, 234, 254; PATH 297 *Cohen*

Development of an understanding of basic principles of toxicology which determine effects of therapeutic, occupational, or environmental chemicals on human health. Rational for and nature of procedures required during preclinical safety assessment of therapeutic agents will be discussed.

**226. Immunology**

Second semester. Three credits. Three class periods. Prerequisite: PHRM 222, 234, 254; PATH 297 *Hubbard*

Development of an understanding of principles of immunology focusing on mechanisms underlying disease processes and the role of immunotherapeutics and biopharmaceuticals in altering outcome of immunologic disease.

**233. Pharmaceutical Bio-Organic Chemistry I**

First semester. Three credits. Three class periods. Prerequisite: Must have satisfied all science and math requirements of the first two years. *Rhodes*

Development of the fundamental medicinal and natural products chemistry knowledge as well as the critical thinking and problem solving skills to apply this knowledge which will be required in the provision of pharmaceutical care and will serve as the foun-

dition for the Pharmacy graduate's continuing professional maturation, education and development.

#### 234. Pharmaceutical Bio-Organic Chemistry II

First semester. Three credits. Three class periods. Prerequisite: PHRM 233. *Bouvier*  
A continuation of PHRM 233.

#### 234W. Pharmaceutical Bio-Organic Chemistry II

#### 235. Pharmaceutical Bio-Organic Chemistry Laboratory

Second semester. One credit. One laboratory session and one pre-laboratory session. Must be taken concurrently with PHRM 234. *Vigil-Cruz*

A study of organic compounds, having pharmaceutical significance with ten laboratory exercises which include physical properties and chemical reactivities of drug molecules, their chromatographic analysis, the study of enzymes, and biotechnological techniques and their isolation from natural products.

#### 242. Solution & Solid Dosage Forms

First semester. Four credits. Four class periods. Prerequisite: Must have satisfied all science requirements of first two years. *Kalonia*

An investigation of the principles underlying the formulation, dissolution, stability, and release of drug products for optimum delivery. Solution dosage forms, parenteral formulations, tablets and capsules are considered in detail.

#### 242W. Solution & Solid Dosage Forms

#### 244. Dosage Forms Preparation Laboratory

First semester. One credit. One discussion period and one 3 hour laboratory. Prerequisite: Must have satisfied all science requirements of first two years. To be taken concurrently with PHRM 242. *Pikal*

Extemporaneous preparation of sterile and non-sterile dosage forms, with particular attention to solutions, solids and dispersed systems.

#### 245C. Pharmacokinetics

First semester. Three credits. Three class periods. Prerequisite: Must have satisfied all science requirements of first two years, PHRM 220, 234. *Kramer*

A study of the basic principles of Pharmacokinetics and their application to the rational design of both dosage forms and dosing regimens, optimizing the latter to further the likelihood of safe effective drug therapy in a variety of clinical situations.

#### 246. Dispersed Systems

Second semester. Three credits. Three class periods. Prerequisite: PHRM 242. *Burgess*

Investigation of the principles and factors affecting the performance of dosage forms classified as dispersed systems: suppositories, aerosols, emulsions, suspensions, transdermals, and ointments.

#### 247. Dosage Forms Preparation Laboratory II

Second semester. One credit. One class period and one three hour laboratory. Prerequisite: Must be taken concurrently with PHRM 246. *Pikal*

Extemporaneous preparation of sterile and non-sterile dosage forms, with particular attention to solutions, solids and dispersed systems.

#### 253. Therapeutics I

First semester. Two credits. One class period and one three hour conference. Prerequisite: PHRM 220 and concurrent with PHRM 221. *Cardoni*

A study of the clinical features of diseases of the central nervous system and the provision of pharmaceutical care to psychiatric, neurologic, and pain syndrome patients. Drug related problems concerned with the treatment of these patients is emphasized.

#### 254. Therapeutics II

Second semester. Three credits. Two class periods and one three hour conference. Prerequisite: PHRM 253. *Wang*

A study of the etiology, clinical manifestations, and treatment regimens of cardiovascular diseases, acid peptic disease, inflammatory bowel diseases, and liver and respiratory diseases.

#### 254W. Therapeutics II

#### 255. Therapeutics III

First semester. Two credits. Two class periods. Prerequisite: PHRM 254 *Chapron*

Development of skills necessary to make meaningful therapeutic contributions to the investigation and management of patients with various renal, electrolyte, acid-base, endocrine and metabolic disorders and further develop the student's ability to apply problem-solving strategies in the above clinical situations.

#### 256. Therapeutics IV

Second semester. Three credits. Three class periods. Prerequisite: PHRM 255 *Aeschlimann*

Development of skills necessary to make meaningful therapeutic contributions to the investigation and management of patients with infectious diseases, cancers, and immunologically mediated diseases and further develop the student's ability to apply problem-solving strategies in the above clinical situations.

#### 257. Clinical Pharmacokinetics

First semester. Three credits. Three class periods. Prerequisite: PHRM 245, 254 *Sweeney*

Development of an understanding of drug dosing regimen design with application to these concepts to relevant drugs. Emphasis will be placed on recognition of special dosing situations due to potentially altered Pharmacokinetics and drugs exhibiting unique pharmacokinetics.

#### 262. Professional Experience in Community Pharmacy

Either semester. Four credits. Hours by arrangement. Prerequisite: PHRM 210, PHRM 211, PHRM 212, PHRM 256.

The student will apply drug therapy knowledge and communication skills to the provision of pharmaceutical care in a community pharmacy. Emphasis is on further development of skills in patient assessment and patient education in optimizing response to pharmacotherapy. Introduction to the administrative aspects of the provision of pharmaceutical care in the community pharmacy is provided.

#### 263. Professional Experience in Institutional Pharmacy

Either semester. Four credits. Prerequisite: PHRM 210, PHRM 211, PHRM 212, PHRM 256.

The student will apply pharmacy knowledge and skills to the provision of pharmacy services and pharmaceutical care in an institutional setting. Topics include pharmaceutical procurement and distribution, quality control, formulary system, provision of drug information, inpatient and outpatient provision of pharmaceutical care, and administrative aspects of institutional pharmacy.

#### 264. Professional Experience in Ambulatory Care Pharmacy

Either semester. Four credits. Prerequisite: PHRM 210, PHRM 211, PHRM 212, PHRM 256.

The student will apply knowledge of disease therapeutics and communication skills to the provision of pharmaceutical care in the ambulatory setting. Emphasis is on optimizing medication-related

outcomes in patients through medication assessment, multidisciplinary treatment planning, efficacy and safety assessment, and patient education.

#### 265. Professional Experience in General Medicine

Either semester. Four credits. Prerequisite: PHRM 210, PHRM 211, PHRM 212, PHRM 256.

The student will apply knowledge of therapeutics of general medical disorders to the provision of pharmaceutical care to general medicine inpatients. Emphasis is on rational selection and use of medications in an effective, safe, and cost-conscious manner. Optimization of medication-related outcomes is stressed and includes medication assessment, multidisciplinary treatment planning, efficacy and safety monitoring, and patient education.

#### Electives, Group I, minimum of 3 (one month each)

#### 266. Professional Experience in Cardiology

Either semester. Four credits. Prerequisite: PHRM 210, PHRM 211, PHRM 212, PHRM 256.

The student will apply knowledge of therapeutics of cardiovascular disorders to the provision of pharmaceutical care in cardiology patients. Emphasis is on optimization of medication-related outcomes in critically-ill cardiac patients through medication assessment, multidisciplinary treatment planning, efficacy and safety monitoring, and patient education.

#### 267. Professional Experience in Infectious Disease

Either semester. Four credits. Prerequisite: PHRM 210, PHRM 211, PHRM 212, PHRM 256.

The student will apply knowledge of pharmacotherapy of infectious disease to the provision of pharmaceutical care to infectious disease inpatients. Emphasis is on optimization of medication-related outcomes in patients with serious infectious diseases through past and current medication assessment, multidisciplinary treatment planning, efficacy and safety monitoring, and patient education.

#### 268. Professional Experience in Oncology

Either semester. Four credits. Prerequisite: PHRM 210, PHRM 211, PHRM 212, PHRM 256.

The student will apply knowledge of therapeutics of adult neoplastic disorders to the provision of pharmaceutical care to oncology patients. Emphasis is on rational drug selection of curative or palliative medications in an effective, safe, and cost-conscious manner. Optimization of medication-related outcomes is stressed and includes medication assessment, multidisciplinary treatment planning, efficacy and safety monitoring, and patient education.

#### 269. Professional Experience in Psychiatry

Either semester. Four credits. Prerequisite: PHRM 210, PHRM 211, PHRM 212, PHRM 256.

The student will apply knowledge of the therapeutics of psychiatric disorders and communication skills to the provision of pharmaceutical care to psychiatric inpatients. Emphasis is on the optimization of medication-related outcomes in psychiatric patients through past and current medication assessment, multidisciplinary treatment planning, efficacy and safety monitoring, and patient education.

#### 270. Professional Experience in Pediatrics

Either semester. Four credits. Prerequisite: PHRM 210, PHRM 211, PHRM 212, PHRM 256.

The student will apply knowledge of the therapeutics of pediatric disorders to the provision of pharmaceutical care to non-intensive care pediatric inpatients. Emphasis is on the optimization of

medication-related outcomes in pediatric patients through medication assessment, multidisciplinary treatment planning, efficacy and safety monitoring, and patient education.

**271. Professional Experience in Geriatrics**  
Either semester. Four credits. Prerequisite: PHRM 210, PHRM 211, PHRM 212, PHRM 256.

The student will apply knowledge of therapeutics of chronic and acute disorders in the elderly to the provision of pharmaceutical care in a skilled nursing facility. Emphasis is on rational selection of medications in an effective, safe, and cost-conscious manner. Optimization of medication-related outcomes in geriatric patients is stressed and includes medication assessment, multidisciplinary treatment planning, efficacy and safety monitoring, and patient education.

#### Electives, Group 2, minimum of 2 (8 credits)

#### 272. Professional Experience in Community Practice II

Either semester. Four credits. Prerequisite: PHRM 210, PHRM 211, PHRM 212, PHRM 256.

A continuation of PHRM 262. The student will expand the application of drug therapy knowledge and communication skills to the provision of pharmaceutical care in a community pharmacy. Emphasis is on continued development of patient assessment and patient education skills in optimizing response to medications.

#### 273. Professional Experience in Critical Care

Either semester. Four credits. Prerequisite: PHRM 210, PHRM 211, PHRM 212, PHRM 256.

The student will apply knowledge of pharmacotherapy of major medical disorders and of post-surgical drug therapy to the provision of pharmaceutical care to critical care patients in medical, surgical, and specialized intensive care units. Emphasis is on optimization of medication-related outcomes in seriously-ill patients through medication assessment, multidisciplinary treatment planning, and efficacy and safety monitoring.

#### 274. Professional Experience in Dermatology

Either semester. Four credits. Prerequisite: PHRM 210, PHRM 211, PHRM 212, PHRM 256.

The student will apply knowledge of pharmacotherapy of common dermatological diseases to the provision of pharmaceutical care to patients with these diseases. Emphasis is on optimization of medication-related outcomes in patients with common dermatological disorders through past and current medication assessment, efficacy and safety monitoring, and patient education.

**275. Professional Experience in Drug Control**  
Either semester. Four credits. Prerequisite: PHRM 210, PHRM 211, PHRM 212, PHRM 256.

The student will apply knowledge of pharmacy and state and Federal pharmacy laws to the drug control activities of the Drug Control Division of the Department of Consumer Protection of the State of Connecticut. Emphasis is on active participation in daily activities of drug control officers in enforcing state and Federal drug control laws.

#### 276. Professional Experience in Emergency Medicine

Either semester. Four credits. Prerequisite: PHRM 210, PHRM 211, PHRM 212, PHRM 256.

The student will apply knowledge of pharmacotherapy of medical, surgical, toxicologic, and psychiatric emergencies to the provision of pharmaceutical care for adults and children treated in the emergency department. Emphasis is on optimization

of medication-related outcomes in patients in need of emergency treatment, including medication assessment, efficacy and safety monitoring, and patient education.

#### 277. Professional Experience in Home Health Care

Either semester. Four credits. Prerequisite: PHRM 210, PHRM 211, PHRM 212, PHRM 256.

The student will apply knowledge of pharmacy practice and skills in patient interaction to the provision of pharmaceutical care to patients in their homes. Emphasis is on optimization of medication-related outcomes in patients with common medical disorders served by home health care pharmacists, including medication assessment, efficacy and safety monitoring, and patient education.

#### 278. Professional Experience in Hospital Pharmacy II

Either semester. Four credits. Prerequisite: PHRM 210, PHRM 211, PHRM 212, PHRM 256.

A continuation of PHRM 263. The student will expand application of pharmacy knowledge and skills to the provision of pharmacy services in an institutional setting. Emphasis is on problem-solving project activity related to the provision of pharmaceutical care by the Department of Pharmacy.

#### 279. Professional Experience in Industry

Either semester. Four credits. Prerequisite: PHRM 210, PHRM 211, PHRM 212, PHRM 256.

The student will apply knowledge of pharmacy and pharmaceutical science to the practice of pharmacy in the pharmaceutical industry. Emphasis is on development of skills needed in basic pharmaceutical science, information dissemination, drug development, and product marketing.

#### 280. Professional Experience in Managed Care

Either semester. Four credits. Prerequisite: PHRM 210, PHRM 211, PHRM 212, PHRM 256.

The student will apply pharmacy knowledge and communication skills to the practice of managed care pharmacy. Emphasis is on the development of strategies that optimize pharmacotherapy of major medical diseases, surgical procedures, and psychiatric disorders within the economic constraints of a managed care health care delivery system.

#### 281. Professional Experience in Nuclear Pharmacy

Either semester. Four credits. Prerequisite: PHRM 210, PHRM 211, PHRM 212, PHRM 256.

The student will apply pharmaceutical science knowledge and communication skills to the provision of pharmaceutical care in nuclear pharmacy. Emphasis is on optimization of therapeutic outcomes related to diagnostic and therapeutic use of radio-isotopes, including medication assessment, multidisciplinary treatment planning, efficacy and safety monitoring, and patient education.

#### 282. Professional Experience in Nutrition

Either semester. Four credits. Prerequisite: PHRM 210, PHRM 211, PHRM 212, PHRM 256.

The student will apply knowledge of therapeutics of nutritional disorders to the provision of pharmaceutical care to patients with these disorders. Emphasis is on optimization of medication-related outcomes in nutrition disorder patients through current and past medication assessment, multidisciplinary treatment planning, efficacy and safety monitoring, and patient education.

#### 283. Professional Experience in Obstetrics/Gynecology

Either semester. Four credits. Prerequisite: PHRM 210, PHRM 211, PHRM 212, PHRM 256.

The student will apply knowledge of pharmacotherapy of OB-GYN disorders to the provision of pharmaceutical care to patients with these disorders. Emphasis is on optimization of medication-related outcomes in patients with OB-GYN disorders through past and current medication assessment, multidisciplinary treatment planning, efficacy and safety monitoring, and patient education.

#### 284. Professional Experience in a Skilled Care Nursing Facility

Either semester. Four credits. Prerequisite: PHRM 210, PHRM 211, PHRM 212, PHRM 256. *Staff*

The student will apply knowledge of pharmacotherapy of medical diseases and psychiatric disorders and communication skills to patients in a skilled care nursing facility. Emphasis is on optimization of medication-related outcomes in skilled care nursing facility patients through medication assessment, multidisciplinary treatment planning, efficacy and safety monitoring, and patient education.

#### 285. Professional Experience in Surgery

Either semester. Four credits. Prerequisite: PHRM 210, PHRM 211, PHRM 212, PHRM 256.

The student will apply knowledge of pharmacotherapy to pre-surgical, surgical, and post-surgical use of drugs. Emphasis is on the optimization of medication-related outcomes in the surgical patient, including medication assessment, multidisciplinary treatment planning, efficacy and safety monitoring, and patient education.

#### Elective Courses Pharmacy (PHAR)

\*201. Pharmacy Research Seminar

\*297W. Honors Thesis in Pharmacy

\*298. Special Topics

\*299. Undergraduate Research

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#### Philosophy (PHIL)

*Head of Department:* Professor Crawford L. Elder  
*Department Office:* Room 101, Manchester Hall

For major requirements, see the College of Liberal Arts and Sciences section of this *Catalog*.

#### 101. Problems of Philosophy

Either semester. Three credits. No student may receive more than 6 credits for Philosophy courses 101, 102, 103, 104, 105, 106.

Topics may include skepticism, proofs of God, knowledge of the external world, induction, free-will, the problem of evil, miracles, liberty and equality.

#### 102. Philosophy and Logic

Either semester. Three credits. No student may receive more than 6 credits for Philosophy courses 101, 102, 103, 104, 105, 106.

Techniques for evaluating inductive and deductive arguments; applications to specific arguments about philosophical topics, for example the mind-body problem or free will vs. determinism.

#### 102C. Philosophy and Logic

**103. Philosophical Classics**

Either semester. Three credits. No student may receive more than 6 credits for Philosophy courses 101, 102, 103, 104, 105, 106.

Discussion of selections from such philosophers as Plato, Aristotle, Descartes, and Hume.

**104. Philosophy and Social Ethics**

Either semester. Three credits. No student may receive more than 6 credits for Philosophy courses 101, 102, 103, 104, 105, 106.

Topics may include the nature of the good life, the relation between social morality and individual rights, and practical moral dilemmas. At least one section each term emphasizes women-men issues: sex relations, sex roles, sex equality, abortion, the family, etc. Other sections may emphasize issues concerning Science and Technology or Political Philosophy. (See *Directory of Classes* for relevant sections.)

**105. Philosophy and Religion**

Either semester. Three credits. No student may receive more than 6 credits for Philosophy courses 101, 102, 103, 104, 105, 106.

Topics may include proofs of the existence of God, the relation of religious discourse to other types of discourse, and the nature of religious commitment.

**106. Non-western and Comparative Philosophy**

Either semester. Three credits. No student may receive more than 6 credits for Philosophy courses 101, 102, 103, 104, 105, 106.

Classic non-Western texts on such problems as the nature of reality and of our knowledge of it, and the proper requirements of social ethics, along with comparison to classic Western approaches to the same problems.

**175. Ethical Issues in Health Care**

Either semester. Three credits. *Krimerman*

Theories of ethics, with specific application to ethical issues in modern health care.

**185W. Philosophy and Literature**

Either semester. Three credits. Prerequisite: ENGL 105 and 109; the latter may be taken concurrently.

Philosophical problems raised by, and illuminated in, major works of literature.

**200. Philosophical Issues in Contemporary Life**

Either semester. Three credits. Required preparation: At least one of PHIL 101, 102, 103, 104, 105, 106. May be repeated with a change in topic for a maximum of six credits.

Philosophical dimensions of problems in contemporary life. Topics vary by semester.

**205. Aesthetics**

Either semester. Three credits. Required preparation: At least one of PHIL 101, 102, 103, 104, 105, 106. Open to sophomores. *Elias*

The fundamentals of aesthetics, including an analysis of aesthetic experience and judgment, and a study of aesthetic types, such as the beautiful, tragic, comic and sublime. Recent systematic and experimental findings in relation to major theories of the aesthetic experience.

**205W. Aesthetics****210. Metaphysics and Epistemology**

Either semester. Three credits. Required preparation: At least one of PHIL 101, 102, 103, 104, 105, 106. Open to sophomores.

Topics may include time, personal identity, free-will, the mind-body problem, skepticism, induction, perception, *a priori* knowledge.

**210W. Metaphysics and Epistemology****211Q. Symbolic Logic I**

Either semester. Three credits. Required preparation: At least one of LING 101, POLS 106, PHIL 101, 102, 103, 104, 105, 106. Open to sophomores. *Lehmann, Wheeler*

Systematic analysis of deductive validity; formal languages which mirror the logical structure of portions of English; semantic and syntactic methods of verifying relations of logical consequence for these languages.

**211V. Symbolic Logic I (Q,C)**

Emphasis on computer-related material.

**212. Philosophy of Science**

Either semester. Three credits. Required preparation: At least one of PHIL 101, 102, 103, 104, 105, 106. Open to sophomores.

Issues concerning the nature and foundations of scientific knowledge, including, for example, issues about scientific objectivity and progress.

**212W. Philosophy of Science****213. Philosophy of Social Science**

Either semester. Three credits. Required preparation: At least one of PHIL 101, 102, 103, 104, 105, 106. Open to sophomores.

Nature and extent of social phenomena; nature and consequence of group membership; methods of investigation of social phenomena; problems of interpretation. Related doctrines of classic and contemporary theorists such as Durkheim, Weber, Simmel, Wittgenstein.

**214Q. Symbolic Logic II**

Second semester. Three credits. Prerequisite: PHIL 211. *Lehmann*

Logical concepts developed in Philosophy 211 applied to the study of philosophical issues in the foundations of mathematics.

**215. Ethics**

Either semester. Three credits. Required preparation: At least one of PHIL 101, 102, 103, 104, 105, 106. Open to sophomores.

Judgments of good and evil, right and justice, the moral 'ought' and freedom; what do such judgments mean, is there any evidence for them, and can they be true?

**215W. Ethics****217. Social and Political Philosophy**

Either semester. Three credits. Required preparation: At least one of PHIL 101, 102, 103, 104, 105, 106. Open to sophomores.

Conceptual, ontological, and normative issues in political life and thought; political obligation; collective responsibility; justice; liberty; equality; community; the nature of rights; the nature of law; the justification of punishment; related doctrines of classic and contemporary theorists such as Plato, Rousseau, John Rawls.

**217W. Social and Political Philosophy****218. Feminist Theory**

Either semester. Three credits. Required preparation: At least one of PHIL 101, 102, 103, 104, 105, 106 or WS 103, 104, or 124. *Meyers*

Philosophical issues in feminist theory. Topics may include the nature of gender difference, the injustice of male domination and its relation to other forms of domination, the social and political theory of women's equality in the home, in the workplace, and in politics.

**221. Ancient Philosophy**

(Also offered as Classics 257.) Either semester. Three credits. Required preparation: At least one of PHIL 101, 102, 103, 104, 105, 106. Open to sophomores.

Greek philosophy from its origin in the Pre-Socratics through its influence on early Christianity. Readings from the works of Plato and Aristotle.

**221W. Ancient Philosophy****222. Seventeenth and Eighteenth-Century Philosophy**

Either semester. Three credits. Required preparation: At least one of PHIL 101, 102, 103, 104, 105, 106. Open to sophomores. *Troyer*

Central philosophical issues as discussed by philosophers such as Descartes, Locke, Berkeley, Hume and Kant.

**222W. Seventeenth and Eighteenth-Century Philosophy****224. Nineteenth-Century Philosophy**

Either semester. Three credits. Required preparation: At least one of PHIL 101, 102, 103, 104, 105, 106. Open to sophomores.

Readings from philosophers such as Kant, Hegel, Marx and Engels, Bentham, Mill Schopenhauer, Nietzsche, and Kierkegaard; topics such as the debate between individualism and collectivism in the nineteenth century.

**224W. Nineteenth-Century Philosophy****225W. Analysis and Ordinary Language**

Either semester. Three credits. Required preparation: At least one of PHIL 210, 221, 222, 227.

The reaction, after Russell, against formal theories and the belief in an ideal language, and the turn to familiar common-sense "cases" and everyday language in judging philosophical claims. Russell, Moore, Wittgenstein, Ryle and Strawson.

**226. Philosophy of Law**

Either semester. Three credits. Required preparation: At least one of PHIL 101, 102, 103, 104, 105, 106, which may be taken concurrently.

The nature of law; law's relation to morality; law's relation to social facts; the obligation to obey the law; interpreting texts; spheres of law; international law; the justification of state punishment; the good of law; related doctrines of contemporary theorists such as Herbert Hart and Ronald Dworkin.

**227W. Twentieth-Century Philosophy**

Either semester. Three credits. Required preparation: At least one of PHIL 101, 102, 103, 104, 105, 106. Open to sophomores.

Major schools of recent philosophy, including analytic philosophy, existentialism and pragmatism.

**228. American Philosophy**

Either semester. Three credits. Required preparation: At least one of PHIL 101, 102, 103, 104, 105, 106.

Doctrines advanced by recent American philosophers.

**230. Contemporary Marxism and Its Foundation**

Either semester. Three credits. Required preparation: At least one of PHIL 101, 102, 103, 104, 105, 106, which may be taken concurrently.

Marx's criticisms of capitalism; the distinctive functional explanations Marx offered for the relations of production and the superstructure; application of such explanations to aspects of American culture.

**230W. Contemporary Marxism and Its Foundation****231. Philosophy of Religion**

Either semester. Three credits. Required preparation: At least one of PHIL 101, 102, 103, 104, 105, 106. Open to sophomores.

Various religious absolutes, their meaning and

validity, existentialism and religion, the post-modern religious quest.

### 233W. Existential Philosophy

First semester. Three credits. Required preparation: At least one of PHIL 101, 102, 103, 104, 105, 106. *Elder*  
The thesis of "radical freedom;" attacks on the concept of a personal nature of character; what an ethics not grounded in any belief in human nature would look like. Kierkegaard, Sartre, and Heidegger.

### 234. Phenomenology

Second semester. Three credits. Required preparation: At least one of PHIL 101, 102, 103, 104, 105, 106. *Elder*  
Husserl's theory of meaning; its promise of silencing scepticism and setting philosophy on a new footing; the challenge to it posed by applying it to talk about other minds.

### 241. Language: Meaning and Truth

Either semester. Three credits. Required preparation: PHIL 102 or 211, and at least one of PHIL 210, 221, 222, 227.  
An analysis of the concepts used in thinking about language.

### 243W. Philosophy of History

Either semester. Three credits. Required preparation: At least one of PHIL 101, 102, 103, 104, 105, 106.  
Philosophical problems concerning the nature of historical explanation, the foundations of historical knowledge, and the nature of historical change.

### 245. Philosophy and Economics

(Also offered as ECON 206.) Either semester. Three credits. Required preparation: ECON 112 or 113 or consent of instructor.  
Examination of the normative assumptions and implications of modern economics (for example, the connections between Classical Utilitarianism and Welfare Economics). Methodological controversies in economic theory.

### 250. Philosophy of Mind

Either semester. Three credits. Required preparation: At least one 200-level, three-credit philosophy course or consent of instructor.  
Contemporary issues in the philosophy of mind. Topics may include the nature of the mental; the relation of the mental to the physical; specific phenomena such as emotions, beliefs, or sensations, and relevant scientific developments.

### 261. Medieval Philosophy

Second semester. Three credits. Required preparation: At least one of PHIL 210, 221, 222, 227. *McGrade*  
Readings from the principal philosophers between the fourth and fourteenth centuries.

### 263. Oriental Philosophy and Religion

Either semester. Three credits. Required preparation: At least one of PHIL 101, 102, 103, 104, 105, 106. *Lyster*  
The historical, religious, and philosophical development of Hinduism, Buddhism, Tantrism, and Taoism.

### 264. Classical Chinese Philosophy and Culture

Either semester. Three credits. Required preparation: At least one of PHIL 101, 102, 103, 104, 105, 106.  
Classical Chinese philosophy, including such works as The Analects of Confucius and the works of Chuang Tzu, and their influence on Chinese culture.

### 293. Foreign Study

Either or both semesters. Credits and hours by arrangement up to a maximum of six credits. Consent of De-

partment Head required, preferably prior to the student's departure.

Special topics taken in a foreign study program.

### 296W. Senior Thesis in Philosophy

Either semester. Three credits. Hours by arrangement. Open only with consent of instructor and Department Head. Independent study authorization form required. Prerequisite: Twelve credits in Philosophy at the 200's level or above, three of which may be taken concurrently.

### 297. Variable Topics

Either semester. Three credits. With a change in topic, may be repeated for credit. Prerequisites, required preparation, and recommended preparation vary.

### 298. Special Topics

Either semester. Credits and hours by arrangement. With a change in content, may be repeated for credit. Prerequisites, required preparation, and recommended preparation vary.

### 299. Independent Study

Either or both semesters. Credits and hours by arrangement. Advanced and individual work. Open only with consent of instructor. May be repeated for credit with a change in topic.

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## Physics (PHYS)

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*Head of Department:* Professor William C. Stwalley  
*Department Office:* Room 101, Physics Building

For major requirements, see the College of Liberal Arts and Sciences section of this *Catalog*.

### 101Q. Elements of Physics

Either semester. Four credits. Three class periods and one 2-hour laboratory period. Not open for credit to students who have passed PHYS 121, 131, 141 or 151.  
Basic facts and principles of physics with introduction to quantitative laboratory.

### 103Q. Physics of the Environment

Either semester. Three credits. Not applicable to any requirement that specifies a course in "general physics."  
Concepts of physics applied to current problems of the physical environment: energy, transportation, pollution. No previous knowledge of physics is assumed.

### 104Q. Physics of the Environment with Laboratory

Either semester. Four credits. Three 1-hour lectures and one 2-hour laboratory. No previous knowledge of physics is assumed. Not open for credit to students who have passed Physics 103Q.

Concepts of physics applied to the physical environment, particularly to current problems related to energy, transportation, and pollution. These relationships will be further explored in the laboratory section.

### 107Q. Physics of Music

First semester. Four credits. Three class periods and one 2-hour laboratory period. Prerequisite: Satisfactory performance on Q-readiness Test or equivalent. Physics 101Q and 107Q may not both be combined to satisfy the Group 8 requirement.

Basic principles of physics and scientific reasoning will be taught in the context of the production and perception of music, emphasizing the historic and scientific interplay between physics and music. Basic quantitative laboratories pertaining to sound, music, and waves. No previous knowledge of physics or music is assumed.

### 121Q-122Q. General Physics

Either semester. Four credits. Three class periods and one 3-hour laboratory period. Prerequisite: MATH 112 or 109 or 118 or passing score on the calculus readiness test or equivalent. PHYS 121 not open for credit to students who have passed PHYS 131, 141 or 151. PHYS 122 not open for credit to students who have passed PHYS 132, 142 or 152. PHYS 121 required for PHYS 122.

Basic facts and principles of physics. The laboratory offers fundamental training in exact measurements.

### 123Q. General Physics Problems

Either semester. Three credits. Prerequisite: PHYS 122 and MATH 114 or 116, both of which may be taken concurrently. Not open for credit to students who have passed PHYS 141 or 151.  
Problems, including applications of calculus, dealing with topics in general physics.

### 125Q. General Physics Problems for Engineers

Either semester. Four credits. Three class periods and one 1-hour recitation period. Prerequisite: PHYS 122 and MATH 114 or 116, both of which may be taken concurrently. Not open for credit to students who have passed PHYS 123, 141 or 151.

Problems, including applications of calculus, dealing with topics in general physics. Intended for those students who have taken or are taking PHYS 122 and who desire to have a calculus-based physics sequence equivalent to PHYS 151-152.

### 131Q-132Q. General Physics with Calculus

Either semester. Four credits. Three class periods and one 3-hour laboratory period. Prerequisite: PHYS 131 required for PHYS 132. Recommended preparation: MATH 113 or 115, for PHYS 131, and MATH 114 or 116, for PHYS 132. PHYS 131 is not open for credit to students who have passed PHYS 141 or 151. PHYS 132 not open for credit to students who have passed 142 or 152. PHYS 131 may be taken for not more than 2 credits, with the permission of the instructor, by students who have received credits for PHYS 121. PHYS 132 may be taken for not more than 2 credits, with the permission of the instructor, by students who have received credit for PHYS 122.

Quantitative study of the basic facts and principles of physics. The laboratory offers fundamental training in physical measurements. This course is recommended for students planning to apply for admission to medical, dental or veterinary schools. It is also recommended for science majors for whom a one year introductory physics course is adequate.

### 140Q. Introduction to Modern Physics

First semester. Four credits. Two class periods, two recitations, and one 3-hour laboratory. Recommended preparation: MATH 109, which may be taken concurrently, or a pass on the Calculus Readiness Test.

Quantitative exploration of the structure of matter, including gas laws, electric and magnetic forces, the electron, x-rays, waves and lights, relativity, radioactivity, and spectra. This course is recommended for prospective Physics majors.

### 141Q. Fundamentals of Physics I

Second semester. Four credits. Three class periods and one 3-hour laboratory period. Recommended preparation: MATH 120 or 113 or 115, which may be taken concurrently. MATH 120 is preferred for Physics majors. Not open for credit to students who have passed PHYS 131 or 151. May be taken for not more than three credits, with the permission of the instructor, by students who have received credit for PHYS 121.

Fundamental principles of mechanics. Basic

concepts of calculus are used. This course is recommended for prospective Physics majors.

#### 142Q. Fundamentals of Physics II

First semester. Four credits. Three class periods and one 3-hour laboratory period. Recommended preparation: PHYS 141, and MATH 114 or 116 or 120, any of which may be taken concurrently. MATH 121 is preferred for Physics majors. Not open for credit to students who have passed PHYS 132 or 152. May be taken for not more than three credits, with the permission of the instructor, by students who have received credit for PHYS 122.

Fundamental principles of electromagnetism. Basic concepts of calculus are used. This course is recommended for prospective Physics majors.

#### 143Q. Fundamentals of Physics III

First semester. Four credits. Three class periods and one 3-hour laboratory period. Prerequisite: PHYS 132, or 142, or 152; and MATH 210 or 220, which may be taken concurrently.

Optics, wave propagation, statistical and thermal physics. This course is the third semester of a two year introductory physics sequence which begins with PHYS 141-142 in the first year.

#### 151Q. Physics for Engineers I

Either semester. Four credits. Three class periods and one 3-hour laboratory period. Recommended preparation: PHYS 101 or secondary school physics; and CE 211 or 213, as well as either MATH 210 or 220, which may be taken concurrently. Not open for credit to students who have passed PHYS 131 or 141. PHYS 151 may be taken for not more than 2 credits, with the permission of the instructor, by students who have received credit for PHYS 121.

Basic facts and principles of physics. Elementary concepts of calculus are used. Classical dynamics, rigid-body motion, harmonic motion, wave motion, acoustics, relativistic dynamics, thermodynamics.

#### 152Q. Physics for Engineers II

Either semester. Four credits. Three class periods and one 3-hour laboratory period. Prerequisite: PHYS 151. Not open for credit to students who have passed PHYS 132 or 142. PHYS 152 may be taken for not more than 2 credits, with the permission of the instructor, by students who have received credit for PHYS 122.

Electric and magnetic fields, electromagnetic waves, quantum effects, introduction to atomic physics.

#### 155Q. Introductory Astronomy

Either semester. Three credits. Two class periods and one 2-hour laboratory period. Prerequisite: Satisfactory performance on Q-Readiness Test or equivalent mathematics.

A basic introductory astronomy course including celestial coordinate systems, fundamental optics and telescope design, recent space probe results, applications of fundamental physical laws to the sun, stars and groups of stars, stellar evolution, modern cosmology and the early universe. Basic quantitative laboratory techniques relevant to astronomy.

#### 191. Directed Study in General Physics

Either or both semesters. One credit. One class period. To be taken concurrently with any of the following: PHYS 121, 122, 141, 142, 151, or 152. Open only with consent of instructor. With a change in content this course may be repeated for credit.

A special study course for students who desire extra work and credit in certain 100-level physics courses.

#### 209Q. Intermediate Physics I

First semester. Three credits. Prerequisite: PHYS 132 or 142 or 152 or, with consent of instructor, PHYS 122. Classical mechanics, electricity, and magnetism.

#### 210Q. Intermediate Physics II

Second semester. Three credits. Prerequisite: PHYS 132 or 142 or 152 or, with consent of instructor, PHYS 122.

Kinetic theory, introduction to quantum mechanics.

#### 230Q. The Development of Quantum Physics

Second semester. Three credits. Prerequisite: PHYS 132, 142; or PHYS 152, which may be taken concurrently; or PHYS 122 with consent of instructor. Open to sophomores.

The inadequacies of classical physical concepts in the submicroscopic domain. The revision of physical principles that led to special relativity and modern quantum theory. Application to topics chosen from atomic and molecular physics, solid state physics, nuclear physics and elementary particle physics.

#### 242Q. Mechanics I

First semester. Three credits. Prerequisite: PHYS 142 or, with consent of instructor, PHYS 123 or 152 or 209; MATH 210 or 220, which may be taken concurrently. Open to sophomores.

Newton's Laws of motion applied to mass points, systems of particles, and rigid bodies.

#### 246Q. Mechanics II

Second semester. Three credits. Prerequisite: MATH 211 or 221 and PHYS 242 or CE 212. Open to sophomores.

Further applications of Newton's Laws; continuous media; Lagrange's and Hamilton's formulation of dynamics.

#### 255Q. Electricity and Magnetism I

First semester. Three credits. Prerequisite: PHYS 143; or, with consent of instructor, PHYS 123 or 152 or 210; MATH 210 and 211, or 220 and 221.

Properties of electric and magnetic fields; direct and alternating current circuits.

#### 256Q. Electronics

Second semester. Three credits. Two class periods and one 3-hour laboratory period. Recommended preparation: PHYS 132 or 142 or 152, or consent of instructor.

The principles of devices and their applications to instrumentation in science and engineering. Rectification, filtering, regulation, input and output impedance, basic transistor circuits, operational amplifiers, preamplifiers for photodiodes and other transducers, logic gates, and digital circuits.

#### 257Q. Electricity and Magnetism II

Second semester. Three credits. Prerequisite: PHYS 255.

Mathematical theory of the electromagnetic field; electric and magnetic properties of matter.

#### 258Z-259Z. Laboratory in Electricity, Magnetism, and Mechanics (Q, W, C)

Both semesters. Three credits each semester. One 3-hour laboratory period and additional assignments on the theoretical interpretation of experiments. One hour lecture per week. Time by arrangement. A written presentation of methods and results is required for each experiment. Prerequisite, which may be taken concurrently: First semester, PHYS 242 and PHYS 255; Second Semester, PHYS 246 and PHYS 257.

Experiments with electric and magnetic fields, direct and alternating currents, microwaves. Experiments with mechanical phenomena. The handling of experimental data.

#### 261Q-262Q. Introductory Quantum Mechanics

Both semesters. Three credits each semester. Prerequisite: PHYS 230; MATH 210 and 211, or 220 and 221.

Elementary principles of quantum mechanics; applications to electrons, atoms, molecules, nuclei, elementary particles, and solids.

#### 271Q. Statistical and Thermal Physics

First semester. Three credits. Prerequisite: PHYS 123 or 125 or 132 or 142 or 152; MATH 210 and 211, or 220 and 221.

The laws of thermodynamics and their microscopic statistical basis; entropy, temperature, Boltzmann factor, chemical potential, Gibbs factor, and the distribution functions.

#### 273Q. Introduction to Solid State Physics

First semester. Three credits. Prerequisite: PHYS 123 or 125 or 132 or 142 or 152.

Crystal lattices, lattice waves, thermal and electronic properties, imperfections in solids.

#### 274Q. Nuclei and Particles

Second semester. Three credits. Prerequisite: PHYS 261 or equivalent.

Properties of nuclei and particles, conserved quantities, isospin, quark model, Fermi gas model, electroweak interaction, high energy scattering.

#### 275Q. Principles of Lasers

Second semester. Three credits. Prerequisite: PHYS 257 and 261, or consent of instructor. PHYS 281 is recommended.

The physics of lasers, including optical pumping and stimulated emission, laser rate equations, optical resonators, Gaussian beam propagation, Q-switching, mode-locking and non-linear optics. Applications to gas, solid-state and tunable laser systems.

#### 281Q. Optics

First semester. Four credits. Three class periods and one 3-hour laboratory period. Recommended preparation: PHYS 255.

An introduction to geometrical and physical optics. Thick lenses, stops, aberrations, interference, diffraction, polarization.

#### 285Z. Experimental Physics Design Laboratory (Q,W,C)

Either semester. Three credits. Two 3-hour laboratory periods and additional reading assignments. A written description of the proposed method must be submitted and approved before each experiment, and a subsequent written critical evaluation of each experiment is required. Prerequisite: PHYS 230, 246, and 257; PHYS 261, which may be taken concurrently; and PHYS 258 or 259 or EE 262 or MTGY 236.

Experiments in modern and classical physics are independently designed, performed, and evaluated. Experiments are chosen from the areas of atomic, solid state and thermal physics, as well as from acoustics and optics. Computers are utilized for control of the experimental process, data acquisition and analysis.

#### 291. Seminar in Current Topics

Either or both semesters. One credit. One class period. To be taken concurrently with any of the following: PHYS 242, 246, 255, 257, 261, 262, 271 or 281. Open only with consent of instructor. With a change in content this course may be repeated for credit only once.

Lectures on topics relevant to current research.

#### 293. Foreign Study

Either or both semesters. Credits and hours by arrangement. May be repeated for credit. Consent of Department Head required, normally to be granted prior to the student's departure. May count toward the major

with consent of the advisor.

Special topics taken in a foreign study program.

### 295. Variable Topics

Either semester. Three credits. With a change in topic, may be repeated for credit. Prerequisites, required preparation, and recommended preparation vary.

### 298. Special Topics

Either semester. Credits and hours by arrangement. With a change in content, may be repeated for credit. Prerequisites, required preparation, and recommended preparation vary.

### 299. Independent Study

Either or both semesters. Credits by arrangement, not to exceed 3 each semester. Open only with consent of instructor. With a change of topic, this course may be repeated for credit.

## Plant Science (PLSC)

*Head of Department:* Professor Gerald A. Berkowitz  
*Department Office:* Room 119, W.B. Young Building

For major requirements, see the College of Agriculture and Natural Resources section of this *Catalog*.

### Agronomy

#### 124. Turfgrass Management

First semester. Three credits. Two class periods and one 2-hour laboratory. Not open to students who have passed PLSC 289. *Guillard*

An overview of turfgrass adaptation, selection, and management. Topics include turfgrass growth, physiology, soil interactions, weeds and diseases, morphology and identification, establishment, and maintenance. Cultural system practices for lawns, golf courses, athletic fields, and other turf areas.

#### 150. Agricultural Technology and Society

Second semester, alternate years (odd). Three credits. *Allinson*

Development of agricultural systems and technologies and their influence on societies. Topics include plant and animal domestication, food and industrial crops and centers of production, environmental issues, and agricultural ethics.

#### 205. Soil Morphology, Genesis, and Taxonomy

First semester, alternate years (even). Four credits. Two class periods, one 4-hour field laboratory session. Prerequisite: PLSC 250, GEOL 102 or GEOL 101 or consent of instructor. Not open for credit to students that have passed PLSC 207 and 208. Students that have passed either PLSC 207 or PLSC 208, but not both, will be allowed to take an appropriately modified version of the course for two credits.

Students will be expected to master the nomenclature and techniques required to describe and characterize soils as natural bodies occurring on geomorphic surfaces. Theories of soil genesis and major systems of soil taxonomy will be rigorously examined, both in theory and in practice. Field trips are required.

#### 224. Turfgrass Physiology and Ecology

Second semester. Three credits. Three class periods. Prerequisite: PLSC 124 or PLSC 289. *Guillard*

Turfgrass physiology related to growth and development. Response to temperature, light, water, traffic, and wind. Turfgrass community dynamics, competition, and environmental effects of turfgrass culture.

#### 250. Soils

Second semester. Three credits. Two class periods and

one 2-hour laboratory period. Prerequisite: CHEM 122, 127 or 129. Open to sophomores. *Luce*

Introduction to the physical, chemical and biological properties of soils: the relationship between soils and the growth of higher plants.

#### 253. Soils, Environmental Quality, and Land Use

Second semester, alternate years (even). Three credits. Three class periods plus required field trips. Prerequisite: PLSC 250. Not open for credit to students that have passed Plant Science 209.

Principles and procedures for using soils information in solving environmental and land use problems. The functions of soils in natural ecosystems and in the hydrologic cycle will be included.

#### 253W. Soils, Environmental Quality, and Land Use

#### 254. Forage Crops

First semester, alternate years (even). Three credits. Two class periods and one 2-hour laboratory period. *Allinson*

Production, utilization, and storage of species used as forages and their relationship to the ruminant animal.

#### 257. Ecology and Control of Weeds

First semester. Three credits. Two class periods and one 2-hour laboratory. Prerequisite: A course in plant physiology or consent of instructor.

Weed origin and classification. Losses caused by weeds. Weed competition. Weed seed production, dormancy and germination. Cultural, mechanical, biological and chemical control methods. Weed identification.

#### 258. Soil Fertility

First semester. Three credits. Two class periods and one 2-hour laboratory period. Prerequisite: PLSC 250. Offered in odd-numbered years. *Schulthess*

Factors governing nutrient uptake by plants, fate of nutrients applied to soils, principles and practices in the manufacture and use of fertilizers for crop production, laboratory and greenhouse studies of soil and plant response to applied nutrients.

#### 259C. Soil Chemistry

First semester, alternate years (even). Three credits. Two class periods and one 2-hour laboratory period. Prerequisite: CHEM 128. PLSC 206 and PLSC 250 are recommended. *Schulthess*

Basic concepts of the physical chemistry of soil constituents. Topics include clay mineralogy, soil organic matter, weathering processes, ion-exchange, extraction of sorbed compounds, formation of colloids, and the mobility of contaminants.

## Horticulture

#### 203. Plant Diseases

First semester. Three credits. Two class periods and one 2-hour laboratory. Prerequisite: BIOL 108 or 110.

The causes, development and management of diseases of economic plants. Lectures cover general principles and laboratories review specific examples of plant diseases of horticultural and agronomic crops.

#### 204. Integrated Pest Management

First semester. Three credits. *Gauthier*

Principles of integrated pest management covering insect, disease, and weed problems in agronomic crops, vegetables, fruits, turfgrass, ornamentals, and greenhouse production. Environmental impacts and pest control strategies will be covered.

#### 212. Vegetable Crops and Their Environment

Second semester. Four credits. Three class periods and one 2-hour laboratory period. *Bible*

The responses of vegetable crops to mineral

nutrients, soil pH, plant population, temperature, photoperiod, pest organisms and to the modification of these factors by technology. Radish, lettuce, tomato, cucumber, sweet corn, basil, cauliflower and watercress are grown by students in the laboratory.

#### 213. Physiology of Economic Plants

Second semester. Three credits. Two class periods and one 2-hour laboratory period. Prerequisite: BIOL 110 and CHEM 122 or 127. *Bible*

Water uptake, water potential, transpiration, stomatal movement, ion uptake, nutrient deficiencies, respiration, photosynthesis, phytohormones, phytochrome, circadian leaf movement, flowering, dormancy, cold injury and allelochemicals.

#### 225. Greenhouse Technology and Operations

First semester. Three credits. Two class periods and one 2-hour laboratory period. Field trips required. *Elliott*

Introduction to greenhouse systems with emphasis on structures, environmental control, root media, irrigation and fertilization, and pest control, in relation to requirements for plant growth.

#### 226. Greenhouse Crop Production I

First semester. Two credits. One class period and one 2-hour laboratory period. Field trips required. Prerequisite: PLSC 225 (may be taken concurrently). Taught jointly with SAPL 26. Not open for credit to graduate students. *Elliott*

Environmental and cultural requirements and scheduling of major greenhouse crops, exclusive of edible produce. Emphasis on cut flowers and flowering potted plants produced for fall and winter markets. Laboratories provide experience in crop production.

#### 227. Greenhouse Crop Production II

Second semester. Two credits. One class period and one 2-hour laboratory period. Field trips required. Prerequisite: PLSC 226. Taught jointly with SAPL 27. Not open for credit to graduate students. *Elliott*

Continuation of PLSC 226. Emphasis on flowering potted plants and bedding plants produced for spring and summer markets. Laboratories provide experience in crop production.

#### 230. Floral Art

Second semester. Two credits. One class period and one 2-hour studio period. Taught jointly with SAPL 030. Open to sophomores.

The study of flower arrangement as an art form with emphasis on historical background, artistic principles, color harmony and care of perishable media. Individual expression is encouraged in the creation of floral composition.

#### 231. Herbaceous Ornamental Plants

Second semester. Three credits. Taught jointly with SAPL 031. Open to sophomores. *Bridgen*

Identification, nomenclature and culture of over 160 herbaceous perennials, biennials, annuals and bulbous plants. Live plants and visual presentation are used to highlight plant characteristics and morphology. Lectures include discussions of organic growing, composting, plant morphology, trough and container gardens, and underground storage structure. Field trips to retail and wholesale businesses are a part of this class.

#### 235. Advanced Floral Design

Second semester. Two credits. Taught concurrently with SAPL 035. Not open for credit to graduate students. One class period and one 2-hour lab. Prerequisite: PLSC 230. *Pastormerlo*

In-depth study of post-harvest requirements for specialized floral crops. Exposure to novel floral

materials and abstract, tribute, high-style, and wedding designs. Retail price structuring, wire services, and mass-production concepts.

### 238. Plant Propagation

Second semester. Three credits. Two class periods and one 2-hour laboratory period. *Bridgen, Elliott*

Fundamental principles of reproducing plants by seeds, cuttings, grafting, layering, divisions, and tissue culture. Techniques of propagating plants to establish and maintain clones.

### 240. Nursery Management

First semester, alternate years (odd). Three credits. Two class periods and one 2-hour laboratory period. *Corbett*

Principles of field and container production of nursery stock. Emphasis on production practices for woody nursery stock from propagule to sale.

### 240W. Nursery Management

### 244. Garden Center Management

First semester. Three credits. Taught concurrently with SAPL 71. Not open for credit to graduate students. *Ashley*

Fundamentals related to horticultural specialty businesses with particular emphasis on the retail and contracting areas. Specialty and mass merchandising firms are considered and compared.

### 245. Landscape Plant Maintenance

Second semester. Three credits. One three-hour class period. Taught concurrently with SAPL 68. Not open for credit to graduate students. *Auer*

Provides practical information on the planting and maintenance of trees and shrubs in the landscape. Includes learning how to plan landscape projects, install plant material and maintain the established landscape through proper pruning, mulching, irrigation, fertilization and other horticultural practices.

### 260. Woody Landscape Plants: Deciduous

First semester. Three credits. Two class periods and one 2-hour laboratory.

Appropriate landscape use, ornamental features and taxonomy of deciduous ornamental trees, shrubs, vines and ground covers. Laboratories present field identification features and require the examination of plants in the landscape.

### 261. Woody Landscape Plants: Evergreen

Second semester. Three credits. Two class periods and one 2-hour laboratory.

Appropriate landscape use, ornamental feature and taxonomy of coniferous or broadleaf evergreen ornamental trees, shrubs, vines and ground covers. Laboratories present field identification features and require the examination of plants in the landscape.

### 263. Fruit Culture

First semester. Three credits. Offered in even-numbered years. *Bible*

Biology of small fruit and tree fruit species, technology of fruit production, major aspects and recent advances in pomology.

### 264. Fruit Production Laboratory

Second semester, alternate years (odd). Two credits. Two 2-hour laboratory periods. *Shashok*

Practical application of techniques associated with the production of fruit crops. Emphasis is on apples, pears, peaches, raspberries, blueberries, and grapes. Oral and written reports are required. Field trips are required.

### 274. Plant Breeding

Second semester. Three credits. Two class periods and one 2-hour laboratory period. Prerequisite: Biology: MCB 213 or consent of instructor. Offered in even-

numbered years.

Principles of cultivated plant improvement, breeding techniques and germplasm manipulation.

### 292. Plant Micropropagation

First semester, odd-numbered years. Three credits. One class period and two 2-hour laboratory periods. Prerequisite: CHEM 122 or 127 and consent of instructor. *Bridgen*

The use of aseptic techniques for the micropropagation of plants of economic interest. Laboratory techniques covered include rapid propagation of plants *in vitro*, meristem culture for the elimination of diseases, somaclonal variation, somatic embryogenesis and media preparation.

## Landscape Architecture

### 202. Design of Small Spaces

Second semester. Two credits. One class period and one 2-hour studio. Prerequisites: PLSC 255 and PLSC 275. Not open to Landscape Architecture majors.

Studio-based course emphasizing the acquisition skills necessary for the landscape design for small spaces. The skills will include: visualization methods, methodology in design process, derivation of basic forms and planting design.

### 247. Landscape Contracts

Second semester. Three credits. *Westa*

A study of the various contract documents, their legality, and their relationship to landscape construction and maintenance. Practice in writing contract documents, contract cost estimation and bidding procedures will be provided.

### 255. Landscape Design Drawing

First semester. Three credits. Three 2-hour studios. Open only with consent of instructor. Open to sophomores. *Schwab*

An introductory drawing course aiming to introduce the landscape design student to the communication of ideas through sketches and presentation drawings. One-point and two-point perspective and isometric drawing techniques are taught. Various drawing media are used in a studio environment.

### 256. Landscape Design Communication

Second semester. Three credits. Three 2-hour studios. Open only with consent of instructor. Open to sophomores. *Alexopoulos*

The presentation of landscape designs in plan form are covered through studio drawing assignments. The color rendering of plans, the making of cross-sections, elevations and models are studies in a studio environment.

### 262. Landscape Design Fundamentals

Second semester. Three credits. One lecture and two 2-hour studios. Prerequisite: PLSC 256 which may be taken concurrently. Open to sophomores. *Miniutti*

Introduction to basic landscape design concepts, theory and the design process.

### 265. Intermediate Landscape Design I

First semester. Four credits. One class period and two 3-hour studios. Prerequisite: PLSC 255, 262 and 275. PLSC 275 may be taken concurrently. Field trips are required. *Miniutti*

The development of a design process utilizing small-scale design projects. A comprehensive investigation of site analysis methods is also covered.

### 266. Intermediate Landscape Design II

Second semester. Four credits. Three 3-hour studios. Prerequisite: PLSC 265. Field trips are required. *Schwab*

Landscape design studio. Application of the design

of landscapes: planning theory, land use planning, visual assessment, urban design, transportation, public participation.

### 267. Advanced Landscape Design

Second semester. Four credits. Three 3-hour studios. Prerequisite: PLSC 266 and 281. Field trips are required. *Miniutti*

A comprehensive course which covers the range of projects which the design professional might encounter in practice. Students will be expected to provide recommendations for case studies varying in subject and scale, depending on the particular expertise of the instructor.

### 268. Planting Studies in Landscape Architecture

First semester. Three credits. Three 2-hour studios. Prerequisite: PLSC 260, 261, 266. Open to landscape architecture majors only. *Alexopoulos*

The role and use of plants in the landscape architectural design process. Technical, functional, and design aspects of plantings are included. Not open to students who have passed PLSC 278. Field trips are required.

### 271. Professional Practice

Second semester. Three credits. Prerequisite: PLSC 256 and PLSC 262 or consent of instructor. *Westa*

The course will cover many of the business and professional aspects of Landscape Architecture including: various modes of practice, resumes and portfolios, licensure and ethics, developing and administering contracts, and preparing for the professional registration exam.

### 275. Landscape Design

First semester. Two credits. Two class periods. Open only with consent of instructor. Open to sophomores. *Miniutti*

An introduction to landscape architecture: landscape history, natural and human factors; planning and design for parks, housing, urban spaces, etc.

### 276. Community Planning and Design

First semester. Four credits. Three 3-hour studios. Prerequisite: PLSC 266 or consent of instructor. Open to landscape architecture majors only. Field trips are required. *Westa*

Studio based course which investigates current theories and design of large scaled landscapes with an emphasis on residential, commercial and industrial subdivisions as well as the redesign of town centers.

### 277. The Development of Landscapes

First semester. Three credits. Prerequisite: PLSC 275 or consent of instructor. *Alexopoulos*

The development of man-made landscapes through time and their influence on present styles and trends.

### 278. Planting Design

First semester. Four credits. Three, 3-hour studios. Prerequisite: PLSC 260, 261, and 266. *Alexopoulos*

The use of plants to strengthen design concepts and to achieve special effects.

### 280. Landscape Construction Materials and Methods

First semester. Three credits. Two class periods and one 2-hour studio. Prerequisite: PLSC 256 or consent of the instructor. *Schwab*

Basic hard materials used in landscape construction: masonry, wood, metals, etc. Construction documents. Layout and detail drawings for landscape structures. Computer applications.

**281. Landscape Site Engineering**

Second semester. Three credits. One class period and two 2-hour studios. Prerequisite: PLSC 256. *Alexopoulos*

Fundamental site engineering concepts and methods are investigated. Basic grading and drainage of landform are emphasized with the aim to develop essential skills. Earthwork computation, drainage systems, sedimentation and erosion control, and roadway design are also covered.

**290W. Environmental Planning and Landscape Design**

Second semester. Three credits. Two class periods and one recitation period. *Schwab*

Theories, concepts and methods for planning and designing the land to meet societal needs and goals. Topics include landscape planning theory, land use planning, visual assessment, urban design, and other contemporary issues significantly affecting landscape development.

**293. Seminar in Landscape Architecture**

Either semester. One credit. Open only with consent of instructor. Course may be repeated with credit.

Presentations of topics in landscape architecture.

**Plant Science Research and Seminar****†287. Field Study Internship**

Either semester or summer. One to 6 credits. Hours by arrangement. Open only to Upper Division students who have demonstrated outstanding academic ability and who possess excellent professional potential as identified by their advisor. Open only with consent of Head of the Department of Plant Science and the advisor. This course may be repeated provided that the sum total of credits earned does not exceed six.

Students will work with professionals in an area of research or management.

**295. Seminar**

Either semester. One credit. Open only with consent of instructor. Course may be repeated for credit.

Professional presentations of current topics in Plant Science.

**298. Special Topics**

Either semester. Credits and hours by arrangement. May be repeated for credit with a change of topic. Open only with consent of instructor.

Topics and credits to be published prior to the registration period preceding the semester offerings.

**299. Independent Study**

Either or both semesters. Credits and hours by arrangement. Open to qualified students with consent of instructor and Department Head. Students are expected to submit written reports. Course may be repeated for credit.

**Political Science (POLS)**

*Department Head:* Professor John T. Rourke

*Department Office:* Room 137, Monteith Building

For major requirements, see the College of Liberal Arts and Sciences section of this *Catalog*.

**106. Introduction to Political Theory**

Either semester. Three credits.

Major themes of political theory such as justice, obligation, and equality, and their relevance to contemporary political concerns.

**121. Introduction to Comparative Politics**

Either semester. Three credits.

A survey of institutions, politics, and ideologies in democratic and non-democratic states.

**121W. Introduction to Comparative Politics****132. Introduction to International Relations**

Either semester. Three credits.

The nature and problems of international politics.

**132W. Introduction to International Relations****143. Introduction to Nonwestern Politics**

Either semester. Three credits.

A survey of institutions, ideologies, development strategies, and the political processes in nonwestern culture.

**173. Introduction to American Political Processes**

Either semester. Three credits.

Analysis of the organization and operation of the American political system.

**173W. Introduction to American Political Processes****201. Classical and Medieval Political Theory**

First semester. Three credits.

An examination of Greek, Roman and early Judeo-Christian political ideas and institutions, and their relevance to the present.

**202. Modern Political Theory**

Second semester. Three credits.

Major political doctrines of the contemporary period, and their influence upon political movement and institutions as they are reflected in the democratic and nondemocratic forms of government.

**203W. Women in Political Development**

(Also offered as Women's Studies 203W.) Second semester. Three credits.

Analysis of the role of women in the process of political development in Africa, Asia and Latin America. The importance of gender to the understanding of development and modernization will be explored and the ways in which change in traditional societies has affected the position of women, economically, socially and politically will be examined.

**204. Women and Politics**

(Also offered as Women's Studies 204.) Either semester. Three credits.

An introduction to feminist thought, the study of women as political actors, the feminist movement and several public policy issues affecting women.

**204W. Women and Politics**

(Also offered as Women's Studies 204W).

**206W. Western Marxist Tradition**

Either semester. Three credits.

Exploration of the social and political theories of Marx and Engels, and of later interpretations and modifications of their ideas.

**207. American Political Thought and Ideology**

Second semester. Three credits.

American political thought from the colonial to the contemporary period. Political thought discussed as the ideological expression of the larger sociopolitical situation.

**208. Politics, Propaganda, and Cinema**

Second semester. Three credits. Four class hours (three lecture/film, one discussion).

Lectures, discussions, and films from several nations serve to illustrate techniques and effects of propaganda, analyzing the pervasive impact that

propaganda has on our lives. The course concentrates on the World War II era.

**211. Contemporary International Politics**

Either semester. Three credits. Not open for credit to students who have passed POLS 213.

Problems in international relations with emphasis on changing characteristics of international politics.

**212. Global Interdependence and the Crisis of World Order**

Second semester. Three credits.

The nature and meaning of interdependence; origins and consequences of development and underdevelopment; international resource politics; future world models.

**215. American Diplomacy**

First semester. Three credits.

A chronological examination of the foreign relations of the United States from 1776 to the first World War.

**216. International Political Economy**

Either semester. Three credits.

Politics of international economic relations: trade, finance, foreign direct investment, aid.

**217. Recent American Diplomacy**

Second semester. Three credits.

The foreign relations of the United States from the first World War to the present.

**218. Inter-American Relations**

Second semester. Three credits.

Major problems in inter-American relations; the Western hemisphere in contemporary world politics.

**219. The Politics of American Foreign Policy**

Either semester. Three credits.

Instructions, forces and processes in the making of American foreign policy. Emphasis will be on contemporary issues.

**220. Simulation and Gaming in Foreign Policy**

Second semester. Three credits.

A comparative study of foreign policy making. Use of computer-assisted simulation provides realistic experience in foreign policy decision making and international negotiation.

**221. National and International Security**

Either semester. Three credits.

Key American national security issues as integral parts of the larger problem of global security.

**222. Foreign Policies of the Russian Federation and the Former USSR**

Second semester, alternate years. Three credits.

The Soviet Union's role in world affairs as background for studying the international consequences of the breakup of the USSR; the foreign policies of the former soviet republics among themselves, and of Russia and selected other republics.

**224. American Diplomacy in the Middle East**

Either semester. Three credits.

The strategic, political, and economic interests that have shaped U.S. policy in the Middle East. U.S. responses to regional crises, peace efforts, arms transfers, covert operations and military intervention.

**225. International Organizations and Law**

Second semester. Three credits.

The role of general, regional and functional intergovernmental organizations and international law in modern diplomacy, with special attention to questions of war, peaceful settlement of disputes, and social and economic development.

† Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

**226. International Relations of the Middle East**  
Either semester. Three credits.

The foreign policies and security problems of Middle Eastern States; sources of regional conflict and competition – oil, water, borders, religion, ideology, alliances, geopolitics, refugees, and superpower intervention.

**227W. International Politics in East Asia**

First semester. Three credits.

Comparison and analysis of the foreign policies of the states of East Asia, with special emphasis on the impact of the former Soviet Union (Russia), People's Republic of China, Japan, and the United States.

**228W. East Asian Governments and Politics**

First semester. Three credits.

The processes of political modernization in Japan and other East Asian areas.

**229. Chinese Government and Politics**

Second semester. Three credits.

Chinese political processes, with emphasis on ideology and problems of development.

**230W. Politics in Eastern Europe**

Second semester. Three credits.

The politics of the East European states in a comparative and analytical framework, stressing ideology, political culture, participation, and elite behavior.

**231. Political Institutions and Behavior in Western Europe**

Either semester. Three credits. Open to sophomores. Not open for credit to students who have passed POLS 233.

Comparative analysis of the governments and politics of Western Europe.

**231W. Political Institutions and Behavior in Western Europe**

(Formerly offered as POLS 233.) Open to sophomores.

**233. Comparative Political Parties and Electoral Systems**

Either semester. Three credits.

A focus on political party and electoral systems around the world, including advanced industrial nations, transitional nations, and less developed nations. Issues such as the relationship between electoral and party systems, democratic reform, voting behavior, and organization of political parties are examined.

**233W. Comparative Political Parties and Electoral Systems****235. Latin American Politics**

First semester. Three credits.

Theories and institutions of Latin American politics, with emphasis on issues of stability and change.

**236W. Political Leadership in the Third World**

Second semester, alternate years. Three credits.

The objectives and effectiveness of national leaders, with case studies from Asia, Africa, and Latin America.

**237. Politics of Russia and the Former Soviet Union**

First semester. Three credits. Not open for credit to students who have passed POLS 238.

The social and political structure of the former Soviet Union, the causes and outcome of efforts to reform it, and the development of democratic politics in Russia and other former Soviet republics.

**237W. Politics of Russia and the Former Soviet Union**

(Formerly offered as Political Science 238.)

**239W. Politics in Africa**

First semester, alternate years. Three credits.

The political systems in contemporary Africa; the background of the slave trade, imperialism, colonialism, and the present concerns of nationalism, independence, economic development and military rule. Emphasis on sub-Saharan Africa.

**240. Contemporary German Politics**

First semester. Three credits.

The development of the German polity in the 20th century, focusing on the period since 1945: the forces leading to division in 1945; the comparative analysis of the two German States (1949-1990); and the politics of a unified Germany.

**241. American Political Parties**

Either semester. Three credits. Prerequisite: POLS 173. Open to sophomores. Not open for credit to students who have passed POLS 243.

An analysis of the aims, organization, and growth of parties in the United States.

**241W. American Political Parties**

(Formerly offered as Political Science 243.) Open to sophomores.

**242. Political Opinion and Electoral Behavior**

Either semester. Three credits.

Analysis of public opinion and its potential to affect government policies. Emphasis on explaining elections and the basis for voters' decisions.

**244. Politics of South Africa**

First semester. Three credits.

Internal development of the South African state and the external response to apartheid policies, with special attention to both white and African politics, U.S. policy, and other selected topics.

**246. Comparative State Politics**

Second semester. Three credits. Not open for credit to students who have passed POLS 247.

A comparison of the political parties of the 50 states. The development and the relationship of the local and state parties in the federal system.

**246W. Comparative State Politics**

(Formerly offered as Political Science 247.)

**248. African-American Politics**

Either semester. Three credits.

Political behavior, theory, and ideology of African-Americans, with emphasis on contemporary U.S. politics.

**251. Law and Society**

(Formerly offered as Political Science 254.) Either semester. Three credits. When students intend to take several courses in the Judicial Process field (250's series), it is recommended that 251 be taken first.

Leading schools of legal thought, fundamental principles and concepts of law, the basic framework of legal institutions, and judicial procedure. Particular attention is devoted to the general features of American law as it affects the citizen, and primary emphasis is placed on the function of law as a medium for attaining a balance of social interests in a politically organized society.

**252. Constitutional Law**

Either semester. Three credits.

The role of the Supreme court in expounding and developing the United States Constitution. Topics

include judicial review, separation of powers, federalism, and due process.

**253. Judiciary in the Political Process**

Second semester. Three credits. Prerequisite: POLS 173. The Supreme Court in the Political Process.

**255. Politics of Crime and Justice**

Either semester. Three credits.

Criminal justice in the United States, with emphasis on the links between law, politics, and administration.

**256. Constitutional Rights and Liberties**

Either semester. Three credits.

The role of the Supreme Court in interpreting the Bill of Rights. Topics include freedoms of speech and religion, criminal due process, and equal protection.

**260. Public Administration**

Either semester. Three credits.

The politics of public administration. Role of administrative agencies and officials in American national, state, and local governments.

**263W. Urban Politics**

(Also offered as Urban Studies 263W.) Either semester. Three credits. Not open for credit to students who have passed URBN 263.

Political systems and problems confronting urban governments.

**264. Politics of Budgeting**

Either semester. Three credits.

Examination of the decision-making processes and role of the budget in public bureaucracies and policy implementation. Contemporary controversies in budgeting are used to illustrate and apply basic principles.

**264W. Politics of Budgeting**

Second semester. Three credits.

**270W. Connecticut State and Municipal Politics**

First semester, alternate years. Three credits.

An examination of contemporary Connecticut politics on the state and municipal levels.

**274. State and Local Government**

Either semester. Three credits. Open to sophomores.

The practical working of democracy and the role of state and local governments.

**275. The Presidency and Congress**

First semester. Three credits.

The contemporary Presidency and its interactions with the Congress in the formation of public policy.

**276. The Policy-making Process**

Second semester. Three credits. Not open for credit to students who have passed POLS 277.

Introduction to the study of policy analysis. Consideration of description and prescriptive models of policy-making. Examination of several substantive areas of national policy in the United States.

**276W. The Policy-making Process**

(Formerly offered as Political Science 277.)

**278. Science, Technology, and Public Policy**

Second semester, alternate years. Three credits. Hiskes

An examination of how policy is made regarding scientific and technological development; focusing on agencies, citizens and current issues in the areas of science and technology.

**279. South Asia in World Politics**

Either semester. Three credits.

Relations among countries of South Asia and between this region and the rest of the world. Problems of development and security confronting South Asian countries.

**279W. South Asia in World Politics****287. Foreign Study**

Either or both semesters. Credits (up to a maximum of 15) and hours by arrangement. May be repeated for credit. Consent of Department Head required, normally to be granted before the student's departure. May count toward the major with consent of the advisor.

Special topics taken in a foreign study program.

**288W. Senior Thesis**

Either semester. Three credits. Hours by arrangement. Prerequisite: POLS 289. Open only with consent of instructor and Department Head. All honors and distinction students writing an honors or distinction thesis must register for this course in their last semester.

**289. Senior Seminar**

First semester. Three credits. Open only with consent of instructor.

Recommended for students in the Honors Program, required of distinction students not in the Honors Program, and open to other qualified students. A weekly seminar on selected topics in political science.

**291V. Quantitative Analysis in Political Science (Q,C)**

Either semester. Three credits. Prerequisite: Recommended preparation: High School Algebra II. Open to sophomores.

Explanation of the quantitative methods used in political science. Application of these methods for the analysis of substantive political questions.

**296. Political Issues**

Either semester. Three credits. May be repeated for credit with a change in subject matter. Open to sophomores.

An exploration of the fundamental nature of political conflicts on the national and international levels.

**296W. Political Issues****†297. Supervised Field Work**

Either or both semesters. Credits up to 12. Hours by arrangement. Open only with consent of the department head.

**298. Special Topics**

Either semester. Credits and hours by arrangement. With a change in content, may be repeated for credit. Prerequisites, required preparation, and recommended preparation vary.

**299. Independent Study**

Either or both semesters. Credits and hours by arrangement. This course may be repeated for credit with a change in subject matter. Open only with consent of instructor and department head.

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## Psychology (PSYC)

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*Head of Department:* Professor Charles Lowe  
*Department Office:* Room 105, Psychology Building

For major requirements, see the College of Liberal Arts and Sciences section of this *Catalog*.

**112. Brain, Behavior and Mental Activity**

Either semester. Three credits.

Current research and concepts about the brain as related to behavioral adjustments made by human beings to their physical, biological and social environments.

**132. General Psychology I**

Either semester. Three credits. Two class periods and one 1-hour demonstration discussion. Ordinarily this course should be taken in the fall semester.

Basic principles that underlie mental processes and behavior; research methodology, biopsychology, sensation, perception, learning, memory and language.

**133. General Psychology II**

Either semester. Three credits. Required preparation: PSYC 132.

Psychology as a social science. Research methodology, developmental, personality, clinical, abnormal and social psychology.

**135. General Psychology II (Intensive)**

Either semester. Four credits. Three lecture periods and one 1-hour discussion section. Required preparation: PSYC 132. Not open for credit to students who have passed PSYC 133. May not be taken concurrently with PSYC 133.

Psychology as a social science. Research methodology, developmental, personality, clinical, abnormal and social psychology. Applications of theory, writing, and demonstrations during discussion periods.

**202Q. Principles of Research in Psychology**

Either semester. Four credits. Three 1-hour lectures and one 2-hour laboratory/discussion. Prerequisite: PSYC 135 or 133 and STAT 100 or 110 (or Statistics Q 100 level). Open to sophomores.

Design and analysis of psychological research. Experimental and quasi-experimental designs, laboratory and correlational techniques, research ethics.

**210W. Laboratory in Cognition**

Semester by arrangement. Three credits. One 3-hour laboratory period and additional hours by arrangement. Prerequisite: PSYC 202Q, and PSYC 220 or 256, which may be taken concurrently. *Rueckl*

Selected experiments from the following topics: memory processes, categorization, language comprehension and problem solving.

**211W. Psycholinguistics Laboratory**

Either semester. Three credits. Two 3-hour laboratory periods. Prerequisite: PSYC 202Q. Required preparation: PSYC 221 or PSYC 256 or LING 202. May be taken concurrently. *Tabor*

Introduction to the experimental study of language understanding and use. Topics selected from among speech perception, word recognition, sentence processing, language production, and corpus phenomena.

**215W. Laboratory in Sensation and Perception**

Semester by arrangement. Three credits. Two 3-hour laboratory periods. Prerequisite: PSYC 201Q or 202Q, and PSYC 254, which may be taken concurrently. *Carello, Growney*

Techniques for the study of sensory capacities and perceptual processes.

**220. Learning**

Either semester. Three credits. Prerequisite: PSYC 135 or 133. Open to sophomores.

Learning and memory principles found in animal research and their relationship to human behavior. Human and other species' specific types of unique learning abilities.

**221. The Psychology of Language**

First semester. Three credits. Prerequisite: PSYC 135 or 133. *Shankweiler*

Those aspects of language that make it a uniquely efficient vehicle for communication and thought.

**232W. Laboratory in Development Psychology**

Second semester. Four credits. Prerequisite: PSYC 236 and PSYC 202Q. *Naigles*

The techniques necessary for performing psychological research on young children; advanced topics.

**236. Developmental Psychology**

Either semester. Three credits. Prerequisite: PSYC 135 or 133. Open to sophomores. *Gustafson, Sanders*

Social behavior, personality, perception, cognition, language, intelligence, learning, biobehavioral processes, and research methodology in developmental perspective.

**238. Child Psychology**

Either semester. Three credits. Prerequisite: PSYC 236. *Dickerson*

Historical and contemporary theories of development. Includes Piaget, Vygotsky, Freud, Erikson, social-learning theory, ethological theory, and information-processing theory.

**239. Current Topics in Developmental Psychology**

Either semester. Three credits. Prerequisite: PSYC 236 or consent of instructor. With change of topic, may be repeated for credit.

Selected topics (e.g., infant development, peer relations, cognitive development, and developmental psychobiology) that may vary with each offering.

**239W. Current Topics in Developmental Psychology**

240. **Social Psychology**  
Either semester. Three credits. Prerequisite: PSYC 135 or 133. Open to sophomores.

Attitudes, social cognition, social influence, interpersonal relations, group dynamics.

**241. Current Topics in Social Psychology**

Semester by arrangement. Three credits. Prerequisite: PSYC 240 and consent of instructor. With a change in content, this course may be repeated for credit.

Selected topics (e.g., social influence, person perception, pro-social behavior) vary with each offering.

**241W. Current Topics in Social Psychology****242. Laboratory in Social Psychology**

Semester by arrangement. Three credits. Two class periods and one 2-hour research/laboratory period. Prerequisite: PSYC 202Q or STAT 110; PSYC 240, and consent of instructor.

Methods and techniques of research in social psychology. Supervised research investigations.

**242W. Laboratory in Social Psychology****243. The Study of Personality**

Either semester. Three credits. Prerequisite: PSYC 135 or 133. Open to sophomores. *Kirsch*

Theories, methods, and research in both clinical and experimental approaches to personality.

**244. Laboratory in Personality**

First semester. Three credits. One 2-hour laboratory period. Class experimentation and some practice in research writing. Prerequisite: PSYC 202Q or STAT 110, PSYC 243, and consent of instructor.

Experimental design and methodology in personality research, followed by a class project written individually by each student.

**244W. Laboratory in Personality****245. Abnormal Psychology**

Either semester. Three credits. Prerequisite: PSYC 135 or 133. *Schwarz*

† Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

Nature of abnormal behavior, theories and data regarding symptoms, etiology, treatment and prevention of mental disorders.

**245W. Abnormal Psychology**

**246. Psychology of Women**

Either semester. Three credits. Prerequisite: Three credits of 200-level psychology. *Crawford*

Gender roles, socialization, women and work, women's relationships, violence against women, and other topics. Theory and research.

**246W. Psychology of Women**

**248. Environmental Psychology**

Either semester. Three credits. Prerequisite: PSYC 240.

Reciprocal relationships between built and natural environments and human behavior.

**249. Emotional/Behavioral Disorders of Childhood**

Either semester. Three credits. Prerequisite: PSYC 236.

Theory, research, treatment, and prevention in developmental psychopathology from infancy through adolescence.

**253. Animal Behavior**

Either semester. Three credits. Prerequisite: BIOL 100 or 102 or 107, and PSYC 132. *Maxson, Miller*

Principles of animal behavior derived from a review of descriptive and analytic studies in laboratory and field. Sometimes offered in multimedia format.

**253W. Animal Behavior**

**254. Sensation and Perception**

Either semester. Three credits. Prerequisite: PSYC 135 or 133.

Sensory and perceptual processes in vision, hearing, touch, taste, and smell.

**255. Motivation and Emotion**

Either semester. Three credits. Prerequisite: PSYC 135 or 133.

Cognition, brain mechanisms, biofeedback, aggression, sex, competence, social influence, and conformity.

**256. Cognitive Psychology**

Either semester. Three credits. Prerequisite: PSYC 135 or 133. Open to sophomores. *Rickards, Rueckl*

Different views of mental representation and processes involved in memory, language comprehension, perception, attention, and problem solving. Historical development of models in cognitive psychology.

**257. Physiological Psychology**

Either semester. Three credits. Prerequisite: BIOL 100 or 102 or 107 or Biology: PNB 264-265, and PSYC 132. Open to sophomores. *Salamone, Swadlow*

Physiological processes related to motivation, emotion, sensory processes, motor skills, learning, and psychiatric conditions.

**257W. Physiological Psychology**

**258. Hormones and Behavior**

Either semester. Three credits. Prerequisite: PSYC 132 and BIOL 100 or 102 or 107, and PSYC 257 or BIOL 262 (which may be taken concurrently), or consent of instructor.

Interactions among hormones, behavior, and psychological states and processes.

**260. Computer Modelling of Cognitive Processes**

Semester by arrangement. Three credits. Prerequisite: PSYC 254 or 256. *Dickerson*

Symbolic and connectionist approaches to modeling vision, problem solving, planning, deduction, language understanding, learning, and memory.

**263. Laboratory in Animal Behavior and Learning**

Semester by arrangement. Three credits. One 3-hour laboratory period and additional hours by arrangement. Prerequisite: PSYC 202Q, 253, and consent of instructor. *Salamone*

A laboratory course to supplement PSYC 253.

**263W. Laboratory in Animal Behavior and Learning**

**267. Laboratory in Physiological Psychology**

Semester by arrangement. Three credits. One 3-hour laboratory period and additional hours by arrangement. Prerequisite: PSYC 202Q, and PSYC 257, which may be taken concurrently.

Techniques employed in experimental investigation of the anatomical and physiological bases of behavior.

**267W. Laboratory in Physiological Psychology**

**268. Industrial Psychology**

Either semester. Three credits. Prerequisite: PSYC 135 or 133. *Barnes-Farrell, Henning, Mellor, Sohn*

Applications of psychology in the workplace: Measurement, personnel decisions, performance appraisal, training, motivation, worker attitudes, leadership, ergonomics and job design, workplace health and safety.

**269. Introduction to Clinical Psychology**

Either semester. Three credits. Prerequisite: PSYC 135 or 133 and 245 or 245W.

History of clinical psychology as a profession; graduate training and ethical responsibilities; assessment and treatment of psychological disorders; and clinical sub-specialties.

**272. Psychology of Aging**

Either semester. Three credits. Prerequisite: PSYC 135 or 133.

Psychological theories and research on adult development and aging. Focus on self development from adolescence through young adulthood, midlife and later life.

**278. Human Factors Design**

Either semester. Three credits. Prerequisite: PSYC 135 or 133. Recommended preparation: PSYC 268. *Henning*

Human factors/ergonomics design applied to human-machine and sociotechnical systems. Independent work in conjunction with class project.

**281. Psychological Tests and Measurements**

Second semester. Three credits. Prerequisite: PSYC 135 or 133, and PSYC 202Q or STAT 110.

Individual differences, measurement theory, issues of validity, reliability, and sampling. Intelligence, achievement, personnel, vocational, and personality testing.

**282W. Social-Organizational Psychology**

Either semester. Three credits. Required preparation: PSYC 268 or PSYC 240 or any 200-level Management course. *Lowe*

Social psychological phenomena in organizational settings. Motivation, leadership, decision-making, and group productivity.

**290. Foreign Study**

Either or both semesters. Credits and hours by arrangement. May be repeated for credit. Consent of Department Head or advisor may be required prior to the student's departure.

Special topics taken in a foreign study program.

**291. The History and Systems of Psychology**

Either semester. Three credits. Prerequisite: PSYC 135 or 133. Not open for credit to students who have passed PSYC 291W.

Philosophical and scientific origins and major schools, including structuralism, functionalism, behaviorism, gestalt, and psychoanalysis.

**291W. The History and Systems of Psychology**

**292. Variable Topics**

Either semester. Three credits. With a change in topic, may be repeated for credit. Prerequisites, required preparation, and recommended preparation vary.

**294. Field Experience**

Either semester. Credits, not to exceed six per semester, and hours by arrangement. Prerequisite: PSYC 135 or 133. Open only with consent of instructor. With a change in content, this course may be repeated for credit.

Supervised field work in clinical, community, or organizational settings.

**295. Seminar in Psychology**

Semester by arrangement. Three credits. Prerequisite: PSYC 135 or 133 and consent of instructor. With a change in content, may be repeated for credit.

Recent developments in psychology. Topics vary with each offering.

**296W. Senior Thesis in Psychology**

Either semester. Three credits. Hours by arrangement. Prerequisite: Three credits of PSYC 297 or PSYC 299. Open only to Honors students with consent of instructor and Department Head.

**297. Undergraduate Research**

Either semester. Credits, not to exceed six per semester, and hours by arrangement. Open only with consent of instructor. Prerequisite: PSYC 202Q. With a change in content, this course may be repeated for credit.

Participant activities related to research.

**298. Special Topics**

Either semester. Credits and hours by arrangement. With a change in content, may be repeated for credit. Prerequisites, required preparation, and recommended preparation vary.

**299. Independent Study**

Either semester. Credits and hours by arrangement. Prerequisite: PSYC 202Q. Open only with consent of instructor. With a change in content this course may be repeated for credit.

Students are expected to develop their own plan for a research project, conduct the research, and write-up this research, consulting periodically with a faculty member.

**Puerto Rican & Latino Studies  
(PRLS)**

*Director, Institute for Puerto Rican & Latino Studies:*

Professor Scott Cook

*Office:* Room 413, Beach Hall, 4th floor

**241. Latin American Minorities in the United States**

(Also offered as Anthropology 241). First semester. Three credits.

Emphasis on groups of Mexican, Puerto Rican and Cuban origin, including treatment and historical background, social stratification, informal social relations, ethnic perceptions, relations and the concept of Latino identity.

**260. Media and Special Audiences**

(Also offered as COMS 260.) Either semester. Three credits. Recommended preparation: COMS 102. *Rios*

Media content and audience responses. Ethnic, racial, and gender issues in mainstream and ethnic media. Special audiences include Latina/os, African Americans, Asian Americans, Women, Gays, Lesbians.

**295. Variable Topics in Puerto Rican and Latino Studies**

Either semester. Three credits. With a change in topic, may be repeated for credit.

Intensive study of specialized topics not ordinarily covered in the undergraduate curriculum, taught by visiting scholars or joint appointment faculty.

**298. Special Topics in Puerto Rican and Latino Studies**

Either or both semesters. Three credits. With a change in topic, may be repeated for credit.

Special topics in Puerto Rican and Latino Studies.

**299. Independent Study in Puerto Rican and Latino Studies**

Either semester. Credits and hours by arrangement. With a change in content, this course may be repeated for credit. Consent of the instructor.

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## Science (SCI)

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**110. Humans and the Changing Global Environment**

Either semester. Three credits.

An introduction to the basic scientific principles that govern the interaction between human beings and their environment. Emphasis is placed on understanding the ways in which environmental processes affect humanity and the ways in which human activities affect the environment.

**150. Unifying Concepts in Biology, Chemistry and Physics**

First semester. Four credits. Three lecture periods and one 2-hour laboratory. Prerequisite: Must have passed Q-readiness test or MATH 101. *Knox, Markowitz, Shaw, Terry*

A laboratory course introducing unifying concepts from biology, chemistry, and physics and their application to daily life. Includes examination of the scientific process and current scientific ideas.

**193. Foreign Study**

Either or both semesters. Credits and hours by arrangement. May be repeated for credit. Consent of the program director normally before the student's departure to study abroad. How credits are used to be determined by the College Dean and/or Advisor.

Special topics taken in a foreign study program.

**206. Introduction to the History of Science**

(Also offered as History 206.) First semester. Three credits. Open to sophomores. This course may be used only once to meet the distribution requirement.

Rise and development of scientific inquiry; case studies designed to illustrate problems and methods in the study of the history of science.

**240. The Nature of Scientific Thought**

Second semester. Three credits. Open to sophomores.

An inquiry into the underlying assumptions and aims of scientific knowledge. Emphasis is placed on philosophical issues generated by current theories in the physical and biological sciences.

**241. Seminar in the Nature of Scientific Thought**

Second semester. One credit. One class period. Prerequisite: SCI 240 must be taken concurrently. Open to sophomores.

Discussions based on the content of Science 240.

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## Sociology (SOCl)

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*Head of Department:* Professor Wayne Villemez

*Department Office:* Room 115, Manchester Hall

For major requirements, see the College of Liberal Arts and Sciences section of this *Catalog*.

**107. Introduction to Sociology**

Either semester. Three credits.

Modern society and its social organization, institutions, communities, groups, and social roles: the socialization of individuals, family, gender, race and ethnicity, religion, social class, crime and deviance, population, cities, political economy, and social change.

**107W. Introduction to Sociology**

Prerequisite: ENGL 105 and 109; ENGL 109 may be taken concurrently.

**115. Social Problems**

Either semester. Three credits.

Major social problems, their sources in the organization of society, public policies for their alleviation, and questions of ethics and social justice: alcohol and drug abuse, physical and mental illness, sexual variances, poverty and inequality, ethnic and racial prejudice and discrimination, women and gender, the changing family, violence, crime and delinquency, the environment, urban problems, and population planning and growth.

**115W. Social Problems**

Prerequisite: ENGL 105 and 109; ENGL 109 may be taken concurrently.

**125. Race, Class, and Gender**

Either semester. Three credits.

Race, class, and gender, as they structure identities, opportunities, and social outcomes.

**125W. Race, Class, and Gender****205. Methods of Social Research**

Either semester. Three credits. Prerequisite: SOCI 107.

Quantitative and qualitative methods used in sociological research: designs for gathering data, problems of measurement, and techniques of data analysis. Lectures and laboratory work. Majors in sociology should take this required course in their junior year.

**207Q. Quantitative Methods in Social Research**

Either semester. Three credits. Prerequisite: SOCI 205 or consent of instructor; and STAT 100 or 110.

Practical work in the design and execution of research, hypothesis testing, data analysis, and interpretation.

**208C. Computing in the Social Sciences**

Either semester. Three credits. One 2-hour lecture and one 2-hour laboratory per week. Prerequisite: Q course and SOCI 205 or equivalent. *Oates*

Introduction to applied computing skills using a statistical package.

**209. Applying Sociology to Social Issues**

Either semester. Three credits. Prerequisite: SOCI 107 and 205 or consent of instructor. *Ratcliff*

Applying sociology and its methods to ask research questions, gather information, and evaluate social programs.

**212. Language and Society**

Either semester. Three credits.

Linguistic construction of social reality, social variations in speech behavior, and political issues.

**216. Criminology**

Either semester. Three credits. Open to sophomores.

*DeFronzo, Logan*

Theories and research on crime, criminal law, and the criminal justice system.

**216W. Criminology**

Open to sophomores.

**217. Deviant Behavior**

Either semester. Three credits. *McNeal*

Behaviors labeled by society as deviant, such as crime, prostitution, suicide, alcoholism, drug abuse, and mental illness.

**217W. Deviant Behavior****218. Juvenile Delinquency**

Second semester. Three credits. *Wright*

An overview of sociological theory and research on juvenile delinquency.

**218W. Juvenile Delinquency****219. Drugs and Society**

Either semester. Three credits. *Sanders*

Drug taking as a social problem, the "war on drugs," drug education, treatment and prevention approaches, the illegal drug market.

**219W. Drugs and Society****221. Sociological Perspectives on Asian American Women**

(Also offered as AASI 221.) Either semester. Three credits. *Purkayastha*

An overview of social structures and inter-group relations focusing on the experience of Asian American women.

**221W. Sociological Perspectives on Asian American Women**

(Also offered as AASI 221W.)

**226. Modern Africa**

Either semester. Three credits. *Gugler*

Cultural patterns, social structure, and political conflict in Sub-Saharan Africa.

**226W. Modern Africa****227. Revolutionary Social Movements Around the World**

Either semester. Three credits. One 3-hour class per week. Open to sophomores. *DeFronzo*

Lectures and documentary films on the Russian, Chinese, Vietnamese, Cuban and Nicaraguan revolutions and movements in South Africa and the Middle East.

**227W. Revolutionary Social Movements Around the World**

**230. Society and the Individual**

Either semester. Three credits. Prerequisite: SOCI 107. *Dashefsky, Oates*

Modern social systems and the behavior, psychological organization, and development of individuals.

**230W. Society and the Individual****235. African Americans and Social Protest**

Either semester. Three credits. *Cazenave*

Social and economic-justice movements, from the beginning of the Civil Rights movement to the present.

**236. White Racism**

Either semester. Three credits. *Cazenave*

The origin, nature, and consequences of white racism as a central and enduring social principle around which the United States and other modern societies are structured and evolve.

**240. Ethnicity and Race**

Either semester. Three credits. *Oates, Villemez*

Ethnic groups, their interrelations, assimilation, and pluralism. Culture, and identity that arise from differences in race, religion, nationality, region, and language.

**240W. Ethnicity and Race****241. Women and Health**

Either semester. Three credits. *Ratcliff*

Social factors shaping women's health, health care, and their roles as health-care providers.

**242. American Jewry**

(Also offered as JUDS 242.) Either semester. Three credits. *Dashefsky*

Historical, demographic, organizational, and sociopsychological perspectives.

**242W. American Jewry****243. Prejudice and Discrimination**

Either semester. Three credits. *McNeal, Taylor*

Sources and consequences of racial and ethnic prejudice and discrimination.

**243W. Prejudice and Discrimination****244. Sociology of Mental Illness**

Either semester. Three credits. *Broadhead, Oates*

Madness in human societies; its history, incipience, epidemiology, etiology, institutionalization, and other issues.

**244W. Sociology of Mental Illness****246. Human Sexuality**

Either semester. Three credits. Open to sophomores.

How sexual behavior is molded by culture and social structure. Among the topics are premarital sex, homosexuality, pornography, and rape.

**246W. Human Sexuality**

Open to sophomores.

**247. Sociology of Health**

Either semester. Three credits. *Ratcliff*

Social factors related to health, illness, and health-care systems.

**247W. Sociology of Health****248. Aging in American Society**

(Also offered as HDFR 248.) Either semester. Three credits. This course may be used only once to meet the distribution requirements. *Sheehan*

Social gerontology: the role and status of older people in a changing society.

**248W. Aging in American Society**

(Also offered as HDFR 248W.)

**249. Sociological Perspectives on Poverty**

Either semester. Three credits. *Cazenave, Neubeck, Villemez*

Poverty in the U.S. and abroad, its roots, and strategies to deal with it.

**249W. Sociological Perspectives on Poverty****250. Sociology of the Family**

Either semester. Three credits. Open to sophomores. *McDonald*

The American family, its changing forms and values, and the social conditions influencing it: mate selection, marital adjustment, the responsibilities and opportunities of parenthood, and resolving family crises.

**250W. Sociology of the Family****252. Sociological Perspectives on Women**

Either semester. Three credits. *Ferree, McDonald, Tuchman*

The status of women in American society.

**252W. Sociological Perspectives on Women****253. Sociology of Religion**

Either semester. Three credits.

Religion in social context: differences of church, denomination, sect, and cult; religious culture, organization, and ideology.

**253W. Sociology of Religion****255. Population**

Either semester. Three credits. *Hadden*

Size, growth, composition and distribution of population; social factors in population change.

**255W. Population****258. The Developing World**

Either semester. Three credits. *Gugler*

Social and economic conditions in Asia, Africa, and Latin America and attempts to improve them.

**258W. The Developing World****259. Energy, Environment, and Society**

Either semester. Three credits.

Sociological perspectives on energy production, distribution and consumption, environmental, and social organization.

**259W. Energy, Environment, and Society****260. Social Organization**

Either semester. Three credits. Prerequisite: SOCI 107. *Villemez, Weakliem*

Social organization and structure in modern society. Sociology majors should take this required course in their junior year.

**260W. Social Organization****267. Public Opinion and Mass Communication**

Either semester. Three credits. *Ferree, Tuchman*

Contemporary public opinion and ideology, the process and effects of mass communication, and the measurement of public opinion.

**267W. Public Opinion and Mass Communication****268. Class, Power, and Inequality**

Either semester. Three credits. *Glasberg, Neubeck, Villemez*

Inequality and its consequences in contemporary societies.

**268W. Class, Power, and Inequality****269. Political Sociology**

Either semester. Three credits. *Glasberg, Neubeck, Weakliem*

Social analysis of power, democracy and voting, society and the state, and political economy.

**269W. Political Sociology****270. Social Theory**

Either semester. Three credits. Prerequisite: SOCI 107. *McDonald, Tuchman*

Sociological theory for advanced undergraduates.

**270W. Social Theory****274. Work and Occupations**

Either semester. Three credits. *McDonald, Villemez*

Occupations, jobs, careers, and the professions, and their effects on the division of labor, on the workplace, and on individuals in the labor force.

**275. Collective Bargaining**

Either semester. Three credits.

Labor-management relations, with emphasis on issues of public policy.

**280. Urban Sociology**

(Also offered as Urban Studies 280.) Either semester. Three credits. Open to sophomores. *Abrahamson, Gugler*

Social and physical organization of cities and suburbs.

**280W. Urban Sociology**

(Also offered as Urban Studies 280W.) Open to sophomores.

**281. Urban Problems**

(Also offered as Urban Studies 281.) Either semester. Three credits.

Social problems of American cities and suburbs, with emphasis on policy issues.

**281W. Urban Problems****282. Urbanization**

Either semester. Three credits. *Gugler*

The rapid urbanization of the world's population: its causes, characteristics and consequences.

**282W. Urbanization****283. City Life**

Either semester. Three credits.

Ways of life in large cities and suburbs and the culture of modernism.

**283W. City Life****285. Social Welfare and Social Work**

Either semester. Three credits. Open to seniors in the social sciences; to others only with consent of instructor.

Social welfare needs and programs; introduction to social work as a professional service.

**288. Sociology of Education**

Either semester. Three credits. *McNeal*

Education and society: primary schools through universities as agencies for social selection and socialization.

**288W. Sociology of Education**

**290. Social Movements and Social Change**

Either semester. Three credits.

Revolutionary, reform, reactionary, religious, communal, and escapist movements.

**290W. Social Movements and Social Change****293. Foreign Study**

Either or both semesters. Credits and hours by arrangement up to a maximum of six credits. Consent of Department Head required, preferably prior to the student's departure.

Special topics in a foreign-study program.

**294W. Senior Thesis in Sociology**

Either semester. Three credits. Prerequisite: Fifteen credits in sociology and consent of instructor and Department Head.

**296. Field Experience**

Either semester. Variable (1-9) credits, by arrangement. Class and field work by arrangement with instructor and field agency. May be repeated for credit, not to exceed 9 credits total for 296 and 296W. Prerequisite: Sociology 107. *Logan, Neubeck, Ratcliff*

Internship in a social-welfare agency or institution.

**296W. Field Experience**

Three credits may be taken for W credit.

**297. Variable Topics**

Either semester. Three credits. With a change in topic, may be repeated for credit. Prerequisites, required preparation, and recommended preparation vary.

**298. Special Topics**

Either semester. Credits and hours by arrangement. With a change in content, may be repeated for credit. A lecture course. Topics vary by semester.

**299. Independent Study**

Either semester. Credits and hours by arrangement. Open only with consent of instructor. With a change in content, may be repeated.

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## Statistics (STAT)

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*Head of Department:* Professor D. Dey  
*Department Office:* Room 428, Mathematical Sciences Building

For major requirements, see the College of Liberal Arts and Sciences section of this *Catalog*.

Credit restrictions: 100 level statistics courses are not open for credit to students who have passed a 200 level statistics course or who are taking such a course concurrently. Students can receive no more than four credits from Statistics 100 and 110.

**100V. Introduction to Statistics I (Q, C)**

Either semester. Four credits. Three class periods and one discussion period. See credit restrictions above.

A standard approach to statistical analysis primarily for students of business and economics; elementary probability, sampling distributions, normal theory estimation and hypothesis testing, regression and correlation, exploratory data analysis. Learning to do statistical analysis on a personal computer is an integral part of the course.

**110V. Elementary Concepts of Statistics (Q, C)**

Either semester. Four credits. Three class periods and one discussion period. See credit restrictions above.

Standard and nonparametric approaches to statistical analysis; exploratory data analysis, elementary probability, sampling distributions, estimation and hypothesis testing, one- and two-sample procedures, regression and correlation. Learning to do

statistical analysis on a personal computer is an integral part of the course.

**201Q. Introduction to Statistics II**

Either semester. Three credits. Prerequisite: STAT 100 or 110. Open to sophomores.

Analysis of variance, multiple regression, chi-square tests, and non-parametric procedures.

**220Q-221Q. Statistical Methods (Calculus Level)**

Either semester. Three credits each semester. Required preparation: MATH 114 or 116 or 121.

Basic probability distributions, point and interval estimation, tests of hypotheses, correlation and regression, analysis of variance, experimental design, non-parametric procedures.

**224Q. Probability Models for Engineers**

Either semester. Three credits. Required preparation: MATH 210Q or 220Q. Students may not receive more than three credits from STAT 224 and STAT 220 or from STAT 224 and STAT 230.

Probability set functions, random variables, expectations, moment generating functions, discrete and continuous random variables, joint and conditional distributions, multinomial distribution, bivariate normal distribution, functions of random variables, central limit theorems, computer simulation of probability models.

**230Q-231Q. Introduction to Mathematical Statistics**

Both semesters. Three credits each semester. Required preparation: MATH 210 or 220. Students may not receive credit for both STAT 230 and 315, or both STAT 231 and 316.

The mathematical theory underlying statistical methods. Probability spaces, distributions in one and several dimensions, generating functions, limit theorems, sampling, parameter estimation. Neyman-Pearson theory of hypothesis testing, correlation, regression, analysis of variance.

**235Q. Elementary Stochastic Processes**

(Also offered as MATH 232Q.) Either semester. Three credits. Required preparation: STAT 220 or 224 or 230 or MATH 231. Not open for credit to students who have passed MATH 232Q.

Conditional distributions, discrete and continuous time Markov chains, limit theorems for Markov chains, random walks, Poisson processes, compound and marked Poisson processes, and Brownian motion. Selected applications from actuarial science, biology, engineering, or finance.

**242Q. Analysis of Experiments**

Either semester. Three credits. Required preparation: STAT 201 or 220 or consent of instructor. Credit may not be received for both STAT 242 and 342.

Straight-line regression, multiple regression, regression diagnostics, transformations, dummy variables, one-way and two-way analysis of variance, analysis of covariance, stepwise regression.

**243Q. Design of Experiments**

Second semester. Three credits. Required preparation: STAT 201 or 220 or consent of instructor. Credit may not be received for both STAT 243 and 343.

Methods of designing experiments utilizing regression analysis and the analysis of variance.

**252Q. Sampling Theory**

Either semester. Three credits. Prerequisite: STAT 231 or consent of instructor.

Sampling and nonsampling error, bias, sampling design, simple random sampling, sampling with unequal probabilities, stratified sampling, optimum

allocation, proportional allocation, ratio estimators, regression estimators, super population approaches, inferences in finite populations.

**253Q. Nonparametric Methods**

First semester. Three credits. Prerequisite: STAT 231 or consent of instructor.

Basic ideas, the empirical distribution function and its applications, uses of order statistics, one- two- and c-sample problems, rank correlation, efficiency.

**261V. Statistical Computing**

Second semester. Four credits. Required preparation: STAT 220 or STAT 230. Recommended preparation: An applied statistics course. Open only with consent of instructor.

Introduction to computing for statistical problems; obtaining features of distributions, fitting models and implementing inference (obtaining confidence intervals and running hypothesis tests); simulation-based approaches and basic numerical methods. One hour per week devoted to computing and programming skills.

**271V. Statistical Quality Control and Reliability**

Either semester. Three credits. Required preparation: STAT 231.

Development of control charts, acceptance sampling and process capability indices, reliability modeling, regression models for reliability data, and proportional hazards models for survival data.

**272Q. Introduction to Biostatistics**

Either semester. Three credits. Required preparation: STAT 220 or an applied statistics course along with either STAT 230 or MATH 231 or consent of instructor.

Rates and proportions, sensitivity, specificity, analysis of two-way tables, odd ratios, relative risk, ordered and nonordered classifications, trends, case-control studies, review of basic regression, logistic regression, additivity and interaction, Poisson regression, survival analysis, combining studies and meta-analysis.

**280V. Applied Time Series**

Either semester. Three credits. Required preparation: STAT 231 or consent of instructor.

Introduction to prediction using time-series regression methods with non-seasonal and seasonal data. Smoothing methods for forecasting. Modeling and forecasting using univariate, autoregressive, moving average models.

**284Q. Probability and Statistics Problems**

(Also offered as MATH 284Q.) Either semester. One or two credits. Hours by arrangement. Required preparation: MATH 231 and STAT 230. Not open for credit to students who have passed MATH 284.

Designed to help students prepare for the second actuarial examination.

**286Q. Introduction to Operations Research**

(Also offered as MATH 286Q and STAT 356.) Either semester. Three credits. Required preparation: MATH 231 or STAT 220 or 230. Not open for credit to students who have passed MATH 286 or STAT 356.

Introduction to the use of mathematical and statistical techniques to solve a wide variety of organizational problems. Topics include linear programming, network analysis, queueing theory, decision analysis.

**†294. Field Study Internship**

Either semester. Credits and hours by arrangement. Prerequisites: Completion of Lower Division General CLAS requirements. Completion with a grade of "C" or better of STAT 220 or STAT 230 and STAT 242 or STAT 243.

Supervised field work relevant to some area of Statistics with a regional industry, government agency, or non-profit organization. Evaluated by the field supervisor and by the instructor (based on a detailed written report submitted by the student).

**295. Variable Topics**

Either semester. Three credits. With a change in topic, may be repeated for credit. Prerequisites, required preparation, and recommended preparation vary.

**296. Undergraduate Research**

Either semester. Three credits. Hours by arrangement. Open only with consent of instructor.

Supervised research in probability or statistics. A final written report and oral presentation are required.

**298. Special Topics**

Either semester. Credits and hours by arrangement. With a change in content, may be repeated for credit. Prerequisites, recommended preparation, required preparation vary.

**299. Independent Study**

Either semester. Credits and hours by arrangement.

Open only with consent of instructor. May be repeated for credit.

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## Urban Studies (URBN)

*Director, Urban Studies Program:* Thomas J. Cooke  
*Office:* Room 444, Beach Hall

For major requirements, see the College of Liberal Arts and Sciences section of this *Catalog*.

**130. The City in the Western Tradition**

(Also offered as Geography 130.) Either semester. Three credits. *Allen, Cooke, Halvorson*

A broad discussion of the role and structure of the city in the western tradition from ancient Mesopotamia to contemporary America. Special emphasis will be placed on the mechanisms by which cities and ideas about them have been diffused from one place to another and on the changing forces that have shaped the western city.

**230. Introduction to Urban Studies**

Second semester. Three credits. Open to sophomores. *Halvorson*

Introduction to the analysis of urban development with particular stress on those problems pertinent to the American central city. This course is also listed under Anthropology, Geography, and Sociology.

**†231. Internship in Urban Studies: Field Study**

Either semester. Credits, not to exceed three, by arrangement. Hours by arrangement with hosting agency. To be elected concurrently with URBN 232. Prerequisite: Consent of instructor. *Cooke*

A fieldwork internship program under the direction and supervision of a member of the Urban Studies faculty. Students will be placed in agencies or industries where their academic training will be applied. One 8-hour work day per week (or its equivalent) for the host agency during the course of the semester will be necessary for three academic credits.

**232. Internship in Urban Studies: Seminar**

Either semester. Credits, not to exceed three, by arrangement. To be elected concurrently with URBN 231. Prerequisite: Consent of instructor. *Cooke*

Description, analysis, and evaluation of the fieldwork portion (URBN 231) of the internship. Written reports are required.

**233. Urban Geography**

(Formerly offered as Urban Studies 212.) (Also offered as Geography 233.) Either semester. Three credits. Not open for credit to students who have passed GEOG 233. *Halvorson, Meyer*

Analysis of the growth, distribution, and functional patterns within and among Western cities. Particular attention is placed on applying urban geographical concepts to city planning problems.

**241. The History of Urban America**

(Also offered as History 241.) Second semester. Three credits. Not open for credit to students who have passed HIST 241. *Stave*

The development of urban America with emphasis on social, political, physical, and environmental change in the industrial city.

**241W. The History of Urban America**

(Also offered as History 241W.)

**248. Urban Anthropology**

(Also offered as Anthropology 248.) First semester. Three credits. Not open for credit to students who have passed ANTH 248. *Magubane*

A general course on urbanization, emphasizing contrasts between "developed" and "developing" countries.

**259. Urban and Regional Economics**

(Also offered as Economics 259.) Second semester. Three credits. Required preparation: ECON 112 or 113. Recommended preparation: ECON 111. Not open for credit to students who have passed ECON 259.

Economic problems of cities and regions: urban markets for land, labor, and housing; location decisions of businesses and households; metropolitan transportation problems; urban/suburban fiscal relations; urban and regional environmental quality; and the economics of crime.

**263W. Urban Politics**

(Also offered as Political Science 263W.) Either semester. Three credits. Not open for credit to students who have passed POLS 263.

Political systems and problems confronting urban governments.

**280. Urban Sociology**

(Also offered as Sociology 280.) Either semester. Three credits. Open to sophomores. Not open for credit to students who have passed URBN/SOCI 286. *Abrahamson, Allen, Gugler*

Social and physical organization of cities and suburbs.

**280W. Urban Sociology**

(Also offered as Sociology 280W.) Open to sophomores.

**281. Urban Problems**

(Also offered as Sociology 281.) Either semester. Three credits. Not open for credit to students who have passed URBN/SOCI 284.

Social problems of American cities and suburbs with emphasis on policy issues.

**281W. Urban Problems**

(Also offered as Sociology 281W.)

**295. Variable Topics**

Either semester. Three credits. With a change in topic, may be repeated for credit. Prerequisites, required preparation, and recommended preparation vary.

**298. Special Topics**

Either semester. Credits and hours by arrangement. With a change in content, may be repeated for credit. Prerequisites, required preparation, and recommended preparation vary.

**299. Independent Study**

Either or both semesters. Credits and hours by arrangement. Prerequisite: Consent of instructor. May be repeated for credit.

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## Women's Studies (WS)

*Director, Women's Studies Program:* Mary Crawford  
*Office:* Room 425 Beach Hall

For major requirements, see the College of Liberal Arts and Sciences section of this *Catalog*.

**103. Introduction to Women's Studies in the Social Sciences**

(Formerly offered as INTD 103.) First semester. Three credits. Not open for credit to students who have passed INTD 102.

An introduction to research on women and gender in a variety of social science fields. Considers interpersonal relationships, socioeconomic status, power and authority as women experience them and explores the myths and realities of difference between women and men, and of differences among women of different race, class or ethnic backgrounds in the U.S.

**104. Introduction to Women's Studies in the Arts**

(Formerly offered as INTD 104.) Second semester. Three credits. Not open for credit to students who have passed INTD 102.

Interdisciplinary examination of the representations of women and works by women in one or more of the following genres – drama, art, music, or film. Key issues of feminist criticism and scholarship in the arts are introduced and discussed.

**124. Changing Roles of Women and Men: A Global Perspective**

(Formerly offered as INTD 124.) Either semester. Three credits.

Exploration of the social position and relations of women and men (political, economic, cultural and familial) in selected non-western societies. Emphasis is given both to understanding the origins of culturally distinctive patterns and to recognizing the ways in which these relationships have been and are being transformed.

**193. Foreign Study**

Either or both semesters. Credit and hours by arrangement. May be repeated for credit. Consent of program director required, normally before the student's departure.

**203W. Women in Political Development**

(Also offered as Political Science 203W.) Second semester. Three credits. *Creevey*

Analysis of the role of women in the process of development in Africa, Asia and Latin America. The importance of gender to the understanding of development and modernization will be explored and the ways in which change in traditional societies has affected the position of women economically, socially, and politically will be examined.

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† Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

**204. Women and Politics**

(Also offered as Political Science 204.) Either semester. Three credits.

An introduction to feminist thought, the study of women as political actors, the feminist movement and several public policy issues affecting women.

**210. History of Women and Gender in Early America**

(Also offered as History 210.) Either semester. Three credits. Not open to students who have taken HIST 202 or WS 202 before fall 1998. *Dayton*

Compares the evolving gender systems of native American groups, transplanted Africans, and immigrant Europeans up to the early Nineteenth Century. Topics include women's work, marriage and divorce, witch-hunting, masculinity, and women's Revolutionary War roles.

**215. History of Women and Gender in the United States, 1790-Present**

(Also offered as History 215.) Either semester. Three credits. Not open to students who have taken HIST 202 or WS 202 before fall 1998. *Porter-Benson*

Women and gender in family, work, education, politics, and religion. Impact of age, race, ethnicity, region, class, and affectional preference on women's lives. Changing definitions of womanhood and manhood.

**217. Women and Film**

Either semester. Three credits.

Feminist analysis of Hollywood film. Investigates women's roles as filmmaker, writer, editor, and actress as well as messages communicated to female viewers.

**231. Anthropological Perspectives on Women**

(Also offered as Anthropology 231.) First semester. Three credits. Open to sophomores. *Dussart*

Major conceptual and historical problems in the anthropological study of gender. Women's roles in different historical and contemporary settings, the emergence of new concepts of family, kinship, power, and cultural ideology.

**261. Women's Studies Internship Program**

(Formerly offered as INTD 261.) Either semester. Three to nine credits. Hours by arrangement. Required preparation: One Women's Studies course in field appropriate to placement. To be taken concurrently with WS 262. Open only with consent of Women's Studies Internship Coordinator. Transfer students who wish to major in Women's Studies are not required to take Women's Studies Internship Program.

A field placement 9-18 hours per week in an organization related to the student's major field of study. Such work is overseen by the field work supervisor, the Women's Studies Internship Coordinator and an additional faculty member when deemed appropriate.

**262. Women's Studies Internship Seminar**

(Formerly offered as INTD 262.) Either semester. Three credits. Open only with consent of Women's Studies Internship Coordinator.

A weekly seminar on women and work in which students integrate their field experience with readings, class discussion and guest lecturers.

**263. Women and Violence**

(Formerly offered as INTD 263.) Second semester. Three credits.

A discussion of the various forms of violence against women in our society, including rape, battering, incest and pornography; treats the social, political and personal meaning of violence.

**264. Gender in the Workplace**

(Formerly offered as INTD 264.) First semester. Three credits.

An examination of the role of gender in shaping the American workplace and the lives of workers. Discussion of important issues such as comparable worth and sexual harassment drawing on research done in a variety of social science disciplines.

**265. Women's Studies Research Methodology**

First semester. Three credits. Required preparation: WS 103 or WS 104 or WS 124 or HIST 121. Women's Studies majors are strongly urged to take this course as early as possible and before Philosophy 218.

Analyses gender bias in research design and practice, problems of androcentric values, and over-generalization in research. Varieties of feminist research methods and their implications for the traditional disciplines. Student projects using different methodologies.

**266. Women and Ethnicity: Changing Roles in a Changing Society**

First semester. Three credits.

An examination of the intersections of gender, race and culture as these are played out in women's studies, oral histories, and other forms of testimony. Readings and discussions will explore the myths and realities of Asian-American, Latin, and African-American women's experiences using a sociohistorical perspective.

**267. Women and Poverty**

Second semester. Three credits.

Focus on the "Feminization of Poverty" with special attention to its effects on women and their families, including emphasis on race and class differences, and on the policies that keep women in poverty and those that will bring them out of it.

**268. Gender and Communication**

Second semester. Three credits. Not open for credit to students who have passed WS 278 – Women, Language and Communication.

An examination of the cultural assumptions about gender in our major communication processes. We will draw from the new scholarship on women to critically analyze the theory and practice of communication in contemporary U.S. society.

**269. The Women's Movement**

Either semester. Three credits. Not open for credit to students who have passed WS 278.

What is feminism? Who are the feminists and what do they want? How effective has the Women's Movement been in accomplishing its goals? What are the most controversial questions it has raised? Is the Women's Movement dead or dying? We will research and discuss questions like these both through examination of the writings and activities of the contemporary Women's Movement in the United States and through historical and international comparisons.

**270. Women and Religion**

Second semester. Three credits. Not open for credit to students who have passed WS 278.

Religion has been a source of personal empowerment and social change for women throughout history. This course will examine the various roles women have assumed in religion and its effects on their position in their personal lives and in society.

**271. Seminar on Rape Education and Awareness I**

First semester. One credit. Hours by arrangement.

This course explores issues of sexual violence and trains those enrolled to facilitate rape awareness workshops for the campus community. Students are

required to attend an intensive two-day training program and participate in weekly seminars.

**272. Seminar on Rape Education and Awareness II**

Second semester. One credit. Hours by arrangement. Prerequisite: WS 271.

This course further explores broader issues of sexual violence and continues to train those enrolled to facilitate rape awareness workshops for the campus community. Students are required to participate in weekly seminars and facilitate rape awareness workshops.

**289W. Senior Seminar in Women's Studies**

Second semester. Three credits. Recommended preparation: WS 265 and Philosophy 218 (Feminist Theory) or consent of instructor. For WS majors only.

Capstone course integrating and analyzing Women's Studies theory and substance through research on a common topic and discussion of advanced texts.

**290. Ethnicities, Sexualities, Modernisms**

(Also offered as ARTH 290.) Either semester. Three credits. *Valentino*

Topics in twentieth-century visual culture (film, advertising, fine arts, crafts, literatures), with emphasis upon matters related to social constructions of ethnicity and sexuality, and upon issues raised by feminist and postcolonial theories.

**293. Foreign Study**

Either or both semesters. Credit and hours by arrangement. May be repeated for credit. Consent of program director required, normally before the student's departure. May count toward the major with consent of the director.

**295. Variable Topics**

Either semester. Three credits. With a change of topic, may be repeated for credit. Prerequisites, required preparation, and recommended preparation vary.

**298. Special Topics**

Either semester. Credits and hours by arrangement. With a change in content, may be repeated for credit. Prerequisites, required preparation, and recommended preparation vary.

**299. Independent Study**

Either semester. Credits and hours by arrangement. This course may be repeated for credit with a change in subject matter. Open only with the consent of the instructor and Women's Studies Program Director.

## Ratcliffe Hicks School of Agriculture

*Director:* Professor Suman Singha  
*Office:* 211, W.B. Young Building

For major requirements, see the Ratcliffe Hicks section of this *Catalog*.

Courses in the Ratcliffe Hicks School of Agriculture are *not* open to baccalaureate students.

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## Agriculture (SAAG)

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**001. Introduction to Computer Use**

(Formerly offered as SAME 001.) Either semester. Three credits. Two class periods and one 2-hour laboratory period.

Using the computers for solving and accessing information. Includes word-processing, spreadsheets, databases and presentation software.

**016. Introduction to Agricultural Mechanics**  
 Either semester. Two credits. One class period and one 2-hour laboratory.  
 Small gas engines, welding and other applications of agricultural equipment in animal science and horticultural operations.

**050. Freshman Seminar**  
 First semester. One credit. *Singha*  
 A course designed to assist students in adjusting to college and improving their academic performance. Freshmen will learn about university resources and facilities, and strategies relating to study skills, problem solving, time management, and setting and achieving academic and personal goals.

**090. Applied Mathematics**  
 First semester. Three credits. Not open to students who have passed the RHSA math proficiency test.  
 Practical applications of mathematical principles to problems most likely to be encountered in course work and after graduation. Topics to be included are: Basic arithmetic, percentages, ratios, fraction to decimal conversions and simple algebra. The use of graphs in the metric (SI) system will be covered. This course is required for all RHSA students except those who received exemption by exam.

**†091. Tech Prep**  
 Either semester. Credits and hours by arrangement. Total credits not to exceed 12. Open only to students enrolled in the Agricultural Education Tech Prep program.  
 Topics and credits are established through pre-approved articulation agreements.

**098. Special Topics**  
 Either semester. Credits and hours by arrangement. Open only with consent of instructor. May be repeated for credit with a change of topic.

**099. Independent Study**  
 Either or both semesters. Credits and hours by arrangement. Consent of instructor required. Course may be repeated for credit. Total credits allowed toward graduation requirements are restricted as outlined in Ratcliffe Hicks Section.  
 An independent study project is mutually arranged between a student and an instructor.

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### Agricultural and Resource Economics (SARE)

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**050. Principles of Agricultural and Resource Economics**  
 Either semester. Three credits. Prerequisite: SAAG 090 or exemption by examination. Taught concurrently with ARE 150.

An introduction to agricultural economics, the role of agriculture in today's United States economic system, and relationships that regulate the entire economic environment.

**060. Agribusiness Management**  
 Either semester. Three credits. Prerequisite: SARE 050.  
 Covers concepts and techniques essential in managing an agribusiness firm. Topics include: finance, production planning, marketing, and personnel management.

**098. Special Topics**  
 Either semester. Credits and hours by arrangement. Open only with consent of instructor. May be repeated for credit with a change of topic. Total credits allowed toward graduation requirements are restricted as outlined in Ratcliffe Hicks Section.

**099. Independent Study**  
 Either or both semesters. Credits and hours by arrangement. Consent of instructor required. Course may be repeated for credit. Total credits allowed toward graduation requirements are restricted as outlined in Ratcliffe Hicks Section.  
 An independent study project is mutually arranged between a student and an instructor.

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### Animal Science (SAAS)

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**004-005. Anatomy and Physiology of Domestic Animals**  
 Both semesters. Three credits. Two class periods and one 2-hour laboratory period. *Dinger, Riesen*

A study of the anatomy and physiology of the animal body including characteristics that impact animal production systems. The physiology of reproduction and digestion will receive emphasis. Management practices and techniques used to maximize production efficiency will be included.

**006. Nutrition and Feeding of Livestock**  
 Second semester. Three credits. Two class periods and one 2-hour laboratory period. *Stake*

This course covers the basic nutrients present in feeds and their breakdown and use by animals. Methods of describing the nutritive value and properties of commonly used feedstuffs are discussed. Nutritive requirements, ration formulations, and feeding problems and practices are covered.

**007. Animal Breeding and Genetics**  
 Second semester. Three credits. Two class periods and one 2-hour discussion/laboratory period. *Yonash*

The principles genetics, chemistry of nucleic acids, replication, transcription expression and regulation of genes, population and quantitative genetics, and modern molecular genetics approaches as tools for breeding.

**020. Introduction to Animal Science**  
 First semester. Three credits. Two class periods and one 2-hour discussion or laboratory period. Taught concurrently with ANSC 120.

The biological, physical and social factors that influence animal production and utilization.

**025. Behavior and Training of Domestic Animals**  
 Second semester. Three credits. Two class periods and one 2-hour laboratory. Taught concurrently with ANSC 125. *Darre*

Application of behavior of cattle, horses, sheep, goats, swine, and poultry to their management, training, and welfare. Basic principles of genetics and physiology of behavior, perception, training, learning, motivation, and stress with consideration of integrated behavioral management and animal welfare.

**027. Introduction to Companion Animals**  
 Second semester. Three credits. Taught concurrently with ANSC 127. *Stake*

Basic concepts of the nutrition, physiology, health and management of companion animals.

**035. Horse Production**  
 Second semester. Three credits. Two class periods and one 2-hour laboratory period. *Dinger*

This course entails the appraisal, structure, use, and management of light horses.

**036. Light Horse Training and Management**  
 First semester. Two credits. One class period and one 3-hour laboratory period. Prerequisite: SAAS 035. *Callahan*  
 The course includes instruction in the breaking and training of horses in harness and under saddle.

**037. Methods of Equitation Instruction**  
 Second semester. Two credits. One class period and one 2-hour laboratory or discussion period. Taught concurrently with ANSC 237. Consent of instructor required. *Callahan*

The techniques and procedures of teaching equitation including the theories of riding and teaching methods. Practice teaching will be required under the supervision of the instructor.

**038. Management of the Horse Breeding Farm**  
 Second semester. Three credits. One class period and two 2-hour laboratory or discussion periods. Recommended preparation: SAAS 035. *Dinger*

This course is designed to develop technical and managerial skills necessary for operating horse farms. Programs for herd health, hoof care, nutrition, breeding, foaling and record keeping will be included.

**040. Animal Products**  
 First semester. Three credits. Two class periods and one 3-hour laboratory period. *Faustman*

An introduction to meat, dairy and poultry products. Issues concerning regulatory standards, nutritive value, safety and quality assessment will be emphasized. Laboratories will emphasize the production and processing of these animal food products. Field trips may be required.

**052. Introduction to Poultry Industry**  
 Second semester. Three credits. Two class periods and one 2-hour laboratory period. *Darre*

A practical application of scientific principles in the poultry industry. It will include classification, selection methods, breeding, incubation and chick development, brooding, nutrient requirements, processing and management practices.

**†064. Management Skills and Practices – Beef Cattle**  
 Either semester. One credit. Hours by arrangement. May be repeated once for credit.

Practical experience in common management practices is offered by working in the University facilities under supervision.

**†065. Management Skills and Practices – Dairy Cattle**  
 Either semester. One credit. Hours by arrangement. May be repeated once for credit. *Kazmer*

Practical experience in common management practices is offered by working in the University facilities under supervision.

**†066. Management Skills and Practices – Horses**  
 Either semester. One credit. Hours by arrangement. May be repeated once for credit. *Bennett*

Practical experience in common management practices is offered by working in the University facilities under supervision.

**†067. Management Skills and Practices – Poultry**  
 Either semester. One credit. Hours by arrangement. May be repeated once for credit. *Darre*

Practical experience in common management practices is offered by working in the University facilities under supervision.

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† Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

**†068. Management Skills and Practices – Sheep**  
Either semester. One credit. Hours by arrangement. May be repeated once for credit. *Hoaglund*

Practical experience in common management practices is offered by working in the University facilities under supervision.

**†069. Management Skills and Practices – Swine**  
Either semester. One credit. Hours by arrangement. May be repeated once for credit. *Hoaglund*

Practical experience in common management practices is offered by working in the University facilities under supervision.

**070. Livestock Production**

First semester. Four credits. Three class periods and one 2-hour laboratory period. Offered in odd-numbered years. *Hoaglund*

Biological and economic aspects of beef, sheep, and swine production. Field trips required.

**076. Dairy Herd Management**

First semester. Three credits. Two class periods and one 2-hour laboratory period. Taught concurrently with ANSC 275. Offered in even-numbered years. *Kazmer*

This course is concerned with the biological and economical aspects of commercial milk production, including: milking, sanitation, nutrition, record keeping, and the physiology and anatomy of milk secretion.

**077. Applied Dairy Herd Management**

Second semester. Three credits. Two class periods and one 2-hour laboratory period. Taught concurrently with ANSC 277S. Offered in odd-numbered years. *Kazmer*

The organization and management of dairy farms with emphasis upon business and economic decision making. Management programs in the areas of nutrition, disease control, waste management, selection, reproduction and milking will be evaluated. Field trips are required.

**081. Horse Selection and Evaluation**

Second semester. Two credits. One 4-hour laboratory or discussion period. Taught concurrently with ANSC 281. Consent of instructor required. *Bennett*

Comparative evaluation, classification and selection of horses according to conformation, breed characteristics and performance. Judging skills including justification of placing through presentation of oral reasons will be developed. Field trips required.

**083. Livestock and Carcass Evaluation**

Second semester. Two credits. Two 2-hour laboratory periods. Taught concurrently with ANSC 283.

Classification, form to function relationships, grades and value differences of livestock are included. Objective and subjective methods of appraisal are used to evaluate beef cattle, sheep and swine.

**088. Advanced Animal and Product Evaluation**

First semester. One credit. Hours by arrangement. Taught concurrently with ANSC 288. May be repeated for credit once. Consent of instructor required.

Intensive training in the evaluation of selected species of farm animals or their products. Type standards and the relation of anatomical features to physiological function are emphasized. Evaluation skills including justification of decisions will be developed. Students enrolled in this course will have the option to participate on intercollegiate animal and product evaluation teams. Field trips are required, some of which may occur prior to the start of the semester.

**094. Seminar**

Second semester. One credit. One 2-hour discussion period. *Zimm*

A discussion of current employment opportunities in animal agriculture.

**096. Professional Internship**

Either semester. Credits and hours by arrangement. Open only for third semester students with consent of instructor and Department Head. Total credits allowed toward graduation requirements are restricted as outlined in Ratcliffe Hicks Section. *Andrew, Darre*

**098. Special Topics**

Either semester. Credits and hours by arrangement. Open only with consent of instructor. May be repeated for credit with a change of topic. Total credits allowed toward graduation requirements are restricted as outlined in Ratcliffe Hicks section. Contact Department Main Office for list of current topics and instructors.

**099. Independent Study**

Either or both semesters. Credits and hours by arrangement. Consent of instructor required. Course may be repeated for credit. Total credits allowed toward graduation requirements are restricted as outlined in Ratcliffe Hicks Section.

An independent study project is mutually arranged between a student and an instructor.

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### Natural Resources Management and Engineering (SAME)

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**098. Special Topics**

Either semester. Credits and hours by arrangement. Open only with consent of instructor. May be repeated for credit with a change of topic. Total credits allowed toward graduation requirements are restricted as outlined in Ratcliffe Hicks Section.

**099. Independent Study**

Either or both semesters. Credits and hours by arrangement. Consent of instructor required. Course may be repeated for credit. Total credits allowed toward graduation requirements are restricted as outlined in Ratcliffe Hicks Section.

An independent study project is mutually arranged between a student and an instructor.

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### Pathobiology (SAPB)

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**015. Health and Disease Management of Animals**

Second semester, alternate years (even). Three credits. *Bushmich, Khan*

This course will include a study of the causes of diseases, practical preventive control measures and specific mammalian and poultry diseases.

**098. Special Topics**

Either semester. Credits and hours by arrangement. Open only with consent of instructor. May be repeated for credit with a change of topic. Total credits allowed toward graduation requirements are restricted as outlined in Ratcliffe Hicks Section.

**099. Independent Study**

Either or both semesters. Credits and hours by arrangement. Consent of instructor required. Course may be repeated for credit. Total credits allowed toward graduation requirements are restricted as outlined in Ratcliffe Hicks Section.

An independent study project is mutually arranged between a student and an instructor.

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### Plant Science (SAPL)

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**003. Introduction to Plant Science**

First semester. Four credits. Three class periods and one 2-hour laboratory period. *Allinson*

A general course designed to give students a broad view of the field of horticulture as well as a working knowledge of the fundamentals of plant growth.

**017. Vegetable Production**

First semester. Four credits. Three class periods and one 2-hour laboratory period. *Bible*

A general course dealing with the fundamentals of vegetable gardening and production. Lectures cover modern methods of culture and their influence on food quality. Selected vegetable crops are grown by students.

**022. Introduction to Soil Science**

First semester. Three credits. Two class periods and one 2-hour laboratory exercise or field trip. *Schulthess*

Physical and chemical properties of soils; nature and use of fertilizer and lime materials; management of soils for crop production including soil testing, tillage and fertilization practices, and conservation practices.

**024. Turfgrass Management**

First semester. Three credits. Two class periods and one 2-hour laboratory period. Taught concurrently with PLSC 124. *Guillard*

An overview of turfgrass adaptation, selection, and management. Topics include turfgrass growth, physiology, soil interactions, weeds and diseases morphology and identification establishment, and maintenance. Cultural system practices for lawns, golf courses, athletic fields and other turf areas.

**025. Greenhouse Operations**

First semester. Three credits. Two class periods and one 2-hour laboratory period. Prerequisite: SAPL 003 and SAPL 022. *Elliott*

Introduction to greenhouse systems with emphasis on structures, environmental control, root media, irrigation and fertilization, and pest control, in relation to requirements for plant growth. Field trips required.

**026. Greenhouse Crop Production I**

First semester. Two credits. One class period and one 2-hour laboratory period. Prerequisite: SAPL 025 (may be taken concurrently). Taught jointly with PLSC 226. *Elliott*

Environmental and cultural requirements and scheduling of major greenhouse crops, exclusive of edible produce. Emphasis on cut flowers and flowering potted plants produced for fall and winter markets. Laboratories provide experience in crop production. Field trips required.

**027. Greenhouse Crop Production II**

Second semester. Two credits. One class period and one 2-hour laboratory period. Prerequisite: SAPL 026. Taught jointly with PLSC 227. *Elliott*

Continuation of SAPL 026. Emphasis on flowering potted plants and bedding plants produced for spring and summer markets. Laboratories provide experience in crop production. Field trips required.

**029. Forage Crops**

First semester. Three credits. Two class periods and one 2-hour laboratory period. *Allinson*

A course on the principles of producing and utilizing pasture, hay and silage crops for forage. Emphasis will be placed on environmental, soil and economic factors in forage production. Details of varietal selection, seeding methods, fertilization, cutting management, pest control, and storage will be discussed for each of the major grass and legume species used in the northeast.

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† Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

**030. Floral Art**

Either semester. Two credits. One class period and one 2-hour studio period. Taught concurrently with PLSC 230.

The study of flower arrangement as an art form with emphasis on historical background, artistic principles, color harmony, and care of perishable media. Individual expression is encouraged in the creation of floral composition.

**031. Herbaceous Ornamental Plants**

Second semester. Three credits. Taught jointly with PLSC 231. *Bridgen*

Identification, nomenclature and culture of over 160 Herbaceous perennials, biennials, annuals and bulbous plants. Live plants and visual presentation are used to highlight plant characteristics and morphology. Lectures include discussions of organic growing, composting, plant morphology, trough and container gardens, and underground storage structure. Field trips to retail and wholesale businesses are a part of this class.

**035. Advanced Floral Design**

Second semester. Two credits. One class period and one 2-hour studio period. Prerequisite: SAPL 030. Taught concurrently with PLSC 235.

In-depth study of post-harvest requirements for specialized floral crops. Exposure to novel floral materials and abstract, tribute, high-style, and wedding designs. Retail price structuring, wire services, and mass-production concepts.

**041. Plant Pest Control**

First semester. Three credits. Two class periods and one 2-hour laboratory period. *Shashok*

A practical survey of practices used for insect, disease and weed pests of turf, flowers, shrubs, trees and food crops. Consideration will be given to quarantine, mechanical, biological and chemical means of control. Field trips may be required.

**042. Integrated Pest Management**

Second semester. Three credits. Three class periods. Prerequisite: SAPL 041 or consent of instructor. *Shashok*

An overview of integrated pest management (IPM) techniques, from development to implementation, with horticultural crops.

**046. Fruit Production**

Second semester. Three credits. *Shashok*

A practical course in fruit production, including information for home fruit growing. Particular emphasis is directed toward the culture of apples, peaches, pears, blueberries, grapes, raspberries and strawberries.

**047. Fruit Production – Laboratory**

Second semester. Two credits. Two 2-hour laboratory periods. Prerequisite: SAPL 046, which may be taken

concurrently. *Shashok*

A practical laboratory in the techniques and methods of fruit production and pruning of fruit crops. Emphasis is directed towards apples, peaches, pears, blueberries, grapes and raspberries. Field trips are required.

**059. Evaluating and Staging Horticultural Materials**

First semester. One credit. Hours by arrangement. Open only with consent of instructor. This course may be repeated once for credit. *Bridgen*

Organization and staging of horticultural exhibits and contests suitable for fairs, garden clubs, and community projects.

**060. Nursery Maintenance**

First semester. Three credits. Two class periods and one 2-hour laboratory period. *Corbett*

A consideration of the culture, care and maintenance of shade trees and nursery stock. Laboratory periods will be devoted to planting, pruning and maintenance of shade trees and nursery material. At least one field trip will be required.

**062. Plant Propagation**

Second semester. Three credits. Two class periods and one 2-hour laboratory period. *Bridgen*

The study of methods used to reproduce agricultural and horticultural crops. Discussion will emphasize sexual and asexual propagation techniques. Field trips are required.

**066. Plant Materials, Evergreen Plants**

Second semester. Three credits. Two class periods and one 2-hour laboratory period. *Corbett*

Trees, shrubs and vines will be studied. Lectures will be devoted to the characteristics, ornamental value and selection of evergreen plants. Laboratory periods will be devoted to identification.

**067. Plant Materials, Non-Evergreen Plants**

First semester. Three credits. One class period and two 2-hour laboratory periods. Prerequisite: SAPL 066. *Corbett*

Trees, shrubs and vines will be studied. Lectures will be devoted to the characteristics, ornamental value and selection of non-evergreen plants. Laboratory periods will be devoted to identification.

**068. Landscape Plant Maintenance**

Second semester. Three credits. Taught concurrently with PLSC 245. *Auer*

Lectures will emphasize the ecological dynamics of altered landscapes related to the planting and maintenance of established man-made landscapes. The relationship of ecology to plant installation, plant care during the establishment period, and plant care after establishment will be covered. Protection of existing plants during construction and plant-landscape standards will be discussed.

**069. Landscape and Planting Design**

Second semester. Four credits. Two class periods and two 2-hour laboratory periods. Prerequisite: SAPL 031, 066, and 067 or consent of instructor. *Corbett*

The principles and techniques of landscaping the home grounds to include site analysis, drawing techniques, selections of materials, and selecting plants to fit the design.

**071. Horticultural Retailing**

First semester. Three credits. Taught concurrently with PLSC 244. *Ashley*

A discussion of the principles of retailing as applied to the sale of horticultural crops. Emphasis is given to planning, customer preference, competition, merchandising, pricing and inventory as they apply to landscaping, flower shop and garden center management.

**†074. Horticulture Production Practicum – Nursery**

Second semester. Credits and hours by arrangement. Prerequisite: SAPL 060. Consent of instructor. *Corbett*

Students will be responsible for planning, producing, and marketing a nursery crop. Students may use private facilities or the Ratcliffe Hicks C.R. Burr Teaching Nursery.

**†075. Horticulture Production Practicum – Vegetables**

Second semester. Credits and hours by arrangement. Prerequisite: SAPL 017. Consent of instructor. *Ashley*

Students will be responsible for planning, producing, and marketing a vegetable crop on a commercial scale. Requires the availability of private production facilities.

**098. Special Topics**

Either semester. Credits and hours by arrangement. Open only with consent of instructor. May be repeated for credit with a change of topic. Total credits allowed toward graduation requirements are restricted as outlined in Ratcliffe Hicks Section.

**099. Independent Study**

Either or both semesters. Credits and hours by arrangement. Consent of instructor required. Course may be repeated for credit. Total credits allowed toward graduation requirements are restricted as outlined in Ratcliffe Hicks Section.

An independent study project is mutually arranged between a student and an instructor.

† Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

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