

Directory of Courses

The following directory lists the undergraduate courses which the University expects to offer, although the University in no way guarantees that all such courses will be offered in any given academic year, and reserves the right to alter the list if conditions warrant. Students may ordinarily determine when courses are to be offered by consulting the Student Administration system's search feature via the internet.

Courses to be offered through the Office of Credit Programs, College of Continuing Studies, are included in brochures issued each semester and summer session.

Numbering System. Students are referred to the condensed curricula of the several colleges for information concerning the semester and year in which required courses should be taken. Courses numbered 01-99 are courses in the Ratcliffe Hicks School of Agriculture; baccalaureate students may not register for these courses. Courses numbered 100-199 are primarily for freshmen and sophomores; courses numbered 200-299 for juniors and seniors. Courses numbered 300-399 are for graduate students and appear in the *Graduate School Catalog*. University regulations allow undergraduates to take courses at the 300's level only if they have a cumulative grade point average of 2.6 or above and if they are in the seventh or eighth semester of University standing; individual schools and colleges may have more stringent requirements which students must meet. Exceptions can be made only by the instructor and the dean of the school or college in which the student is registered.

If a course was formerly given under another number the fact is listed in the course description. In such cases the course cannot be taken for credit by students who have received credit for it under the earlier number.

Skill Codes. In compliance with the General Education Requirements, skill code designations (W, Q, C and combinations thereof) have been added to courses where applicable. Students may find a comprehensive explanation of these skill codes under "Course Information" of the Academic Regulations section of this *Catalog*. Note: The same 3-digit numerics are not repeatable, ie 107, 107W.

Course Semester. Single semester courses designated as "either semester" are given in the first semester and repeated in the second semester. Such courses may be taken in either semester but may be taken for credit only once.

Courses carrying hyphenated numbers are full year courses extending over the two semesters. The first semester of such courses is always prerequisite to the second, but the student may receive credit for the first semester without continuing with the second. If a course with hyphenated numbers is designated as "either semester," the student may start the year's work in either semester; if it is designated as "both semesters," the course starts in the first semester and runs through the academic year.

A few advanced courses, usually of a seminar or special problems nature, are labeled "either or both semesters." Students may take such courses in either semester alone or they may repeat them for credit. Only in these cases unless the course description carries a specific statement to the contrary, may a student take the course more than once for credit.

Course Hours. Classes meet for the equivalent of three 50-minute periods, unless otherwise specified. Information about the specific times that a course will meet may be obtained through the Student Administration system's search feature via the internet before the opening of each semester.

Refer to the "Academic Regulations" section of this *Catalog* for further information regarding registration for courses.

Accounting (ACCT)

Acting Head of Department: Professor Mohammed Hussein

Department Office: Room 417, School of Business

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

Courses in this department, with the exception of ACCT 131 and 200, are open to juniors and seniors only. The School of Business requires students at the Storrs campus to participate in the Mobile Computing Initiative before registering for the courses listed below. See the School of Business *Catalog* section for details about how this program operates. Students not participating in the initiative may be able to register for the following classes: 131, 200, 205.

Accounting majors are required to achieve a 2.0 grade point average in all accounting courses taken at the University of Connecticut, excluding grades and credits for independent studies (ACCT 299's) and internships (ACCT 289's) as a requirement for graduation.

131. Principles of Financial Accounting

Either semester. Three credits. Not recommended for freshmen.

The study of the generation and interpretation of accounting information as a basis for financial statement analysis and management decision-making.

200. Principles of Managerial Accounting

Either semester. Three credits. Prerequisite: ACCT 131; open to sophomores or higher. Not open to students who have passed or are taking BADM 210.

Internal reporting to managers for use in planning and controlling operating systems, for use in decision making, formulating major plans and policies, and for costing products for inventory valuation and income determination.

201. Intermediate Accounting I

Either semester. Three credits. Prerequisite: ACCT 200 and ECON 112.

An in-depth study of financial accounting, giving particular emphasis to balance sheet valuations and their relationship to income determination.

202. Intermediate Accounting II

Either semester. Three credits. Prerequisite: ACCT 201.

A continuation of Accounting 201.

203. Advanced Accounting

(Also offered as ACCT 303.) Either semester. Three credits. Prerequisite: ACCT 202.

An in-depth study of accounting for business combinations. Coverage will also be given to accounting for nonprofit entities and contemporary issues in financial accounting.

203P. Advanced Accounting

(Also offered as ACCT 303.) Prerequisite: ACCT 202; ENGL 105 or 110 or 111 or 250. This course and one additional P course from the Accounting Department constitute one W requirement.

205. Introduction to a Profession

First semester. One credit. Prerequisite: ACCT 131. Required for Accounting majors.

Designed to help students (1) understand the professional responsibilities of accountants, (2) enhance one's knowledge of the structure of the accounting profession and the reporting process, (3) evaluate alternative accounting careers, and (4) prepare for accounting internship and career opportunities. Consists of a series of evening seminars. Topics include: alternative accounting careers, accounting standard setting, professional certification for accountants, and analysis and interpretation of accounting information. A major course project involves the analysis of the annual report of a real-life company. The course will also introduce and allow students to interact with UConn accounting alumni in a variety of accounting careers.

221. Cost Accounting

Either semester. Three credits. Prerequisite: ACCT 200 and OPIM 203 (may be taken concurrently).

The study of (1) product costing as a basis for income determination and inventory valuation and (2) accounting concepts for planning and controlling organizational operations.

222. Cost Analysis

Either semester. Three credits. Prerequisite: ACCT 221.

An advanced study of the generation and use of accounting data, and the application of quantitative methods of analysis in management accounting.

243. Assurance Services

(Also offered as ACCT 304.) Either semester. Three credits. Prerequisite: ACCT 202.

This course focuses on issues relevant to the public accounting profession, such as legal liability and ethics, audit risk analysis, planning of audit engagements, audit reports, and other assurance services and reports. Students will learn to think critically about issues facing the accounting profession, primarily by analyzing cases and completing a number of individual and group research projects.

243P. Assurance Services

(Also offered as ACCT 304.) Prerequisite: ACCT 202; ENGL 105 or 110 or 111 or 250. This course and one additional P course from the Accounting Department constitute one W requirement.

260. Federal Income Taxes

Either semester. Three credits. Prerequisite: ACCT 131.

A study of the underlying concepts of federal income taxation. Emphasis to be placed upon the impact of taxes on business decisions.

264. Advanced Federal Taxes and Tax Research

Second semester. Three credits. Prerequisite: ACCT 260.

An in-depth analysis of the tax aspects of corporations, partnerships, and S corporations, including their organization, operations (including international aspects), and liquidation. The course includes an examination of tax research methodology and techniques, using both printed and electronic materials, and discussions of cases requiring tax planning.

289. Field Study Internship

Either or both semesters. Six credits. Hours by arrangement. Prerequisite: courses in Principles of Managerial Accounting, Cost Accounting and Intermediate Accounting, as well as consent of instructor and department head. Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

Designed to provide students with an opportunity for supervised field work. Students will work with one or more professionals in their major academic area. 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.

Special topics taken in a foreign study program.

296W. Senior Thesis in Accounting

Either semester. Three credits. Hours by arrangement. Prerequisite: ENGL 105 or 110 or 111 or 250. Open only to Accounting 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 as announced in advance for each semester.

299. Independent Study

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

Individual study of special topics as mutually arranged between a student and an instructor.

African Studies (AFRI)

Director, Center for Contemporary African Studies:
Josef Gugler
Office: Room 320, Manchester Hall

293. Foreign Study

Either or both semesters. Credits and hours by arrangement. May be repeated for credit. Consent of director required, normally to be granted prior to student's departure.

298. Special Topics

Either or both semesters. Credits up to a maximum of three. With a change in topic, may be repeated for credit.

299. Independent Study

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

Agricultural and Resource Economics (ARE)

(Formerly Agricultural Economics and Rural Sociology)

Head of Department: Professor Emilio Pagoulatos
Department Office: Room 318, W.B. Young Building
For major requirements, see the College of Agriculture and Natural Resources section of this *Catalog*.

110. Population, Food, and the Environment

Either semester. Three credits.

The role of agriculture in the growth and development of societies throughout the world. Economic and sociological problems of food and fiber needs and production in the developing and the advanced societies.

150. Principles of Agricultural and Resource Economics

Either semester. Three credits. Taught concurrently with SARE 050.

An introduction to agricultural economics, the role of agriculture in today's United States economic system, and relationships that regulate the entire economic environment.

215C. Business Management

First semester. Three credits. *L. Lee*

Analysis of marketing, management, and financial decision-making tools in agribusiness, including computer applications.

217. Business Finance in Food and Resource Industries

Second semester. Three credits. Recommended preparation: One of the following: ARE 150 or ECON 112, or ECON 102 or ARE 215C. *L. Lee*

Analysis of financial statements, credit, risk, and investment decision-making.

221. Business Strategies and Policy in Food Industries

Second semester. Three credits. Recommended preparation: ARE 150 or ECON 112 or ECON 102. *Cotterill*

Market structure and business strategies of firms, including pricing, advertising, entry and new products. Analysis of mergers and other antitrust issues from a public as well as firm perspective. Case studies of actual events.

222. Food Trends and the Changing Consumer

Second semester. Three credits.

Determinants of food consumption trends. Particular attention to demographic and economic factors and to changing concerns regarding health and food safety.

225. Marketing and Futures Trading

Second semester. Three credits. Recommended preparation: ARE 150 or ECON 112 or ECON 102. *Lopez*

Principles and applications of marketing, with special emphasis on the use of futures markets for profit and price risk management. Includes marketing case studies, internet applications, and a futures simulation exercise.

234. Environmental and Resource Policy

Either semester. Three credits. *Altobello*

Economic and policy aspects of natural resource use and environmental quality issues. Designed for students with diverse departmental affiliations.

234W. Environmental and Resource Policy

Prerequisite: ENGL 105 or 110 or 111 or 250.

235. Environmental and Resource Economics

Second semester. Three credits. Recommended preparation: ARE 150 or ECON 112 or ECON 102.

Natural resource use and environmental quality analysis using economic theory. Reviews of empirical research and relevant policy issues.

236. The Economics of Integrated Coastal Management

Second semester. Three credits. Recommended preparation: ARE 150 or ECON 112.

This course will explore the theory and practice of integrated coastal management (ICM); introduce major concepts, processes, tools and methods of ICM; and analyze United States and international experiences with ICM.

237. Marine Fisheries Economics and Policy

Second semester. Three credits. Recommended preparation: ARE 150 or ECON 112.

This course will explore the various natural, human and management components of the fishery system and present the application of economic and policy analysis for the optimal allocation of resources to a fishery.

238. Valuing the Environment

Second semester. Three credits. Prerequisite: ARE 150 or ECON 112. *Larson*

Conceptual and practical understanding of main methods used to evaluate economics benefits of environmental protection and damages from degradation. Methods include: change in productivity,

hedonic pricing, travel cost method, contingent valuation, defensive expenditures, replacement costs, and cost-of-illness. Topics covered include: recreation, soil-erosion, energy, forestry, hazardous waste, air pollution, deforestation, wetlands, wildlife, biodiversity, noise, visibility, water and water pollution.

255. The Role of Agriculture in Economic Development

First semester. Three credits. Recommended preparation: ARE 150 or ECON 112 or ECON 102. Credit may not be received for both ARE 305 and 255.

The role of agriculture in the economic development of less developed countries. Population and rural employment, the economics of food consumption and nutrition, international food aid, agricultural marketing and trade, land tenure, agrarian reform, and appropriate agricultural technology.

255W. The Role of Agriculture in Economic Development

Prerequisite: ENGL 105 or 110 or 111 or 250. Recommended preparation: ARE 150 or ECON 112 or ECON 102.

257. Benefit Cost Analysis and Resource Management

Second semester. Three credits. Prerequisite: ARE 150 or ECON 112. Credit may not be received for both ARE 307 and 257.

Theoretical foundations and applications of benefit-cost analysis in project appraisal and in evaluation of public policies regarding resource management and environmental protection.

260. Food Policy

First semester. Three credits. Recommended preparation: ARE 150 or ECON 112 or ECON 102. *Lopez*

Analysis of food and agricultural policies in the United States and abroad. Designed for students with diverse departmental affiliations.

260W. Food Policy

Prerequisite: ENGL 105 or 110 or 111 or 250. Recommended preparation: ARE 150 or ECON 112 or ECON 102.

275. Agribusiness Management and Entrepreneurship

First semester. Three credits. Recommended preparation: ARE 150 or ECON 112 or ECON 102. *Cotterill*

Management techniques for achieving the merchandising objective and standards of the firm, with maximum efficiency in the use of capital, personnel, facilities and equipment. Directed toward those students who plan to enter agribusiness.

280. Economic Organization of Agriculture

First semester. Three credits. Recommended preparation: ARE 150 or ECON 112 or ECON 102.

Economic organization of competitive industries using agriculture as an example of one such industry. The problems growing out of the competitive structure of agriculture, and the economic concepts, principles and research results applicable to these problems.

285. International Commodity Trade

First semester. Three credits. Recommended Preparation: ARE 150 or ECON 112 or ECON 102. *Pagoulatos*

The basic principles of international commodity trade and market institutions. Applications to current problems of international commodity trade and policy.

290V. Quantitative Methods for Agriculture

Second semester. Three credits. Recommended preparation: MATH 101 or equivalent. Open only with consent of instructor. *T. Lee*

Data collection, compilation, charts, frequency distribution, simple descriptive statistics, index

numbers, economic time series analysis and simple correlations.

295. Seminar

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

Participation in staff conferences and discussions, reviews of important books, and reports on recent developments in economic theory and research.

296. Agribusiness Internship

Either semester or summer. One to six credits (repeatable for a total of six credits). Prerequisite: Open to Junior - Senior Resource Economics majors with Independent Study Authorization.

This course is designed to provide students with an educational experience in agribusiness firms or agribusiness-related institutions. Each student taking this course must submit a formal written report for evaluation and meet all other course requirements as specified by the instructor.

297. Resource Economics Internship

Either semester or summer. One to six credits (repeatable for a total of six credits). Open only to Junior - Senior students majoring in Resource Economics who have demonstrated outstanding academic ability and possess excellent professional potential. Requires Independent Study Authorization with consent of department head and advisor.

This course is designed to provide students with a meaningful experience in a formalized agribusiness or natural resources program under supervised conditions. Each student taking this course must submit a formal written report for evaluation and meet all other course requirements as specified by the instructor.

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. Credit and hours by arrangement. Prerequisite: Open to students with Independent Study Authorization.

This course is designed primarily for Resource Economics majors.

Agriculture and Natural Resources (AGNR)

193. Foreign Study

Either or both semesters. Credits and topics must be approved by department head or dean of the College of Agriculture and Natural Resources.

Courses taken in agriculture, natural resources, and related areas as part of approved Study Abroad programs. May be repeated for credit with change of topic.

198. Current Topics in Agriculture and Natural Resources

Either semester. One credit. Prerequisite: Open to freshmen and sophomores only, others by instructor consent. May be repeated for credit with a change of topic for a maximum of 4 credits. Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

Readings, lectures, seminars, and field applications exploring content and associated scientific and social implications of current topics in agricultural, environmental, nutritional and health sciences.

199. Introduction to Research in Agriculture and Natural Resources

Either semester. One to three credits. Credits and hours by arrangement. Prerequisite: Open to freshmen and sophomores only; instructor and department head consent. May be repeated for credit with a change of topic for a maximum of six credits. Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

Supervised student involvement with faculty projects to introduce students to current areas of research in their field of interest.

210. Extension Organization and Policy

First semester. Two credits. One 2-hour lecture period.

A course designed to acquaint the student with the history, objectives, policy, administrative procedures, organization and methods used by the Cooperative Extension Service. Special consideration will be given to the inter-relationship with other adult education programs.

215. Cooperative Extension Communications

Second semester. Three credits.

Communication theory, methods, and skills relevant to the educational functions of the Cooperative Extension Service. Acquaint students with relationships among Extension objectives, clients and the communication media.

293. Agriculture and Natural Resources Internship

Either semester or summer. One to six credits. Open to Junior - Senior students in the College of Agriculture and Natural Resources with consent of the Dean, the student's department head and advisor. This course may be repeated for credit with the total credits earned not to exceed six.

This course is designed to provide students with a meaningful experience in a formalized agricultural or natural resources program under supervised conditions. Each student taking this course must submit a formal written report for evaluation and meet all other course requirements as specified by the instructor.

294. Foreign Study

Either or both semesters. Credits and topics must be approved by department head or dean of the College of Agriculture and Natural Resources.

Courses taken in agriculture, natural resources, and related areas as part of approved Study Abroad programs. May be repeated for credit with change of topic.

298. 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.

299. Independent Study

Either or both semesters. Credits and hours by arrangement. May be repeated for credit with a change of topic. Prerequisite: Open only to students with Independent Study Authorization.

This course is designed primarily for Resource Economics majors.

Air Force Studies (AIRF)

Head of Department: Colonel Ken DiPrimo

Department Office: 28 North Eagleville Road

For departmental description, see the College of Liberal Arts and Sciences section of this *Catalog*.

113. Air Force Studies I

First semester. One credit. One class period and one 2-hour leadership seminar.

Military customs/courtesies, officership/leadership. Air Force mission, military as a profession, and basics of flight.

114. Air Force Studies I

Second semester. One credit. One class period and one 2-hour leadership seminar.

The organization, mission, and functions of the Department of Defense and the military services. Emphasis is on the U.S. Air Force.

123. Air Force Studies II

First semester. One credit. One class period and one 2-hour leadership seminar.

Study of air power from balloons through World War II; WW I, Interwar Years, WW II. Principles of war, Berlin Airlift. Development of communication skills.

124. Air Force Studies II

Second semester. One credit. One class period and one 2-hour leadership seminar.

Air power from post World War II to the present; Korean Conflict, War in Vietnam, force modernization. Development of communication skills.

201. Aviation Ground School

Both semesters. Three credits.

Fundamentals of flight, flight operations, aviation, weather, navigation, human factors and integration of pilot skills with Federal Aviation Administration (FAA) regulations. Meets all requirements for the FAA private pilot's written examination.

235-236. Air Force Studies III

Both semesters. Three credits each semester. One class period, and a 2-hour leadership seminar. Prerequisite: AIRF 114 and 124, or six weeks field training. Open only with consent of instructor. May not be taken concurrently with AIRF 245-246.

Management fundamentals, motivational processes, leadership, group dynamics, organizational power, managerial strategy. Development of communication skills.

235W-236W. Air Force Studies III

Prerequisite: AIRF 114 and 124, or six weeks field training; ENGL 105 or 110 or 111 or 250. Open only with consent of instructor. May not be taken concurrently with AIRF 245-246.

245-246. Air Force Studies IV

Both semesters. Three credits each semester. One class period, and a 2-hour leadership seminar. Prerequisite: AIRF 235-236. Open only with consent of instructor. May not be taken concurrently with AIRF 235-236.

American civil-military relations, defense policy formulation, role of the professional officer, military justice system, Air Force Commands.

245W-246W. Air Force Studies IV

Prerequisite: AIRF 235-236; ENGL 105 or 110 or 111 or 250. Open only with consent of instructor. May not be taken concurrently with AIRF 235-236.

Allied Health (AH)

Head of Department: Professor Thomas Miller
Department Office: Room 102, Koons Hall

For major requirements see the College of School of Allied Health section of this *Catalog*.

For course descriptions of Allied Health, see these topics listed alphabetically throughout this *Directory of Courses*:

Allied Health (AH)
Cytotechnology (CYTO)
Diagnostic Genetic Sciences (DGS)
Dietetics (DIET)
Health Sciences (HESC)
Medical Laboratory Sciences (MLS)
Medical Technology (MT)
Physical Therapy (PT)

100. Introduction to Allied Health Professions
Semester and hours by arrangement. One credit. Open only with consent of instructor.

Overview of health professions, team approach to health care delivery.

101. Health and Wellness
Either semester. Three credits. Open to all students in the University.

Wellness, holistic health, mind-body connection, health and wellness models, mental wellness, positive self-concept, preventing heart disease and cancer, licit and illicit lifestyle drugs, stress management, diet, nutrition, weight control, aerobic and anaerobic exercise, healthy lifestyle behaviors, applications to life.

102. Peer Health Education
First semester. Three credits.

This course fosters skills that will prepare the student to function effectively as a peer health educator. Content includes leadership and communication skills, and a working knowledge of health-related topics such as stress management, body image, body art, sexuality, and other contemporary issues.

115. Introduction to the Health Professions
Semester and hours by arrangement. Three credits.

Introduction to the Allied Health professional curriculum through special topics.

195. Special Topics Lecture
Either semester. Credits, prerequisites, and hours as determined by the Senate Curricula and Courses Committee. May be repeated for credit with a change in topic.

200. Drugs and Society
Either semester. One credit. Two class periods for seven weeks. Priority given to Allied Health and Education students.

Overview of drugs in America, co-dependence, the role of the counselor, psychological and physiological addiction, cocaine, heroin, marijuana, psychoactives, over-the-counter drugs, prescription drugs, AIDS.

202. Clinical Biomechanics
First semester. Three credits. Open only to Orthotics and Prosthetics Students.

An introduction to fundamental biomechanical principles through a review of concepts from applied physics with an application to technically relevant problems.

203. Aging: Implications for Health Professionals
Either semester. Three credits. Three hours of lecture.

Age-related physiological changes and pathologies, psychological function in health behaviors and care, role change and transition, health care issues, therapeutic relationships.

204. Conversational Spanish for the Health Professional
Either semester. Three credits. Three hours of lecture. Open to Allied Health students and students in other health-related fields (i.e. nursing, nutritional sciences, pharmacy); others with consent of instructor.

Basic conversational skills, medical terminology, patient/client interviewing skills, cultural factors affecting health care delivery.

214. Medicinal Plants of Asian Origin and Culture
(Also offered as AASI 214.) First semester. Three credits.
A review of the plant species of Asian origin and culture currently studied for nutraceutical and functional properties by biomedical and agricultural researchers. Strategies for successful cultivation and use of these "green immigrants" in North America.

215. Critical Health Issues of Asian Americans
(Also offered as AASI 215.) First semester. Three credits. *Palaniswamy*

Examination of critical health issues affecting Asian American sub populations. Topics to include gender specific health problems; cultural issues; and health care issues.

216. Asian Medical Systems
(Also offered as AASI 216.) Second semester. Three credits. *Palaniswamy*

Examination of traditional medical systems of Asian origin and their prevalence in the United States. Topics to include popular medical systems: Ayurveda, Traditional Chinese Medicine, Chinese, Indian and Japanese Herbal Medicine; the values and beliefs of different models.

220. Cancer and Your Health
(Formerly offered as CYTO 220.) First semester. Three credits. Three hours of lecture. Prerequisite: One course in Biology or concurrent enrollment in a Biology course.

This course introduces cancer risk education, causes, early detection, prevention, and public education.

237. Women's Health and Health Care
Either semester. Three credits.

Exploration of topics in women's health from a holistic interdisciplinary perspective. Consumer and provider focused.

241. Research for the Health Professional
Either semester. Three credits. Three hours of lecture. Prerequisite: A course in statistics; open only to Allied Health majors, others with consent of instructor.

Research questions/hypothesis, finding and using research literature, ethical considerations, research design, sampling, measurement, reliability and validity, descriptive and inferential statistics, computer analysis of data, evaluating research, reviews of literature and proposals.

241W. Research for the Health Professional
Prerequisite: A course in statistics; ENGL 105 or 110 or 111 or 250. Open only to Allied Health majors; others with consent of instructor.

242. Counseling and Teaching for the Health Professional

Either semester. Three credits. Three hours of lecture. Open only to Allied Health and Nutritional Science students; others with consent of instructor.

Learning theory and counseling strategies; role of health professional as teacher and counselor; communicating with special groups, individuals and groups.

243. Health Care Issues for the Health Professional

Either semester. Three credits. Three hours of lecture. Open only to Allied Health students; others with consent of instructor.

Individual, community and institutional health care needs and issues from a bio-medical and socio-cultural point of view. The health care delivery system; health and its relationship to poverty, ethnicity, life-cycle events, ethics, etc.

244. Management for the Health Professional
Either semester. Three credits. Three hours of lecture. Open only to Allied Health and Nutritional Science students; others with consent of instructor.

Basic management principles and concepts of planning, organizing, supervising, controlling and evaluating in health care environments. Leadership, motivation, supervision, time management, labor relations, quality assurance/proficiency, financial management.

280. Safety and Health Management
First semester, alternate years. Three credits. Three hours of lecture.

This course encompasses the principles of managing occupational safety and health programs from development, implementation through evaluation.

281. Industrial Hygiene
First semester, alternate years. Three credits. Three hours of lecture.

This course introduces the principles of industrial hygiene with emphasis on protecting workers' health through evaluation and intervention within the workplace.

282. Accident Prevention Techniques
Second semester, alternate years. Three credits. Three hours of lecture.

This course provides the student with the fundamental skills needed to prevent occupational injuries and illnesses in the workplace.

283. Occupational Safety and Health Regulations
First semester, alternate years. Three credits. Three hours of lecture.

This course provides a comprehensive overview of the occupational safety and health regulatory process and standards.

284. Ergonomics
First semester, alternate years. Three credits. Three hours of lecture.

This course is concerned with the achievement of an optimal relationship between humans and their work.

298. Special Topics
Either or both semesters and summer. Credits and hours by arrangement. Open only with consent of instructor. May be repeated for credit.

Investigation of a special topic in allied health related to the basic core or interdisciplinary areas.

299. Independent Study for Undergraduates
Either semester. Credits and hours by arrangement, not to exceed four. Open only with consent of instructor. May be repeated for credit.

Individualized study in a specialized area in the field of allied health.

American Sign Language (ASLN)

Head of Department: Professor David K. Herzberger
Department Office: Room 228, J.H. Arjona Building

101-102. Elementary Levels I and II

103-104. Intermediate Levels I and II

101 and 103 are offered in the first semester, and 102 and 104 in the second. Please refer to the Critical Languages course descriptions in this publication. Consult the Program Director in Arjona 128 or at Ed.Benson@UConn.edu for more information.

Animal Science (ANSC)

Head of Department: Professor Cameron Faustman
Department Office: Room 107, George White Building (Animal Science)

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

For 2-year course listing, refer to Ratcliffe Hicks School of Agriculture (SAAS).

120. Introduction to Animal Science

First semester. Three credits. Two class periods and one 2-hour discussion or laboratory period. Taught concurrently with SAAS 020. *Darre*

The biological, physical, and social factors that influence animal production and utilization.

125. Behavior and Training of Domestic Animals

Second semester. Three credits. Two class periods and one 2-hour laboratory. Taught concurrently with SAAS 025. *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.

127. Introduction to Companion Animals

Second semester. Three credits. Taught concurrently with SAAS 027.

Basic concepts of the nutrition, physiology, health and management of companion animals.

160. The Science of Food

(Also offered as NUSC 160.) Second semester. Three credits.

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.

195. Special Topics Lecture

Either semester. Credits, prerequisites, and hours as determined by the Senate Curricula and Courses Committee. May be repeated for credit with a change in topic.

216. Principles of Nutrition and Feeding of Animals

First semester. Three credits. Two class periods and one 2-hour discussion and laboratory period. Recommended preparation: Introductory chemistry and an animal anatomy and physiology course. *Nadeau*

This course focuses on digestive anatomy; the classes of nutrients including their digestion, use and sources. Nutrient requirements and feeding standards for various classes of livestock for reproduction, lactation, growth, work and maintenance are included. Feed requirements, feed laws, feed additives and labeling requirements are also discussed. Attention will also be given to characteristics of common feedstuffs and to formulating rations and nutritional programs for animal enterprise.

217. Principles of Animal Genetics

First semester. Three credits. Prerequisite: BIOL 107. Recommended preparation: BIOL 108. *Rasmussen*

Principles of Mendelian and molecular genetics. Biosynthesis and function of DNA, RNA, and protein. This course also includes introductions to population and quantitative genetics. Information on molecular methods of genetic analysis and examples of genetics in animals of agricultural significance are also provided.

219. Reproductive Physiology

Second semester. Three credits. Two class periods and one 3-hour laboratory or discussion period. *Milvae*

A study of the reproductive anatomy and physiology of domestic animals. Laboratory will include macro and micro anatomy, hormone action, and techniques used in reproductive management of domestic animals.

221. Environment, Genetics and Cancer

Second semester, alternate years (even numbered). Three credits. Prerequisites: BIOL 107; CHEM 141 or 243. Concurrent enrollment in at least one of the following courses is strongly recommended: MCB 203 or 204, MCB 200 or 213; or MCB 210. *Silbart*

Basic principles in tumor biology will be presented with an emphasis on phenotypic changes in transformed cell morphology and behavior. The biochemical basis of cell transformation, proliferation, and metastasis will be covered, followed by discussions of molecular mechanisms by which environmental chemicals interact with DNA and other cellular components. Metabolic activation of genotoxic carcinogens will be covered in detail, and the importance of polymorphisms in activating enzymes among human sub-populations will be discussed in terms of individual risks of cancer. Activation of proto-oncogenes, inactivation of tumor suppressor genes, and the role of these proteins in regulating the cell cycle will be covered in detail. Approaches for estimating human risk of cancer based on exposure estimates and biological markers will also be presented.

222. Growth Biology and Metabolism of Domestic Livestock

Second semester. Three credits. Two class periods and one 2-hour discussion period. Recommended preparation: PVS 200. *Zinn*

Course will focus on the embryonic and postnatal growth and development of domestic livestock with emphasis on metabolic and hormonal regulation of processes that influence growth and development. Discussion period will focus on methods used to measure growth and metabolism.

223W. Scientific Writing in Growth Biology and Metabolism of Domestic Livestock

Second semester. One credit. Prerequisite: ENGL 105 or 110 or 111 or 250. Corequisite: ANSC 222.

A writing intensive class integrated with course content in ANSC 222.

224. Food Microbiology and Safety

Second semester. Three credits. Prerequisite: BIOL 107. A one semester course in organic chemistry is recommended. *Venkitanarayanan*

Current topics in food safety will be discussed, with special emphasis on microbial and chemical contamination of food. Specific topics including the safety of natural versus synthetic chemicals, food additives, irradiation and other practices, basic microbiology and toxicology, current regulatory practices and risk assessment will also be included. The Hazard Analysis Critical Control Points (HACCP) approach to food safety will be discussed.

225. Environmental Health Field Experience

First semester. One credit. One class period. *Silbart*

Field trips and discussion periods will focus on waste management and disposal. Topics will include water purification and sewage treatment, municipal and industrial waste incineration, a superfund site and pharmaceutical waste management. Some field trips will be scheduled by arrangement.

226. Environmental Health

First semester. Three credits. Prerequisite: BIOL 102 or equivalent; CHEM 122 or equivalent. *Silbart*

Course will focus on the environmental health

consequences of exposure to toxic chemicals, food contaminants and radiation. Basic principles of toxicology will be discussed, followed by lectures on specific topics such as: cancer, occupational hazards, radiation, genetic biomonitoring, risk assessment techniques, risk/benefit analysis, social/legal aspects of regulating toxic chemicals, and other related topics.

227. Food Microbiology Laboratory

Second semester. Even numbered years. One credit. One three-hour laboratory session. Recommended preparation: MCB 229. *Venkitanarayanan*

An introductory laboratory course in sampling of foods for microbiological analysis, enumeration of microorganisms in foods, and isolation and identification of major foodborne pathogens from foods.

229. Animal Embryology and Biotechnology

First semester. Three credits. Recommended preparation: ANSC 219 or MCB 219. *Tian*

Introduction to recent research in animal embryology and related reproductive biotechnologies. Basic principles, methodology and state of the technology for numerous established and emerging animal biotechnologies such as transgenesis and cloning. Lab tours, hands-on experience, and field trips to biotechnology companies will be included.

231. Developing the Driving Horse

First semester. Two credits. One 1-hour lecture and two 1-hour laboratories. Prerequisite: Junior or senior standing. Consent only. *Callahan*

Techniques related to training the driving horse will be described. Prior working experience with horses is recommended.

234. Pleasure Horse Appreciation and Use

Either semester. One credit. One 1-hour lecture and one 1-hour laboratory. Not open to students who have passed ANSC 236. *Callahan*

Open to all University students interested in pleasure horses. The principles of horse management and horsemanship.

235. Horse Science

First semester. Three credits. Two class periods and one 2-hour laboratory or discussion period. Open to sophomores or higher. *Dinger*

This course will be of particular value to animal science majors and includes horse types and breeds and their nutrition, breeding, evaluation, behavior, care and management with attention given to detailed studies of the problems and practices of horse production and use.

236. Light Horse Training and Management

Second semester. Two credits. Three 1-hour laboratory and one 1-hour discussion period. Prerequisite: ANSC 235. Open only with consent of instructor. *Callahan*

The theory, fundamentals and practice of breaking, training, fitting, showing, and the use of horses for riding. Primarily for Animal Science majors.

237. Methods of Equitation Instruction

Second semester. Two credits. One class period and one 2-hour laboratory or discussion period. Taught concurrently with SAAS 037. Consent of instructor required. Intermediate II or above riding experience 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.

238. Horse Breeding Farm Management

Second semester. Three credits. One class period and two 2-hour laboratory or discussion periods. Recommended preparation: ANSC 235. *Dinger*

This course is designed to develop technical and managerial skills necessary for operating horse breeding farms. Programs for herd health, hoof care, nutrition, breeding, foaling, and record keeping will be included.

253. Animal Food Products

First semester. Three credits. Two class periods and one 3-hour laboratory. *Faustman*

A study of the food products derived from animal agriculture, including dairy, meat, poultry and fish. Emphasis will be placed on inspection, grading, processing, biochemistry, nutritive value and food safety concerns of these products. Field trips will be required.

254. Principles of Poultry Science

Second semester of odd numbered years. Three credits. Two class periods and one 2-hour laboratory period. *Darre*

The application of the basic scientific principles to the management of poultry, egg and meat production systems. Field trips are required.

255W. Scientific Writing in Animal Food Products

First semester. One credit. Prerequisite: ENGL 105 or 110 or 111 or 250. Corequisite: ANSC 253.

A writing intensive class integrated with course content in ANSC 253.

269. Laboratory Animal Science

Second semester. Three credits. Two class periods and one 2-hour laboratory or discussion period. Prerequisite: BIOL 107 and 108 or equivalent. Open to sophomores or higher. *Milvae*

The course is concerned with the principles and practices of laboratory animal care and management in relation to animal characteristics, handling and restraint, animal house design, reproduction and nutrition and legal regulations. Various laboratory animal techniques will be covered.

273. Livestock Management

First semester. Four credits. Three class periods and one 2-hour laboratory period. *Hoagland*

The production and management of beef cattle, sheep, and swine. Laboratories involve theory and practice in livestock management, skills, and techniques.

275. Dairy Cattle Management

First semester of even numbered years. Three credits. Two class periods and one 2-hour laboratory period. Taught concurrently with SAAS 076. *Kazmer*

Management of dairy cattle including milking procedures, sanitation, reproduction, selection, and record keeping.

277S. Dairy Herd Management (W, C)

Second semester of odd numbered years. Three credits. Two class periods and one 2-hour discussion period. Taught concurrently with SAAS 077. Prerequisite: ANSC 275; ENGL 105 or 110 or 111 or 250. *Kazmer*

Dairy farm management practices with emphasis on business and economic decision making. The effects of various programs in selection, nutrition, facilities, reproduction and herd health on overall business health will be evaluated. Each student will manage a computer simulated herd during the semester and must fulfill requirements for "W" and "C" skill course designations to successfully complete the course. Field trips are required.

278. Dairy Management Decision-making

Both semesters. One credit. One 2-hour discussion period. Consent of instructor required. May be repeated twice for credit. *Kazmer*

Participation in all phases of dairy herd management including decision-making activities, with particular emphasis on impact of decisions on financial health and stability. Course requires participation beyond specific semester calendars.

281. Horse Selection and Evaluation

Second semester. Two credits. One 4-hour laboratory or discussion period. Taught concurrently with SAAS 081. Not open for credit to graduate students. Consent of instructor is required. *Bennett*

Comparative evaluation, classification and selection of horses according to conformation, breed characteristics and performance. Judging skills including justification of placings through presentation of oral reasons will be developed. The Intercollegiate Horse Judging Team may be selected from this course. Field trips are required.

283. Livestock and Carcass Evaluation

Second semester. Two credits. Two 2-hour laboratory periods. Taught concurrently with SAAS 083. Not open for credit to graduate students. *Hoagland*

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, horses, sheep and swine.

284. Dairy Cattle Evaluation

Second semester. Two credits. Two 2-hour laboratory or discussion periods. *Kazmer*

An introduction to the evaluation of dairy cattle on the basis of conformation. Breed classification and type improvement programs, score card criteria in relation to longevity, physiological efficiency and performance are included. Attention is also given to fitting and showing methods. Field trips may be required.

288. Advanced Animal and Product Evaluation

First semester. Two credits. One 4-hour laboratory or discussion period. Taught concurrently with SAAS 088. Not open for credit to graduate students. May be repeated once for credit. Open only with instructor consent.

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. Intercollegiate dairy cattle, horse, livestock, poultry judging teams will be selected from this course. Field trips are required, some of which may occur prior to the start of the semester.

291. Animal Science Field Excursions

Either semester. One credit. Open only with instructor consent. May be repeated for credit with a change of topic.

A multiple day field trip format. Students in this course will travel with the instructor to visit and tour agri-businesses that represent commercial aspects of different animal science activities. Students will interview agri-business personnel and gain an understanding of how agricultural principles are applied in the field. Each student must submit a formal written report for evaluation and meet all other course requirements as specified by the instructor.

295. Seminar

Second semester. One credit. One 2-hour discussion period. Open only to juniors and seniors. *Zinn*

A discussion of current employment opportunities in animal agriculture. In addition, students will prepare resumes and present oral talks.

296. Professional Internship

Either semester. Credits and hours by arrangement. Open only to juniors and seniors with instructor consent. Students taking this course will be assigned a

final grade of S (satisfactory) or U (unsatisfactory). *Andrew, Darre*

298. Special Topics

Either semester. Credits and hours by arrangement. Open only with instructor consent. May be repeated for credit with a change of topic. Contact Department Main Office for list of current topics and instructors.

299. Independent Study

Either or both semesters. Credits and hours by arrangement of instructor. May be repeated for credit.

Anthropology (ANTH)

Head of Department: Professor Penn Handwerker
Department Office: Room 438, Beach Hall

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

100. Other People's Worlds

Either semester. Three credits.

A survey of the development, contributions, and contemporary social problems of selected non-Euroamerican peoples and cultures.

100W. Other People's Worlds

Prerequisite: ENGL 105 or 110 or 111 or 250.

106. Introduction to Anthropology

Either semester. Three credits. Two class periods and one 1-hour discussion. Students should ordinarily take this course in the fall semester.

This course is concerned with the biological and cultural development of humans from their origin to the present. A brief survey of human evolution is followed by a comparative study of behavior and beliefs of our own and other societies.

193. Foreign Study

Either or both semesters. Credits and hours by arrangement. May be repeated for credit (to a maximum of 17). Consent of Department Head is required before departure. May count toward the major with the consent of the advisor.

Special topics taken in a foreign study program.

195. Special Topics Lecture

Either semester. Credits, prerequisites, and hours as determined by the Senate Curricula and Courses Committee. May be repeated for credit with a change in topic.

212W. The Development of Anthropological Theory

Either semester. Three credits. Prerequisite: ANTH 220; ENGL 105 or 110 or 111 or 250. Recommended for seniors.

Historical and contemporary theories in social and cultural anthropology.

214. Introduction to Archaeology

First semester. Three credits. Open to sophomores or higher. *McBride*

The concepts, methods and practice of anthropological archaeology.

215. Migration

Second semester, alternate years. Three credits. Recommended preparation: ANTH 100 or ANTH 106. *Martinez*

The social, cultural and economic causes and consequences of internal and international migration in the modern era. Topics include migrant selection, social adaptation, effects on home and host societies, and cultural identity.

217. Old World Prehistory

First semester. Three credits. *McBrearty*

The origin of humanity in Africa, hunters and gatherers of the Paleolithic, the origins of agriculture

and the transition to settled life, and the emergence of civilizations in Africa, Asia and the Near East.

218. New World Prehistory

Second semester. Three credits.

The entry of early hunters into the New World, the origins of agriculture and sedentary life, and the rise of complex civilization in Mesoamerica and South America.

220. Social Anthropology

Either semester. Three credits. Open to sophomores or higher.

A comparative study of social structure including an analysis of kinship, marriage, community organization, political and economic institutions, and the role of the individual in these institutions.

220W. Social Anthropology

Prerequisite: ENGL 105 or 110 or 111 or 250. Open to sophomores or higher.

221. Contemporary Latin America

Either semester. Three credits.

Survey of anthropological contributions to the study of contemporary Mexico, Central America, South America, and the Hispanic Caribbean. Special focus on the comparative analysis of recent ethnographic case studies and local/regional/national/international linkages.

222. Peoples and Cultures of South America

Either semester. Three credits. *Boster*

The history, ecology, and culture of the native peoples of South America.

223. Pre-Colonial Africa

First semester. Three credits.

A survey of African society and history prior to and including the Atlantic slave trade.

225. Contemporary Africa

Second semester. Three credits.

Africa since its partition in 1884. Urbanization, social stratification, racial and ethnic conflict.

226. Peoples and Cultures of North America

Either semester. Three credits.

A survey of representative Native American cultures as they existed prior to the twentieth century, together with a view of the changing life of modern Native Americans.

227W. Contemporary Mexico

Either semester. Three credits. Prerequisite: ENGL 105 or 110 or 111 or 250.

Analysis and interpretation of interrelated economic, political and cultural processes in the contemporary social life of Mexico and the U.S.-Mexico borderland. Draws broadly on the social science literature with a special focus on anthropological contributions.

228. Australian Aborigines

Either semester. Three credits. Recommended preparation: ANTH 220. *Dussart*

An introduction to the study and understanding of Aboriginal ways of life and thought. Social relations, modes of thought and belief that are particularly Aboriginal and which show continuity with the past. Notions of identity and the relationship of various indigenous communities to the non-Aboriginal population of Australia.

229. Caribbean Cultures

Either semester. Three credits.

Peoples and cultures of the Caribbean region.

230. Peoples of the Pacific Islands

Either semester. Three credits. *Linnekin*

Survey of the indigenous societies and cultures of the Pacific Islands, from the first settlement to the postcolonial period. Topics include prehistoric canoe

voyaging, modes of subsistence, political forms, ritual and religion, ceremonial exchange, gender ideologies, European colonization, and modern indigenous nationalism. Ethnographic examples will be drawn from Polynesia, Melanesia, and Micronesia.

231. Anthropological Perspectives on Women
(Also offered as WS 231.) First semester. Three credits. Open to sophomores or higher. *Dussart*

Major conceptual and historical problems in the study of gender in anthropology. Women's roles in different historical and contemporary settings, and new understandings of family, kinship, power, and cultural ideologies.

232. Cognitive Anthropology

Either semester. Three credits. Recommended preparation: ANTH 244. *Boster*

The study of how the content of thought or knowledge, is created, organized, and distributed in human communities. Topics include cultural models of the mind, emotions, personality, and relationships.

233. Human Evolution

Second semester. Three credits. Open to sophomores or higher. *McBrearty*

The processes and events leading to the origin of human beings. Human physical and cultural development from its beginning to the dawn of settled life, through the approaches of physical anthropology and archaeology.

234. Culture and Religion

Either semester. Three credits. Prerequisite: ANTH 106 or instructor consent.

Religion as a social institution, with emphasis on the social and psychological functions of religious beliefs and practices. Materials are drawn from a wide range of historical and contemporary societies.

234W. Culture and Religion

Prerequisite: ANTH 106 or instructor consent; ENGL 105 or 110 or 111 or 250.

235. Economic Anthropology

Either semester. Three credits.

An introduction to the comparative study of economic life in contrasting pre-industrial, tribal and peasant economies.

236Q. Human Behavioral Ecology

Either semester. Three credits. Prerequisite: MATH 101 or passed Q Readiness Test or passed a Q course. *Sosis*

The application of the theory of natural selection to the study of human culture and behavior, with emphasis on the interaction between humans and their environment.

237. Psychological Anthropology

Either semester. Three credits.

Cross-cultural overview of critical issues regarding the relationship between individual personality and sociocultural systems, and mental health and illness.

238. Peoples and Cultures of the Middle East

Either semester. Three credits.

Selected social and cultural features of past and contemporary Middle Eastern social forms, and the origins and varieties of Western perceptions of these features.

239. Cultural Dynamics

First semester. Three credits. *Handwerker*

Interrelations among cultural, social and psychological factors influencing the process of cultural growth and change.

241. Latin American Minorities in the United States

(Also offered as PRLS 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.

242W. African-American Culture

Either semester. Three credits. Prerequisite: ENGL 105 or 110 or 111 or 250.

Sociological and anthropological analysis of the development and persistence of Afro-American culture.

243W. The American in Foreign Cultures

Second semester. Three credits. Prerequisite: SOCI 107 (required for sociology majors) or ANTH 106; ENGL 105 or 110 or 111 or 250. Not open for credit to students who have passed SOCI 225.

The nature of the foreign situation encountered by past and present overseas Americans and their responses to it.

244. Culture, Language, and Thought

Either semester. Three credits. *Boster*

Anthropological contributions to the study of language, culture, and their relationship. Topics include the Sapir-Whorf hypothesis and the application of cognitive anthropological methods and theory to the study of folk classification systems.

245. Parent-Child Relations in Cross-Cultural Perspective

(Also offered as HDFS 245.) Either semester. Three credits.

Theory and research on major dimensions of parenting in the U.S.A. and cross-culturally: parental warmth, control and punishment.

246W. Illness and Curing

Either semester. Three credits. One 3-hour class period. Prerequisite: ENGL 105 or 110 or 111 or 250. *Erickson*

Cross-cultural analysis of ethnomedicine, major medical systems, alternative medical systems, curing and healing illness and social control, gender and healing, and the role of traditional and cosmopolitan medical systems in international health.

247. Culture, Power, and Social Relations

Either semester. Three credits. *Handwerker*

Comparative and historical analysis of the sources and consequences of power in human populations.

249. Field Research in Social Settings

Either semester. Three credits. Prerequisite: ANTH 100 or 106. *Linnekin*

Methods and techniques of field research in social settings, including observational procedures, interviewing, and the construction and use of questionnaires.

252. Native American Arts

(Also offered as ARTH 256.) Either semester. Three credits. One 3-hour class period.

A topical survey of the arts of Native American culture in the United States and Canada.

253W. North American Prehistory

Either semester. Three credits. Prerequisite: ENGL 105 or 110 or 111 or 250. *McBride*

Prehistoric cultures of North America from the earliest traces to European contact, with emphasis on the region east of the Mississippi.

254. Archaeology of Eastern North America

Second semester. Three credits. Prerequisite: ANTH 253 or instructor consent. *McBride*

Prehistoric cultures of the eastern United States and Canada from their earliest appearances to the arrival of the Europeans. Laboratory and field work projects.

257W. Near Eastern Prehistory

(Also offered as HIST 212W.) Either semester. Three credits. Prerequisite: ENGL 105 or 110 or 111 or 250. *Munro*

From the earliest hunter-gatherers to the rise of the state: the transition from food gathering to food production and the development of complex societies in the Near East.

258. Archaeology of Eastern Asia

First semester, alternate years. Three credits. *Dewar*

The development of cultures in China, Japan and Southeast Asia from their earliest beginnings until the historical period.

259W. Primitive Technology

Second semester. Three credits. Prerequisite: ENGL 105 or 110 or 111 or 250.

Technology of pre-industrial and non-industrial societies from the first evidence of tool-making to the present, emphasizing materials, processes, and products of simple crafts.

261. Medical Ecology

Either semester. Three credits. One 3-hour class period. Recommended preparation: ANTH 277. *Erickson*

Anthropological perspectives on the interrelationships between culture, biology, environment, and disease. Major topics include ecology and adaptation, population dynamics, nutrition, reproduction, disease in sociological context, health seeking behavior, and the complexity of the interaction of western and non-western medical systems.

262. Laboratory Techniques in Archaeology

Second semester. Three credits. Prerequisite: ANTH 214. *McBride*

The analysis, interpretation, and presentation of various kinds of archaeological artifacts, floral and faunal remains and sedimentary contexts from excavated sites.

263. Ethnohistory of Native New England

Either semester. Three credits. *McBride*

Combines archaeological and ethnohistorical data to reconstruct lifeways of the Native Americans of southern New England from the prehistoric period to the present.

264. African Prehistory

Either semester, alternate years. Three credits. *McBrearty*

The African archaeological record from first artifacts to historic times. The stone age, the domestication of crops, the ways of life of early herding societies, the development of metal working, and the rise of early African kingdoms.

265. Paleoanthropology

Either semester, alternate years. Three credits. Recommended preparation: ANTH 214, 217, or 233. *McBrearty*

Fossil evidence for the evolution of the human family, Hominidae. Anatomical features, behavior, and evolutionary relationships of extinct hominids; the use of biological, geological, and archaeological evidence to reconstruct past hominid adaptations.

266. Human Osteology

Either semester. Three credits. Recommended preparation: ANTH 233. *McBrearty*

Human skeletal anatomy from an evolutionary and functional perspective. Identification and interpretation of bones of the human skeleton, methods for aging, sexing, and identifying pathologies.

267. Lithic Technology

Either semester. Three credits. *McBrearty*

The properties of stone tools – the primary evidence of human behavior for humanity's first 2.5

million years – and the processes of their manufacture. Analysis of prehistoric tools and tool replication.

268. Cultural Research

Either semester. Variable (one to three) credits. *D'Andrade*

The theoretical foundations and basic methods used to collect and analyze cultural data.

269. World Religions

Either semester. Three credits. *Linnekin*

A survey of religious belief systems, both polytheistic and monotheistic, from around the world.

270. Contemporary Native Americans

Either semester. Three credits.

Analysis of Native American reservations and urban communities and their relationship to the larger U.S. society. Special focus on federal policy and economic development, cultural identity, and politics of Native Americans.

273. Women in the Bible

(Also offered as WS 273.) Either semester. Three credits. Prerequisite: INTD 294. *Linnekin*

An introduction to Biblical interpretation from a feminist perspective, examining how women are represented in the Hebrew Scriptures and the New Testament. Issues of authorship, translation, point of view, cultural context and language.

274. Women and Religion

(Also offered as WS 270.) Either semester. Three credits. Not open for credit to students who have passed WS 278 when offered as Women and Religion. *Linnekin*

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.

275. Race, Ethnicity, and Nationalism

Either semester. Three credits. *Linnekin*

Popular and scholarly theories of human group identity and diversity, in cross-cultural and historical perspective. Topics include: an overview of 'race' and 'ethnicity' in Western thought, ethnic group formation and transformation, political mobilizations of group identity, and systems of inequality.

276. Human Reproductive Ecology

Either semester. Three credits. *Sosis*

The influence of ecology on the evolution of the human life course, with emphasis on men's and women's reproductive decisions.

277. Medical Anthropology

First semester. Three credits. *Erickson*

An introduction to the theory, method, and content of medical anthropology.

278. The Indian Ocean in Prehistory

Either semester. Three credits. *Dewar*

The prehistory of the islands and shorelines of the Indian Ocean: Madagascar, the East African Coast, the Arabian Peninsula, South and Southeast Asia, and Australia.

279. Quantitative Methods for Archaeologists

Either semester. Three credits. *Dewar*

Quantitative methods appropriate to the analysis of artifacts data, radiocarbon dating, and the spatial distribution of sites.

281. Sex and Gender

Either semester. Three credits.

Cross-cultural and interdisciplinary analysis of biological sex, gender, sex roles, and sexuality.

282. People and the Conservation of Nature

Either semester. Three credits. *Dewar*

Local communities and their environments, resource use, land tenure and conservation of healthy landscapes.

285. Anthropological Perspectives on Art

Second semester. Three credits.

Approaches to cultural creativity and aesthetics in the graphic and plastic arts of pre-state societies. Examples from North America, Oceania, and Africa.

286. Zooarchaeological Method and Theory

Either semester. Three credits. *Monro*

Method and theory of archaeological faunal analysis, including training in the identification of skeletal materials, the formation of the zooarchaeological record, and the interpretation of zooarchaeological data.

287. The Origins of Agriculture

Either semester. Three credits. *Monro*

The origins and spread of agriculture worldwide. Economic, social and ideological ramifications of the agricultural transition. Processes of plant and animal domestication.

288. Experimental Archaeology

Either semester. Three credits. Prerequisite: ANTH 214. *Monro, McBrearty*

Method and theory of experimental archaeology, including hands-on study of past human behavior through experimentation with modern material cultural, and the execution of an experimental research project addressing an archaeological question.

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.

296. Directed Field Research in Anthropology

Either semester. Course may be repeated, but credits may not exceed 12 by graduation. Hours by arrangement. Prerequisite: ANTH 249 or instructor consent.

The investigation of a sociocultural and/or archaeological problem in some domestic or foreign field location.

297. Field Work in Archaeology

Summer session. Variable credits. Open only with consent of instructor. *McBride*

Training in the techniques of archaeological site excavation; mapping; recording; field conservation, and preliminary analysis of materials.

298. Special Topics

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

299. Independent Study

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

Arabic (ARAB)

Head of Department: Professor David K. Herzberger
Department Office: Room 228, J.H. Arjona Building

101-102. Elementary Levels I and II

103-104. Intermediate Levels I and II

101 and 103 are offered in the first semester, and 102 and 104 in the second. Please refer to the Critical Languages course descriptions in this publication. Consult the Program Director in Arjona 128 or at Ed.Benson@UConn.edu for more information.

Art (ART)

Head of Department: Professor Judith Thorpe
Department Office: Room 100, Art Building

135. Art Appreciation

Either semester. Three credits. Not open to Art majors. Introduction to the visual arts, past and present. The visual language of artists, historical and cultural significance of works of art.

Studio Courses

111. Foundation: Studio Concepts

Either semester. Three credits. Two 3-hour studio periods.

Introduction to key concepts and practice in art making.

113. Foundation: Criticism and Interpretation

First semester. Three credits. One 3-hour class period. Not open to students who have taken ART 232.

An introduction to various current critical approaches to the producers, contexts, audiences, and histories of contemporary visual culture.

130. Drawing I

Either semester. Three credits. Two 3-hour or three 2-hour studio periods.

Fundamental principles of drawing based on observation.

152. Drawing II

Either semester. Three credits. Two 3-hour or three 2-hour studio periods. Prerequisite: ART 130.

Observational drawing; emphasis on spatial organization and structure.

153. Life Drawing I

Either semester. Three credits. Two 3-hour studio periods. Prerequisite: ART 152.

Introduction to figure drawing.

160. Basic Studio, Printmaking

Either semester. Three credits. Two 3-hour studio periods. Prerequisite: ART 111 and 130.

Introduction to practice and principles of printmaking, including intaglio, relief and lithographic processes.

163. Basic Studio, Sculpture

Either semester. Three credits. Two 3-hour studio periods. Prerequisite: ART 111 and 130.

Introduction to principles and techniques of sculpture.

164. Basic Studio, Painting

Either semester. Three credits. Two 3-hour studio periods. Prerequisite: ART 111 and 130.

Introduction to the principles and techniques of painting media.

165. Design Process

Either semester. Three credits. Two 3-hour periods. Prerequisite: ART 111 and 130.

Introduction to content, meaning, form, and structure in communication design, emphasizing conceptual analysis and approaches to visualization.

166. Basic Studio, Photography

Either semester. Three credits. Two 3-hour studio periods. Prerequisite: ART 111 and 130.

Introduction to techniques and aesthetics of photography, with emphasis on the camera.

193. Foreign Study

Either or both semesters. Credits and hours by arrangement. Consent of Department Head required, normally before the student's departure to study abroad. May be repeated with a change in course content.

Special topics taken in a foreign study program.

195. Architectural Graphics I

First semester. Three credits. Two 3-hour class periods.

Architectural graphics. Basic two- and three-dimensional delineation: axonometric, isometric and perspective drawing.

196. Special Topics Seminar

Either semester. Credits and hours as determined by the Senate Curricula and Courses Committee. Open only with consent of instructor. May be repeated for credit with a change in topic. This course may or may not count for credit toward graduation. Students should consult the course syllabus and the Dean's Office of their School or College.

204. Life Drawing II

Either semester. Three credits. Two 3-hour studio periods. Prerequisite: ART 153; open to sophomores or higher.

Drawing from the figure.

211. Pottery and the Vessel

Either semester. Three credits. Two 3-hour studio periods. Prerequisite: ART 163; open to sophomores or higher. May be repeated for credit with a change in course content to a maximum of 9 credits.

Vessel-oriented ceramics, wheel-thrown and hand-built. Basic technical information on clay, glazes and kiln firings.

212. Sculpture: Clay

Either semester. Three credits. Two 3-hour studio periods. Prerequisite: ART 163; open to sophomores or higher. May be repeated for credit with a change in course content to a maximum of 9 credits.

Basic principles and techniques of ceramic sculpture. Technical information on clay, glazes and kilns.

216. Sculpture: Wood

Either semester. Three credits. Two 3-hour studio periods. Prerequisite: ART 163; open to sophomores or higher. May be repeated for credit with a change in course content to a maximum of 9 credits.

Investigation of sculptural form, process, and environment, using wood.

217. Sculpture: Metals

Either semester. Two 3-hour studio periods. Prerequisite: ART 163; open to sophomores or higher. May be repeated for a maximum of 9 credits.

Investigation of sculptural form, process, and environment, using metal fabrication techniques such as welding, forging, and casting.

219. Sculpture: Moldmaking/Casting

Either semester. Three credits. Two 3-hour studio periods. Prerequisite: ART 163; open to sophomores or higher. May be repeated for credits with a change in course content to a maximum of 9 credits.

Investigation of mold-making techniques and casting processes, including ceramic slip casting, for students in any area of concentration.

220. Sculpture Seminar

Either semester. Three credits. Two 3-hour studio periods. Prerequisite: ART 163 and 9 credits in any area

of concentration.

For the advanced undergraduate in any area of concentration. Exploration of 3-dimensional issues in a studio seminar format.

221. Intaglio Printmaking

Either semester. Three credits. Two 3-hour studio periods. Prerequisite: ART 160; open to sophomores or higher.

Investigation of black-and-white and color intaglio techniques.

222. Lithography

Either semester. Three credits. Two 3-hour studio periods. Prerequisite: ART 160; open to sophomores or higher.

Investigation of lithographic techniques.

224. Intaglio II

Either semester. Three credits. Two 3-hour studio periods. Prerequisite: ART 221; open to sophomores or higher.

Continuation of ART 221 with emphasis on color printing.

225. Lithography II

Either semester. Three credits. Two 3-hour studio periods. Prerequisite: ART 222; open to sophomores or higher.

Continuation of ART 222 with emphasis on color printing.

226. Printmaking Workshop

Either semester. Variable credit. Two 3-hour studio periods. Prerequisite: ART 221 or 222; open to sophomores or higher. May be repeated for credit with a change in course content to a maximum of 18 credits.

Workshop for students to continue developing ideas in a print medium.

228. Architectural Graphics II

Second semester. Three credits. Two 3-hour studio periods. Prerequisite: ART 195; open to sophomores or higher.

Development of presentation skills and techniques. Graphic analysis of architectural forms using various drawing media and models.

235. Intermediate Painting I

Either semester. Three credits. Two 3-hour studio periods. Prerequisite: ART 164; open to sophomores or higher.

236. Intermediate Painting II

Either semester. Three credits. Two 3-hour studio periods. Prerequisite: ART 235; open to sophomores or higher.

Conceptually-oriented painting projects.

237. Advanced Painting I

Either semester. Three credits. Two 3-hour studio periods. Prerequisite: ART 236.

Individually determined painting projects.

238. Advanced Painting II

Either semester. Three credits. Two 3-hour studio periods. Prerequisite: ART 237. May be repeated once with change in course content.

Continuation of ART 237.

239. Aqua Media I

Either semester. Three credits. Two 3-hour studio periods. Prerequisite: ART 152; open to sophomores or higher.

Introduction to the materials and methods of painting in aqua media.

240. Aqua Media II

Either semester. Three credits. Two 3-hour studio periods. Prerequisite: ART 239; open to sophomores or higher.

Continuing study in aqua media.

241. Figure Painting

Either semester. Three credits. Two 3-hour studio periods. Prerequisite: ART 153, ART 164. May be repeated for up to six credits with a change in course content.

Investigations in figurative/narrative painting.

255. Advanced Figure Drawing

Either semester. Three credits. Two 3-hour studio periods. Prerequisite: ART 204. May be repeated once. Advanced studies in figure drawing.

256. Digital Imaging

Either semester. Three credits. Prerequisite: ART 166 and 261C.

Introduction to the use of the computer to digitize and manipulate photographic imagery.

257. Advanced Drawing

Either semester. Three credits. Two 3-hour studio periods. Prerequisite: ART 204 and consent of instructor. May be repeated with a change in course content to a maximum of 9 credits.

Advanced studies in drawing. Course content varies with instructor.

260. Communication Design I

Either semester. Three credits. Two 3-hour studio periods. Prerequisite: ART 165, portfolio review and consent of instructor; open to sophomores or higher.

Fundamentals of communication design.

261C. Introduction to Digital Media

Either semester. Three credits. Two 3-hour studio periods. Prerequisite: ART 111 and ART 130; open to sophomores or higher.

Introduction to digital media.

262. Alternative Processes (Photography)

Either semester. Three credits. Two 3-hour studio periods. Prerequisite: ART 265; open to sophomores or higher. May be repeated once with a change of content. *Craig*

Photographic printmaking systems outside conventional silver imaging processes.

263. Color Photography

Either semester. Three credits. Two 3-hour studio periods. Prerequisite: ART 166. May be repeated once with a change of content; open to sophomores or higher.

The processes and aesthetics of color photography.

264. Communication Design II

Either semester. Three credits. Two 3-hour studio periods. Prerequisite: ART 260.

Creative, appropriate and effective communication design through the use of type and image.

265. Intermediate Photography

Either semester. Three credits. Two 3-hour studio periods. Prerequisite: ART 166; open to sophomores or higher.

Principles and techniques of black-and-white photography in fine-art applications, with emphasis on darkroom work.

266. Advanced Photography

Either semester. Three credits. Two 3-hour studio periods. Prerequisite: ART 265. May be repeated once with a change of content.

Advanced problems in the use of photography as an art medium.

267. Communication Design III

Either semester. Three credits. Two 3-hour studio periods. Prerequisite: ART 260. Prerequisite or corequisite: 264.

Exploration of form, content, and function using various communication design methodologies.

269. Communication Design IV

Either semester. Three credits. Two 3-hour studio periods. Prerequisite: ART 267.

Exploration of communication design as a social, political, and cultural activity.

270. Design Center

Either semester. Three credits. May be repeated to a maximum of six credits. Two 3-hour studio periods. Prerequisites: ART 267, portfolio review, and consent of instructor.

Introduction to professional design practice.

271. Illustration

Either semester. Three credits. Two 3-hour or three 2-hour studio periods. Prerequisite: ART 153 and 164; open to sophomores or higher.

Introduction to principles of illustration, media, and techniques.

272. Topics in Illustration

Either semester. Three credits. Two 3-hour studio periods. Prerequisite: ART 204 and 271. May be repeated with a change of course content up to 9 credits.

Continuing problems in illustration. Projects may include book, editorial, reportage, or self-promotion illustration.

274. Communication Design Survey

Either semester. Three credits. Two 1½-hour class periods. Open to sophomores or higher.

A survey of the role and history of communication design.

276. Typography

Either semester. Three credits. Two 3-hour studio periods. Prerequisite: ART 165 and ART 261C. Open to sophomores or higher.

Introduction to typographic design.

277. Publication Design

First semester. Three credits. Two 3-hour studio periods. Prerequisite: ART 264.

Introduction to publication design.

278. Digital Multimedia

Second semester. Three credits. Two 3-hour studio periods. Prerequisite: ART 264.

Introduction to time-based communication design.

279. Art Outside the Mainstream

Either semester. Three credits. One 3-hour seminar period.

An examination of the range of contemporary art produced by self-taught artists working outside the mainstream in the United States, Europe, and selected global areas.

280. Percussion Instrument Design and Fabrication

Second semester. Three credits. Two 3-hour studio periods.

Design and fabrication of traditional and traditionally inspired percussion instruments including: Tocajon, Udu Drum, Slit Drum, Mbira, Barimbaw, Rhythm Bells.

281. Introduction to Video Art

Either semester. Three credits. Two 3-hour studio periods. Prerequisite: ART 166.

Introduction to techniques and aesthetics of video art.

283. Investigation of Special Topics

Either semester. Credits and hours by arrangement. Prerequisite: Consent of instructor. May be repeated for credit with a change in course content.

Special topics. Field trips may be required.

290. Materials and Techniques of Painting

Either semester. Three credits. Two 3-hour studio periods. Prerequisite: Consent of instructor.

Media and techniques of traditional and experimental painting.

293. Foreign Study

Either or both semesters. Credits and hours by arrangement. Consent of department head required. May be repeated with a change in course content.

Special topics taken in a foreign study program.

295. Studio Internship

Either semester. Three credits. Hours by arrangement. Open only with consent of instructor. Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

Supervised practical experience in studio and studio related work. Section one: *Communication Design Studio Internship*. Supervised practical experience in a commercial design studio, agency, or related work. Prerequisite: B average in communication design classes, ART 267, and consent of instructor. Section two: *Photography Studio Internship*. Supervised practical experience in a commercial photography studio, agency or in related work. Prerequisite: B average in photography classes, ART 266 and consent of a photography instructor. Section three: *Art Studio Internship*. Supervised practical experience in an art studio. Prerequisite: B average in major Junior - Senior course work and consent of instructor from the major.

296. Cooperative Education in Art

Either semester. Three credits. Hours by arrangement. Prerequisite: Junior - Senior standing. Open only with consent of Department Head. Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

Practicum for students participating in the off-campus Cooperative Education Program.

297. Senior Project

Both semesters. Three credits. Hours by arrangement. Limited to advanced B.F.A. students seventh semester or higher. To fulfill graduation requirement for B.F.A. students, must be passed with grade of C or better.

Project developed in student's area of concentration, to be exhibited in the Annual Senior Show. A vigorous and consistent thematic body of work which articulates both technical and conceptual concerns required.

299. Independent Study

Either semester. Maximum of up to 6 credits. May be repeated for a total of 6 credits. Limited to advanced 5th semester or higher standing and a GPA 3.0, with no outstanding incompletes for any other 299. Exceptions only by the approval of the department head.

For advanced students to develop a special project in advanced studio art.

Art History (ARTH)

Head of Department: Professor Judith Thorpe

Department Office: Room 100, Art Building

(Art History courses formerly offered as ART are now offered as ARTH under the same course numbers.)

136. Introduction to Art History I – Discussion

First semester. One credit. One class period. If elected, must be taken concurrently with ARTH 137.

Discussion section for ARTH 137.

137. Introduction to Art History I

First semester. Three credits.

Survey of art and architecture from prehistoric times through the fourteenth century.

138. Introduction to Art History II

Second semester. Three credits.

Survey of art and architecture from the fifteenth century to the present day.

139. Introduction to Art History II – Discussion

Second semester. One credit. One class period. If elected, must be taken concurrently with ARTH 138.

Discussion section for ARTH 138.

140. Introduction to Asian Art

Either semester. Three credits.

Survey of art and its social context in China, India and Japan from prehistoric times to the present.

141. Introduction to Latin American Art

Either semester. Three credits.

A thematic survey of Latin American art from 200 B.C. to the present.

191. Introduction to Architecture

(Formerly offered as ART 191.) Either semester. Three credits.

An introduction to the history of architecture considered in its social, technological and urban context.

193. Foreign Study

Either or both semesters. Credits and hours by arrangement. Consent of department head required, normally before the student's departure to study abroad.

Special topics taken in a foreign study program.

209. History of the Print

Either semester. Three credits.

Survey of printmaking in Europe and America from the Renaissance to the present.

210. Museums and the Interpretation of Culture

Either semester. Three credits.

The history and philosophy of museums.

210W. Museums and the Interpretation of Culture

Prerequisite: ENGL 105 or 110 or 111 or 250; open to art history and art majors, others with consent of instructor.

211. Art History's Feminisms

Either semester. Three credits.

Feminist approaches to the theory and practice of art history.

211W. Art History's Feminisms

Prerequisite: ENGL 105 or 110 or 111 or 250; open to art history and art majors, others with consent of instructor.

212W. Women and Body Art

Prerequisite: ENGL 105 or 110 or 111 or 250; open to art history and art majors, others with consent of instructor.

Women's use of body art to express aspects of gender identity and interpretation of body art from a variety of cultures. "Body art" encompasses cosmetics, painting, hair styling, tattoo, scarification, clothing, ornaments, plastic surgery and exercise.

220. Asian American Art and Visual Culture

(Also offered as AASI 220.) Either semester. Three credits.

Topics in contemporary Asian American art and visual culture, 1960's to present.

220W. Asian American Art and Visual Culture

Prerequisite: ENGL 105 or 110 or 111 or 250; open to art history and art majors, others with consent of instructor.

243. Greek Art

(Also offered as CAMS 251.) Either semester, alternate years. Three credits.

Greek art and architecture from the ninth century B.C. to the first-century A.D.

243W. Greek Art

Prerequisite: ENGL 105 or 110 or 111 or 250. Open to art history and art majors; others with consent of instructor.

246. Roman Art

(Also offered as CAMS 252.) Either semester, alternate years. Three credits.

History of Roman art and architecture.

246W. Roman Art

Prerequisite: ENGL 105 or 110 or 111 or 250; open to art history and art majors, others with consent of instructor.

250. Art of the Northern Renaissance

Either semester, alternate years. Three credits.

Painting, sculpture, graphic arts of the Lowlands and Germany, 1400-1600.

250W. Art of the Northern Renaissance

Prerequisite: ENGL 105 or 110 or 111 or 250; open to art history and art majors, others with consent of instructor.

251. Baroque Art

Either semester. Three credits.

Art and architecture of the seventeenth and early eighteenth centuries with emphasis on Italy, Netherlands, France and Spain.

251W. Baroque Art

Prerequisite: ENGL 105 or 110 or 111 or 250; open to art history and art majors, others with consent of instructor.

252. Nineteenth Century European Art

Either semester. Three credits.

European art from Neo-Classicism to Realism.

252W. Nineteenth Century European Art

Prerequisite: ENGL 105 or 110 or 111 or 250; open to art history and art majors, others with consent of instructor.

253. American Architecture

Either semester. Three credits.

American architecture from the colonial era to the present. Field trips may be required.

254. Nineteenth Century American Art

Either semester. Three credits.

Topics in American Art, 1770-1900.

254W. Nineteenth Century American Art

Prerequisite: ENGL 105 or 110 or 111 or 250; open to art history and art majors, others with consent of instructor.

256. Native American Arts

(Also offered as ANTH 252.) Either semester. Three credits.

A topical survey of the arts of Native American cultures in the United States and Canada.

257. Early Medieval Art

Either semester, alternate years. Three credits.

Early medieval art from the fifth through the tenth centuries. Germanic metalwork, Hiberno-Saxon manuscripts, and the art of the era of Charlemagne and his successors.

257W. Early Medieval Art

Prerequisite: ENGL 105 or 110 or 111 or 250; open to art history and art majors, others with consent of instructor.

258. Romanesque Art

Either semester, alternate years. Three credits.

Topics in medieval painting, architecture and sculpture through the twelfth century.

258W. Romanesque Art

Prerequisite: ENGL 105 or 110 or 111 or 250; open to art history and art majors, others with consent of instructor.

259. Gothic Art

Either semester. Three credits.

Gothic art and architecture, with emphasis on the court styles of England and France.

259W. Gothic Art

Prerequisite: ENGL 105 or 110 or 111 or 250; open to art history and art majors, others with consent of instructor.

262. The Early Illustrated Book

Either semester. Three credits.

The early history of the illustrated book, from antiquity through the introduction of printing.

262W. The Early Illustrated Book

Prerequisite: ENGL 105 or 110 or 111 or 250. Open to art history and art majors, others with consent of instructor.

267. History of Photography I

Either semester. Three credits.

Topics in the history of photography from 1839 to World War I.

268. History of Photography II

Either semester. Three credits.

Topics in the history of photography from World War I to the present.

268W. History of Photography II

Prerequisite: ENGL 105 or 110 or 111 or 250; open to art history and art majors, others with consent of instructor.

272. The Artist and Society

Either semester. Three credits.

An investigation of the artist's professional function throughout history in different Western societies.

273. Art of the Italian Renaissance

Either semester. Three credits.

Italian art and architecture 1400-1600.

273W. Art of the Italian Renaissance

Prerequisite: ENGL 105 or 110 or 111 or 250; open to art history and art majors, others with consent of instructor.

275. Mexican and Chicano Art, 19th Century - Present

Either semester. Three credits.

Topics in Mexican and Chicano art from Mexican Independence to the present.

275W. Mexican and Chicano Art, 19th Century - Present

Prerequisite: ENGL 105 or 110 or 111 or 250; open to art history and art majors, others with consent of instructor.

276. Caribbean Art, 19th and 20th Centuries

Either semester. Three credits.

A survey of art and visual production in the Caribbean from the 1804 Haitian Revolution to the present.

276W. Caribbean Art, 19th and 20th Centuries

Prerequisite: ENGL 105 or 110 or 111 or 250; open to art history and art majors, others with consent of instructor.

277. Art of Mesoamerica

Either semester, alternate years. Three credits.

A survey of art from Mexico and Central America 2000 BS-CE 1500. Cultures covered include Olmec, Zapotec, Maya, Toltec, and Aztec.

277W. Art of Mesoamerica

Prerequisite: ENGL 105 or 110 or 111 or 250; open to art history and art majors, others with consent of instructor.

278. Colonial Mexican Art

Either semester, alternate years. Three credits.

278W. Colonial Mexican Art

Prerequisite: ENGL 105 or 110 or 111 or 250; open to art history and art majors, others with consent of instructor.

279. Modern Latin American Art

Either semester. Three credits.

A thematic survey of Latin American art from the nineteenth century to present.

279W. Modern Latin American Art

Prerequisite: ENGL 105 or 110 or 111 or 250; open to art history and art majors, others with consent of instructor.

280. Early Christian and Byzantine Art

Either semester. Three credits.

Christian art and architecture of the late Roman empire and the Byzantine East up to the seventh century.

280W. Early Christian and Byzantine Art

Prerequisite: ENGL 105 or 110 or 111 or 250; open to art history and art majors, others with consent of instructor.

281. Modern Art

Either semester. Three credits.

Topics in the art of the first half of the twentieth century.

281W. Modern Art

Prerequisite: ENGL 105 or 110 or 111 or 250; open to art history and art majors, others with consent of instructor.

282. Architecture of the Twentieth Century

Either semester. Three credits.

283. Investigation of Special Topics

Either semester. Credits and hours by arrangement. May be repeated for credit with a change in course content.

Special topics.

285. African Art

Either semester. Three credits.

A survey of African art from antiquity to present.

285W. African Art

Prerequisite: ENGL 105 or 110 or 111 or 250; open to art history and art majors, others with consent of instructor.

286. The Art of China

Either semester. Three credits.

Survey of major art forms in China c. 2500 B.C. to the twentieth century.

286W. The Art of China

Prerequisite: ENGL 105 or 110 or 111 or 250; open to art history and art majors, others with consent of instructor.

287. The Art of Japan

Either semester. Three credits.

A survey of major art forms in Japan, prehistoric to the present.

287W. The Art of Japan

Prerequisite: ENGL 105 or 110 or 111 or 250; open to art history and art majors, others with consent of instructor.

288. Far Eastern Painting

Either semester, alternate years. Three credits. Recommended preparation: ARTH 286 or 287.

Major trends in painting in China from the Han Dynasty to the present; in Japan from the Nara Period to the present.

289. Buddhist Art in the Orient

Either semester, alternate years. Three credits.

Buddhist sculpture, painting, and architecture in India, China and Japan.

290. Ethnicities, Sexualities, Modernisms

(Also offered as WS 290.) Either semester. Three credits.

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.

291. Contemporary Art

Either semester. Three credits.

Topics in the art of the second half of the twentieth century.

291W. Contemporary Art

Prerequisite: ENGL 105 or 110 or 111 or 250; open to art history and art majors, others with consent of instructor.

292. Impressionism and Post-Impressionism

Either semester. Three credits.

Topics in French Painting, 1860-1900.

292W. Impressionism and Post-Impressionism

Prerequisite: ENGL 105 or 110 or 111 or 250; open to art history and art majors, others with consent of instructor.

293. Foreign Study

Either or both semesters. Credits and hours by arrangement. Consent of Department Head required.

Special topics taken in a foreign study program.

294. Field Studies Internship in Art History

Both semesters. Variable credit to a maximum of 12 credits. May be repeated for credit. Prerequisite: Junior standing, two 100-level Art History courses, two 200-level Art History courses and consent of instructor.

Supervised practical experience in museum and museum related work.

Section one: *Wadsworth Atheneum Internship*. Participation in Museum Studies Seminars, staff meetings and completion of individual project at the Atheneum. Application must be approved by Wadsworth Atheneum Education Department; deadlines are in April for first semester and November for second semester.

296. Cooperative Education in Art

Either semester. Three credits. Hours by arrangement. Prerequisite: Junior - Senior standing. Open only with consent of Department Head. Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

Practicum for students participating in the off-campus Cooperative Education Program.

297. Art Historical Methods

Either semester. Three credits. Prerequisite: Two 200-level courses in Art History.

An introduction to the methods of Art Historical analysis.

299. Independent Study

Either semester. Variable credit to a maximum of 6 credits. May be repeated for a total of 6 credits. Limited to advanced students 7th semester or higher with a departmental G.P.A. of 3.0 or higher. Consent of instructor required. Exceptions only by approval of Department Head.

Designed for advanced students who wish to pursue the study of a special topic, culminating in a project in art history.

Asian American Studies Institute (AASI)

Director, Asian American Studies Institute:

Roger N. Buckley

Office: Room 416, Beach Hall

201. Introduction to Asian American Studies

Second semester. Three credits. *Machida*

A multidisciplinary introduction to major themes in Asian American Studies. Concepts of identity and community, migration and labor histories, Asians and the law, representations of Asians in visual and popular culture, gender issues, interracial and interethnic relations, and human rights.

214. Medicinal Plants of Asian Origin and Culture

(Also offered as AH 214.) First semester. Three credits.

A review of the plant species of Asian origin and culture currently studied for nutraceutical and functional properties by biomedical and agricultural researchers. Strategies for successful cultivation and use of these "green immigrants" in North America.

215. Critical Health Issues of Asian Americans

(Also offered as AH 215.) First semester. Three credits. *Palaniswamy*

Examination of critical health issues affecting Asian American sub populations. Topics to include gender specific health problems; cultural issues; and health care issues.

216. Asian Medical Systems

(Also offered as AH 216.) Second semester. Three credits. *Palaniswamy*

Examination of traditional medical systems of Asian origin and their prevalence in the United States. Topics to include popular medical systems: Ayurveda, Traditional Chinese Medicine, Chinese, Indian and Japanese Herbal Medicine; the values and beliefs of different models.

220. Asian American Art and Visual Art

(Also offered as ARTH 220.) Either semester. Three credits.

Topics in contemporary Asian American art and visual culture, 1960's to present.

221. Sociological Perspectives on Asian American Women

(Also offered as SOCI 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 SOCI 221W.) Prerequisite: ENGL 105 or 110 or 111 or 250.

222. Asian Indian Women: Activism and Social Change in India and the United States

(Also offered as SOCI 222.) First semester. Three credits. Prerequisites: SOCI 107, 115 or 125.

How gender, class and ethnicity/race structure everyday lives of Asian Indian women in both India and the United States.

239. Geograpy of Asian American Experience

(Also offered as GEOG 239.) First semester. Three credits. *Li*

Geographical perspective on issues facing Asian American communities: immigration, community formation, economic structure, race relations, and political participation. The changing dynamics of American ethnicity and study of the ethnoburb. Diversity among Asian Americans, and comparison with other ethnic groups.

268. Japanese Americans and World War II
(Also offered as HIST 268.) First semester. Three credits. *Buckley*

The events leading to martial law and executive order 9066, the wartime experience of Japanese Americans, and national consequences.

274. Asian American Literature
(Also offered as ENGL 274.) Either semester. Three credits. Prerequisite: ENGL 109, or either 110 or 111. Open to sophomores or higher. *Chow*

Literature, theatre, film about Asian American communities and culture in the United States from the mid-nineteenth century to the present.

277. Modern India
(Also offered as HIST 277.) Second semester. Three credits. *Buckley*

An introduction to the history of India from the Mughal and European invasions of the 16th century to the present. India's synthesis of Eastern and Western culture, traditional and new, will be the focus.

287. East Asia to the Mid-Nineteenth Century
(Also offered as HIST 287.) First semester. Three credits. *Wang*

The major problems and issues of traditional Chinese and Japanese history and historiography. Special emphasis on the "Great Tradition" in ideas of both civilizations.

287W. East Asia to the Mid-Nineteenth Century
(Also offered as HIST 287W.) Prerequisite: ENGL 105 or 110 or 111 or 250.

288. East Asia Since the Mid-Nineteenth Century
(Also offered as HIST 288.) Second semester. Three credits. *Wang*

The reactions of East Asia to the Western threat, and the rise of Asian nationalism, communism, and fascism. Special attention to the tensions caused by the conflict of ideas.

288W. East Asia Since the Mid-Nineteenth Century
(Also offered as HIST 288W.) Prerequisite: ENGL 105 or 110 or 111 or 250.

294. Asian American Experience Since 1850
(Also offered as HIST 294.) Either semester. Three credits. *Wang*

Survey of Asian Americans in the United States since 1850. Responses by Asian Americans to both opportunities and discrimination.

298. Special Topics in Asian American Studies
Either semester. Credits and hours by arrangement. With a change in content, may be repeated for credit. Prerequisites and recommended preparation vary.

Biology (BIOL)

Students with inquiries about an undergraduate major should go to Torrey Life Sciences Building, Room 165.

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

For course descriptions of Biological Sciences, see these topics listed alphabetically throughout this *Directory of Courses*:

Ecological and Evolutionary Biology (EEB)
Molecular and Cellular Biology (MCB)
Physiology and Neurobiology (PNB)

102. Foundations of Biology
Either semester. Four credits. Three class periods and one 2-hour laboratory period. Not open for credit to students who have completed a year of advanced biology in high school. Students may not receive more

than 12 credits for courses in Biology at the 100's level.

A laboratory course designed for non-science majors; surveys major biological principles with emphasis on their importance to humans and modern society.

103. The Biology of Human Health and Disease
(Also offered as PVS 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. Not open for credit to students who have passed PVS 103. *Smolin, Terry*

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.

107, 108. Principles of Biology
Either semester. May be taken in either order. Four credits. Three class periods and one 3-hour laboratory period. Students may not receive more than 12 credits for courses in biology at the 100's level. A course in high school level chemistry or concurrent enrollment in CHEM 127 are recommended for students enrolling in 107.

A course designed to provide a foundation for more advanced courses in Biology and related sciences. Topics covered include molecular and cell biology, animal anatomy and physiology (BIOL 107); ecology, evolution, genetics, and plant biology, (BIOL 108). Laboratory exercises in BIOL 107 include dissection of preserved animals.

110. Introduction to Botany
First semester. Four credits. Three class periods and one 3-hour laboratory period. Students may not receive more than 12 credits for courses in biology at the 100's level. *Goffinet*

Structure, physiology and reproduction of seed plants as a basis for an understanding of the broader principles of biology as well as the relation of plants to human life. Includes a survey of the important groups throughout the plant kingdom.

195. Special Topics Lecture
Either semester. Credits, prerequisites, and hours as determined by the Senate Curricula and Courses Committee. May be repeated for credit with a change in topic.

196. Topics in Modern Biology
Either semester. One credit. One class period. Current enrollment in BIOL 107 or 108 required. May be repeated for credit with a change in content. Designed primarily for, but not restricted to, honors students. Students may not receive more than 12 credits for courses in Biology at the 100's level.

Readings, lectures, seminars, films and field trips exploring current developments in biology and their social and scientific implications.

199. Introduction to Biological Research
Either semester. Credits not to exceed 3. Hours by arrangement; three laboratory hours for each credit. May be repeated for credit with a change in content. Prerequisite: BIOL 107 or 108 and consent of instructor. Internship in Biology research.

295. Introduction to Undergraduate Research
(Formerly offered as MCB 295.) Either or both semesters. One credit. Open to sophomores or higher. Recommended preparation: BIOL 107 and 108, or equivalent. With a change in content, this course may be repeated for credit.

Introduction to the variety of research programs in the Life Sciences on the Storrs campus. Required of Sophomore Biology Honor students; also open to students interested in undergraduate research.

Biomedical Engineering (BME)

Program Director: Professor John Enderle
Department Office: 260 Glenbrook Road

210. Introduction to Biomedical Engineering
(Also offered as ECE 272.) First semester. Three credits. Prerequisite: BIOL 107. Corequisite: PHYS 151Q and MATH 210Q. Open to sophomores or higher. *Fox*

211. Introduction to Biomedical Engineering
First semester. Three credits. Prerequisite: BIOL 107. Corequisite: PHYS 151Q and MATH 210Q. Open to sophomores or higher.

Techniques for analysis and modeling of biomedical systems. Application of advanced mathematics (including Differential Equations, Laplace Transforms and Statistics) and computer-aided methods to study problems at the interface of engineering and biology. Elements of physiological modeling and the solution of the transient and forced response for a variety of biomechanical, biomaterial, bioelectrical and biochemical systems.

221. Introduction to Biochemical Engineering
(Also offered as CHEG 273 and as ENVE 283.) First semester. Three credits. Recommended preparation: CHEG 251.

Enzyme and fermentation technology; microbiology, biochemistry, and cellular concepts; biomass production; equipment design, operation, and specification; design of biological reactors; separation processes for bio-products.

223. Fermentation and Separation Technologies Laboratory
Second semester. Three credits. One class and two 3-hour laboratories. Prerequisite: BME 221.

Introduction to techniques used for industrial mass culture of prokaryotic and eukaryotic cells, and methods used to extract useful products from these cultures. Metabolic processes, energetics, growth kinetics and nutrition of microorganisms. Synthesis of cellular material and end products. Heat exchange, oxygen transfer, pH control, sterilization and design of fermentors. Culture of eukaryotic cell mass. Immobilized enzyme and cell reactors. Product recovery methods of precipitation centrifugation, extraction filtration and chromatography.

251. Biosystem Analysis
Second semester. Three credits. Prerequisite: BME 211. This course and ECE 202 may not be both taken for credit.

Fourier analysis, Laplace analysis and Z-transforms. Techniques for generating quantitative mathematical models of physiological control systems; the behavior of physiological control systems using both time and frequency domain methods.

252. Biomedical Engineering Measurements
First semester. Four credits. Prerequisite: ECE 210W.

A lecture and laboratory course that covers fundamentals of biomedical measurement and patient safety. Measurements of physical quantities by means of electronic instruments, mechanical devices and biochemical processes. Analysis of measurement systems using mathematical models. Methods of measuring signals in the presence of noise. Use of computers in measurement systems.

253. Physiological Control Systems
Semester by arrangement. Three credits. Prerequisite: BME 251 or ECE 232.

Analysis of human physiological control systems and regulators through the use of mathematical models. Identification and linearization of system components. Systems interactions, stability, noise, and the relation

of system malfunction to disease. The analysis and design of feedback systems to control physiological states through the automatic administration of drugs.

255. Bioinstrumentation

First semester. Three credits. Prerequisite: BME 252.

Modeling, analysis, design, and operation of transducers, sensors, and electrodes, for physiological systems; operational and instrumentation amplifiers for bioelectric event signal conditioning, interfacing and processing; A/D converters and hardware and software principles as related to sampling, storing, processing, and display of biosignals and digital computers.

261W. Biomechanics

First semester. Four credits. Prerequisite: BME 211; ENGL 105 or 110 or 111 or 250.

A lecture and laboratory course that covers mechanics of bone and soft tissue. Biosolids and biofluids. Simple and combined stress and strain, torsion and flexure. Tissue strength and constitutive equations. Fatigue and fracture resistance of bone. Synovial joint mechanics. Friction and wear, gears, pins, clutches, joints, rivets, screws and other joining elements and their structural interactions. Material selections for the biomedical design.

262. Biosolid Mechanics

Either semester. Three credits. Prerequisite: BME 261 and CE 287.

Mechanical behavior of biological solids. Applications of the theories of elasticity, viscoelasticity, and poroelasticity to bones, ligaments and tendons, skeletal muscle, and articular cartilage. Axial, bending, shearing and torsional loadings. Bone morphology and growth. Biphasic theory. Failure theories. Topics may be modified slightly to accommodate student interests.

271. Biomaterials

Second semester. Four credits. Prerequisite: MMAT 201 or 243 and BME 211.

A lecture and laboratory course that introduces a series of implant materials including metals, ceramics, glass ceramics, polymers, and composites. These materials are compared with the natural materials, with consideration given to issues of mechanical properties, biocompatibility, degradation of materials by biological systems, and biological response to artificial materials. Particular attention is given to the materials for the total hip prosthesis, dental restoration, and implantable medical devices.

272. Advanced Biomaterials

Semester by arrangement. Hours by arrangement. Three credits. Prerequisite: BME 211 and BME 271.

The strategies and fundamental bioengineering design criteria behind the development of cell-based tissue substitutes, artificial skin, muscle, tendons, bone, and extracorporeal systems that use either synthetic materials or hybrid (biological-synthetic) systems. Topics include biocompatibility, biological grafts, gene-therapy-transfer, and bioreactors.

280. Bioinformatics

(Also offered as CSE 277.) Either semester. Three credits. Prerequisite: BIOL 107, CSE 254, and either STAT 220Q or STAT 224Q.

Fundamental mathematical models and computational techniques in bioinformatics. Exact and approximate string matching, suffix trees, pairwise and multiple sequence alignment, Markov chains and hidden Markov models. Applications to sequence analysis, gene finding, database search, phylogenetic tree reconstruction.

290. Biomedical Engineering Design I

Both semesters. Three credits. Prerequisite: This course is taken by seniors in the semester before BME 291.

Discussion of the design process; project statement, specifications project planning, scheduling and division of responsibility, ethics in engineering design, safety, environmental considerations, economic constraints, liability, manufacturing, and marketing. Projects are carried out using a team-based approach. Selection and analysis of a design project to be undertaken in BME 291 is carried out. Written progress reports, a proposal, an interim project report, a final report, and oral presentations are required.

291. Biomedical Engineering Design II

Both semesters. Three credits. Prerequisite: BME 290.

Design of a device, circuit system, process, or algorithm. Team solution to an engineering design problem as formulated in BME 290, from first concepts through evaluation and documentation. Written progress reports, a final report, and oral presentation are required.

295. Special Topics in Biomedical Engineering

Semester, credits and hours by arrangement or as announced. Prerequisite and/or consent: Announced separately for each course. With a change in topic, this course may be repeated for credit.

Classroom and/or laboratory courses in special topics as announced for each semester.

299. Independent Study

Either semester. Credits and hours by arrangement or as announced. Prerequisite: Consent of instructor. With a change in content, this course may be repeated for credit.

Individual exploration of special topics as arranged by the student with an instructor of his or her choice.

Business Administration (BADM)

198. Contemporary Issues in the World of Business

Either semester. One credit. May be repeated in different sections for up to three credits maximum. Open to freshmen and sophomores; others with consent of instructor. May not be used to satisfy Junior-Senior level major requirements of the School of Business.

The world of business has changed. No longer can we refer to the cliché "business as usual." Today's business world is a complex, challenging and exciting place. Each section of this course will capture some aspect of that challenge and excitement. Students will be exposed to undercurrents that challenge and perplex today's managers and executives around the globe. Students should consult the scheduling booklet for specific topics offered.

210. Principles of Managerial Accounting

Either semester. Three credits. Prerequisite: ACCT 131. Not open to students who have passed or are taking ACCT 200. Will not substitute for ACCT 200 for students who enter the School of Business.

A survey of internal reports to managers for use in planning and controlling operating systems, for use in decision-making, formulating major plans and policies, and for costing products for inventory valuation and income determination.

220. Business Law

Either semester. Three credits. Not open to students who have passed or are taking BLAW 271. Will not substitute for BLAW 271 for students who enter the School of Business.

A study of the interaction between the business

community and the legal environment through a systematic analysis, including cases, of the procedural and substantive rules of law with special emphasis placed on the jurisprudence governing contracts, torts, and property. Business ethics are also considered.

230. Financial Management

Either semester. Three credits. Prerequisite: ACCT 200 or BADM 210, which may be taken concurrently; ECON 111 and 112 or 102; MATH 105; STAT 100 or 110. Not open to students who have passed or are taking FNCE 201. Will not substitute for FNCE 201 for students who enter the School of Business.

An introductory examination of how a business plans its needs for funds, raises the necessary funds, and invests them to attain its goals.

240. Managerial and Interpersonal Behavior

Either semester. Three credits. Not open to students who have passed or are taking MGMT 201. Will not substitute for MGMT 201 for students who enter the School of Business.

Topics covered include individual work motivation, interpersonal communications in organizations, team building and group processes, leadership, decision-making, and understanding and managing cultural diversity. Classes will emphasize interpersonal and leadership skill-building through the inclusion of exercises which rely on active participation of class members.

250. Introduction to Marketing Management

Either semester. Three credits. Prerequisites: ACCT 131, ECON 111 and 112 or ECON 102; MATH 105; STAT 100 or 110. Not open to students who have passed or are taking MKTG 201. Will not substitute for MKTG 201 for students who enter the School of Business.

An introduction to the marketing system, its foundations and institutions. Students are exposed to product, promotion, price, and distribution decision areas, strategic alliances, relationship marketing, and total marketing quality.

260. Business Information Systems

Either semester. Three credits. Not open to students who have passed or are taking OPIM 203C. Will not substitute for OPIM 203C for students who enter the School of Business.

An introduction to the information needs of managers, the structure of the information systems required to fill these needs, systems development, and business computing technology. Also covers selected management applications within the major business functions.

291. Mobile Computing Lab I

Either semester. Zero credits. Open only to students admitted to the School of Business.

Registering for this course enters the student into the Mobile Computing Initiative for the School of Business. The student will be provided with a leased notebook computer that is configured for use with the network in the School. The student will be expected to attend an orientation session at the beginning of the semester. Consult the website: <http://www.business.uconn.edu/its> for the details about the computer, policies and associated fees.

292. Mobile Computing Lab II

Either semester. Zero credits. Prerequisite: BADM 291. May be repeated.

Registering for this course continues the student's participation in the Mobile Computing Initiative for the School of Business. The student will continue to have access to the leased computer provided in the semester they registered for BADM 291.

295. Mobile Computing Lab III

Either semester. Zero credits. Open only with consent.

Students from outside the School of Business who wish to register for courses within the School must register for this course to participate in the Mobile Computing Initiative. The student will need to present their notebook computer for certification to the Information Technology Services department at the School and make it compatible with the School's network prior to receiving permission to enroll in this course. Consult the website: <http://www.business.uconn.edu/its> for the current requirements.

296. Mobile Computing Lab IV

Either semester. Zero credits. Prerequisite: BADM 295. May be repeated.

Registering for this course continues the student's participation in the Mobile Computing Initiative for the School of Business. The student will continue to have access to the computer they had certified in the semester they registered for BADM 295.

298. Special Topics

Either semester. Credits and hours by arrangement. Prerequisite: Announced separately for each offering. Not open to Business majors. With a change in content, may be repeated for credit.

Classroom course in special topics in business administration as announced in advance for each semester.

Business Law (BLAW)

Courses are open to juniors and seniors only. The School of Business requires students at the Storrs campus to participate in the Mobile Computing Initiative before registering for the courses listed below. See the School of Business Catalog section for details about how this program operates. Students not participating in the initiative may be able to register for the following class: 280.

271. Business Law

Either semester. Three credits. Not open to students who have passed or are taking BADM 220.

A study of the interaction between the business community and the legal environment through a systematic analysis, including cases, of the procedural and substantive rules of law with special emphasis placed on the jurisprudence governing contracts, torts, and property. Business ethics are also considered.

272. Business Law

Alternate semesters. Three credits. Prerequisite: BLAW 271.

The course acquaints the student with the fundamental legal principles surrounding the law of sales and negotiable instruments.

273. Business Law

Alternate semesters. Three credits. Prerequisite: BLAW 271 or BADM 220.

This course covers the basic legal principles of agencies, partnerships, and corporations. Partnerships and corporations are examined from both legal and functional view points.

274. Real Estate Law

Alternate semesters. Three credits. Prerequisite: BLAW 271 or 275 or BADM 220.

This course is designed to examine the legal aspects of land sale transactions. A study is made of typical documentation used in such transactions; the role of the real estate broker; the rights, liabilities and remedies of the buyer and seller arising out of their contract; sources and alternative forms of financing; basic tax devices; and development alternatives.

275. Business, Law and Society

Either semester. Three credits.

The meaning of law and the structure of the American legal system are studied with a view toward the impact of law upon the operation of American business. Philosophies of American business enterprise, as well as business ethics and morality, are examined and compared with the demands the law makes upon conduct of business people. Business and governmental relationships are explored, with special attention focused on governmental regulation of business by statutory and decision law.

277. Business Transactions and the Law

Either semester. Three credits. Prerequisite: BLAW 275. Not open to students who have passed BLAW 271.

This course provides an overview of how key business transactions and the law are related. Specific topics included are contracts, sales, and negotiable instruments. Also covered are aspects of agency, partnerships, corporations, limited partnership, limited liability companies, secured transactions, and bankruptcy. This course is primarily designed for accounting majors.

280. International Business Law

Alternate semesters. Three credits.

This course is designed to acquaint the student with international business law and with the legal aspects of international business transactions. In examining the legal considerations involved in doing business internationally, this course explores the law surrounding international dispute resolution, the international sale of goods, the European Community, The General Agreement on Tariffs and Trade, the regulation of imports and exports, and a variety of other topics relevant to the legal relationship between business and the international community.

289. Field Study Internship

Either or both semesters. One to six credits. Hours by arrangement. Prerequisite: Completion of Freshman-Sophomore level School of Business Requirements and consent of instructor and Department Head. Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

Designed to provide students with an opportunity for supervised field work relevant to one or more areas in business law. 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 student's departure.

Special topics taken in a foreign study program.

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 law as announced in advance for each semester.

299. Independent Study

Either 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 law as mutually arranged between student and instructor.

Chemical Engineering (CHEG)

Head of Department: Professor Joseph J. Helble
Department Office: Room 204, Engineering II

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

Students who do not have the suggested preparation for a course in the Chemical Engineering department are strongly advised to discuss their preparation with the instructor or the department Head before registering for the course.

203. Introduction to Chemical Engineering

First semester. Three credits. Recommended preparation: CHEM 128, MATH 114 or MATH 116, ENGR 150 or CSE 110 or CSE 123C. Open to sophomores or higher.

Application of the principles of chemistry and physics to chemical processes; units, dimensions, and process variables; material balances; equations of state (ideal and real); single component equilibria; energy balances; non reactive and reactive processes; combined mass and energy balances.

211-212. Chemical Engineering Thermodynamics

Both semesters. Three credits each semester. Three class periods and one discussion period. Recommended preparation: MATH 210 and 211, CHEM 128, and CHEG 203 (or consent of Chemical Engineering Department Head). CHEG 211 and ME 233 may not both be taken for credit. CHEG 211 is open to sophomores or higher. Consent of instructor and department head.

First semester: first and second law of thermodynamics; thermal and PVT properties of matter; exact differentials and thermodynamic identities; design and analysis of power cycles; analysis of refrigeration and liquefaction processes.

Second semester: properties of ideal and non-ideal mixtures; ideal and non-ideal phase equilibria; design of equilibrium flash separators; phase equilibria using equations of state; chemical equilibria; optimum condition for feasible reaction equilibria.

223-224. Transfer Operations

Both semesters. Three credits each semester. Three class periods and one discussion period. Recommended preparation: MATH 210 and 211, CHEM 128, and CHEG 203.

First semester: overall mass, energy, and momentum balances; fluid flow phenomena; theoretical and empirical relationships for design of incompressible fluid-flow systems; conductive heat transfer; heat transfer coefficients and design of heat exchange systems.

Second semester: radiation heat transfer, design of heat exchange equipment; evaporation; design of mass transfer processes including distillation and extraction; analysis and design of diffusional processes such as gas absorption and humidification.

225. Advanced Transfer Operations

Second semester. Three credits. Recommended preparation: CHEG 224.

An advanced study of transport phenomena, rate processes, and problems of a more complex nature.

237W. Chemical Engineering Laboratory

First semester. Three credits. Two 1-hour discussion periods. Two 3-hour laboratories. Prerequisite: ENGL 105 or 110 or 111 or 250. Recommended preparation: CHEG 212 and 224.

Open-ended laboratory investigations in chemical engineering focusing on fluid mechanics, heat transfer, thermodynamics, and combined heat and mass transfer; emphasis on student teamwork and on design

of experiments to meet objectives; technical report writing; oral presentations.

239W. Chemical Engineering Laboratory

Second semester. Three credits. Two 1-hour discussion periods. Two 3-hour laboratories. Prerequisite: ENGL 105 or 110 or 111 or 250. Recommended preparation: CHEG 237W, 251 and 247.

Open-ended laboratory investigations in chemical engineering focusing on reaction kinetics, reactor design, process control, and mass transfer; emphasis on student teamwork and on design of experiments to meet objectives; technical report writing; oral presentations.

241. Process Design and Economics

First semester. Three credits. Recommended preparation: CHEG 212, 224, and 251. May not be substituted for CHEG 243.

Chemical engineering process synthesis and design; comparison of alternative processing steps; instrumentation; cost estimation; economic analysis; process optimization; emphasis on conceptual design in application of chemical engineering principles.

243. Process Design and Economics

Second semester. Four credits. Recommended preparation: CHEG 212, CHEG 224, and CHEG 251. Not open for credit to students who have passed CHEG 242.

Chemical engineering process synthesis and design; comparison of alternative processing steps; instrumentation; cost estimation; economic analysis; process optimization; emphasis on conceptual design in application of chemical engineering principles; design of process equipment, computer-aided design of equipment and flow sheets; design and analysis of complete process plants.

245. Chemical Engineering Analysis

First semester. Three credits. Recommended preparation: CHEG 203 and MATH 210 and 211.

Mathematical and numerical methods for solving engineering problems; description and computer modeling of physical and chemical processes with ordinary and partial differential equations; treatment and interpretation of engineering data.

247. Introduction to Process Dynamics and Control

First semester. Three credits. Recommended preparation: CHEG 212 and 224 and MATH 210 and 211.

Chemical process modeling, dynamics, and analysis; measurement and control of process variables; design, and computer simulation of simple processes and control systems.

251. Process Kinetics

Second semester. Recommended preparation: CHEG 212.

Theory of chemical rate; homogenous, heterogenous and catalytic systems. Analysis and design of batch and flow reaction systems; analysis of rate data; temperature and catalytic effects in reactor design; mass transport effects; non-ideal reactor design.

256. Polymeric Materials

Either semester. Three credits. Recommended preparation: CHEM 244. Not open for credit to students who have passed CHEM 280.

Structure, properties, and chemistry of high polymers; solution and phase behavior; physical states, viscoelasticity and flow; production and polymer processing; design of polymers for specific applications.

261. Introduction to Nuclear Engineering

First semester. Three credits. Recommended preparation: CHEG 211 and 223.

Nuclear physics, reactor kinetics, and the nuclear

fuel cycle; classification and analysis of nuclear power reactors; environmental effects of nuclear power; analysis of severe nuclear accidents.

262. Engineering Entrepreneurship

Either semester. Three credits.

Students assume the role of engineer as entrepreneur and develop a business plan to launch a new technology as a business; course includes topics on intellectual property, venture capital, market analysis, advertising, incorporation, contracts and web development.

273. Introduction to Biochemical Engineering

(Formerly offered as CHEG 283.) (Also offered as BME 221 and as ENVE 283.) First semester. Three credits. Recommended preparation: CHEG 251.

Enzyme and fermentation technology; microbiology, biochemistry, and cellular concepts; biomass production; equipment design, operation, and specification; design of biological reactors; separation processes for bio-products.

274. Bioremediation

Either semester. Three credits. Recommended preparation: CHEG 251 and 273.

Application of engineering and biological principles toward remediation of hazardous waste; degradation of toxic chemicals using genetically-engineered microorganisms; and biological contacting devices for waste remediation.

275. Fermentation and Separation Laboratory

Either semester. Three credits. Recommended preparation: Course work in biochemistry or microbiology.

Introduction to industrial mass culture of prokaryotic and eukaryotic cells and methods used to extract useful products from these cultures. Metabolic processes, energetics, growth kinetics and nutrition of microorganisms. Heat exchange, oxygen transfer, pH control, sterilization, design of fermenters and product recovery.

280. Introduction to Environmental Rate Processes

(Also offered as ENVE 280.) First semester. Three credits. Recommended preparation: CHEM 128.

Application of thermodynamics, chemical kinetics and transfer operations to environmental problems; water pollution control. Open only to students not majoring in chemical engineering.

281. Introduction to Water Pollution

(Also offered as ENVE 281.) Second semester. Three credits. Recommended preparation: CHEG 224.

Water purification and water quality control; aeration and mass transfer, biological mechanisms and kinetics; design of biological reactors and sludge treatment facilities; design and operation of physical purification methods; alternative processes for industrial wastewater treatment.

285. Introduction to Air Pollution

(Also offered as ENVE 285.) Second semester. Three credits. Recommended preparation: CHEG 211 or ME 233 or ME 238.

Gaseous pollutants and their properties; basic analytical techniques for air pollutants; particulate pollutants and their properties; equipment design for removal of gaseous and particulate materials; economic and environmental impact of air pollutants; federal and state regulations.

286. Energy Process Technology

(Formerly offered as CHEG 270.) Second semester. Three credits. Recommended preparation: CHEG 211 or ME 233 or 238.

Present and potential sources of energy; production and processing of fossil fuels; characteristics of energy utilization systems; design and analysis of power

generation systems; design of building heating and cooling systems; solar energy technology.

295. Special Topics in Chemical Engineering

Semester, credits and hours by arrangement or as announced. Prerequisite and/or consent: Announced separately for each course. This course, with a change in topic, may be repeated for credit.

A classroom course on special topics as announced.

299. Introduction to Research

Either semester. Credits and hours by arrangement or as announced. Prerequisite: Consent of instructor. This course may be repeated for credit.

Methods of conducting research; design of laboratory investigations and experiments; correlation and interpretation of experimental results; writing of formal, technical reports; oral presentations; independent student effort, initiative and resourcefulness are required.

Chemistry (CHEM)

Head of Department: Professor Steven Suib

Department Office: Room 151, Charles E. Waring Chemistry Building

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

101. Chemistry for an Informed Electorate

Either semester. Three credits. Three class periods. Not open to students who have passed CHEM 122, 127, 129, 137, or 153. *Knob*

Basic concepts and applications of chemistry. Contributions of chemistry to our everyday lives. Chemical issues and problems in our society. Designed for students in fields outside of science. Assumes no prior knowledge of chemistry.

122. Chemical Principles and Applications

Second semester. Four credits. Three class periods and one 1-hour discussion and one 2-hour laboratory per week. Not open for credit to students who have passed CHEM 127 or 129 or 137 or 153.

Brief but comprehensive survey of important chemical theories and applications of chemistry. Preparation for one-semester courses in organic chemistry and biochemistry. Atomic structures, chemical bonding, chemical reactions, stoichiometry, states of matter, and theories of solutions. Does not fulfill the two-semester general chemistry requirement for majors in biology, chemistry, pharmacy, physics and agriculture and natural resources. Does not satisfy the admission requirements of medical and dental schools. With high grade, may serve as a prerequisite for CHEM 128 or 138 or 154.

124Q. Fundamentals of General Chemistry I

Either semester. Four credits. Three class periods and one 3-hour laboratory period. Not open to students who have passed CHEM 122, 127Q, 129Q, or 130Q. Recommended preparation: MATH 101 or equivalent.

This course is the first semester of a 3-semester sequence that is designed to provide a foundation for the principles of chemistry with special guidance provided for the quantitative aspects of the material. Topics include the physical and chemical properties of some elements, chemical stoichiometry, gases, atomic theory and covalent bonding.

125Q. Fundamentals of General Chemistry II

Either semester. Three credits. Prerequisite: CHEM 124Q. Two class periods and one 3-hour laboratory period. Open by consent of instructor for only 1 credit to students who have passed CHEM 122 with high standing or who have passed CHEM 127Q, 129Q or 137Q. Not open to students who have passed CHEM

128Q, 130Q, or 138Q.

Follows CHEM 124Q. Topics include the properties of aqueous solutions and chemical equilibria.

126Q. Fundamentals of General Chemistry III

Either semester. Three credits. Prerequisite: CHEM 125Q. Two class periods and one 3-hour laboratory period. Not open to students who have passed CHEM 128Q, 130Q, or CHEM 138Q.

Follows CHEM 125Q. Topics include the properties of kinetics, complex ions, thermodynamics and electrochemistry.

127Q-128Q. General Chemistry

Either semester. Four credits. Three class periods and one 3-hour laboratory period. Students who have passed CHEM 122 will receive only 2 credits for CHEM 127 but 4 credits will be used for calculating the GPA. Very high standing in CHEM 122 may substitute for CHEM 127 with the consent of the instructor. CHEM 127 is not open for credit to students who have passed CHEM 129 or 137 or 153; CHEM 128 is not open to students who have passed CHEM 130 or 138 or 154. Recommended preparation for CHEM 127Q: MATH 101 or equivalent.

Designed to provide a foundation for more advanced courses in chemistry. Atomic theory; laws and theories concerning the physical and chemical behavior of gases, liquids, solids, and solutions. Properties of some of the more familiar elements and their compounds. Quantitative measurements illustrating the laws of chemical combination in the first semester lab. Equilibrium in solutions and qualitative reactions of the common cations and anions in the second semester lab.

129Q-130Q. Honors General Chemistry

(Honors Course.) Both semesters. Four credits each semester. Three class periods and one 3-hour laboratory period. Prerequisite: Strong background in high school chemistry and physics. Prerequisite or corequisite: MATH 112 or 115; consent of instructor. Designed primarily for exceptionally well-prepared science and engineering students, although any qualified honors student may take it. This course can be used as an alternate wherever CHEM 127Q-128Q is listed as a prerequisite. Not open for credit to students who have passed CHEM 137Q-138Q, or 153Q-154Q. Recommended preparation for CHEM 129Q: MATH 101 or equivalent.

Atomic and molecular theory and the properties of gases, liquids, solids, and solutions. Topics which may be covered in depth are the nature of the chemical bond, chemical equilibria, thermodynamics, electrochemistry and nuclear chemistry. The laboratory work is primarily quantitative in nature. Considerable personal initiative will be demanded of students in carrying out laboratory assignments.

137Q-138Q. Enhanced General Chemistry

(Formerly offered as Chemistry 153Q and 154Q.) Both semesters. Four credits each semester. Three class periods and one 3-hour laboratory period. Prerequisite: One year of high school chemistry and a high pass on the Q Test. Prerequisite or corequisite: MATH 112 or 115; or consent of instructor. Primarily for majors in chemistry and related disciplines. This course can be used as an alternate wherever CHEM 127Q-128Q is listed as a prerequisite. Not open for credit to students who have passed CHEM 129Q-130Q or 153Q-154Q. Recommended preparation for CHEM 137Q: MATH 101 or equivalent.

Atoms, molecules, ions, chemical bonding. Gases, liquids, solids, solutions, equilibrium, thermodynamics, nuclear chemistry, kinetics and organic chemistry. May include modern materials,

environmental chemistry, metallurgy, and biochemistry.

141. Organic Chemistry

First semester. Three credits. Prerequisite: CHEM 122 or 127 or 129 or 137 or 153. Not open for credit to students who have passed CHEM 243.

An abridged course in organic chemistry designed to provide a background for related fields in which a general rather than a detailed knowledge of the compounds of carbon is required.

142. Organic Chemistry Laboratory

First semester. One credit. One 4-hour laboratory period including discussion. Prerequisite or corequisite: CHEM 141. Not open to students who have passed CHEM 243.

155. Introduction to Chemical Research

Either semester. Credits, not to exceed 3 and hours by arrangement; three laboratory hours for each credit. Prerequisite: CHEM 127 or 129 or 137 or 151 or 153 and consent of instructor.

Internship in research laboratories.

195. The Science of Chemistry

Second semester. One credit. One 1-hour class period. Readings, lectures, films and field trips exploring the field of chemistry and its scientific and social implications.

210. Descriptive Inorganic Chemistry

First semester. Two credits. Two class periods. Prerequisite: CHEM 128 or 130 or 138 or 154. Not open for credit to students who have passed CHEM 151.

Introduction to bonding, structure, spectroscopy, physical properties, and reactivity of inorganic compounds.

214. Intermediate Inorganic Chemistry

Second semester. Three credits. Prerequisite: CHEM 151 or 210. Recommended preparation: CHEM 264.

A systematic presentation of bonding, structure, properties, and reactions of inorganic compounds.

215. Inorganic Chemistry Laboratory

Second semester. Three credits. One class period and two 3-hour laboratory periods. Prerequisite or corequisite: CHEM 214.

The preparation, isolation, purification, and characterization of inorganic compounds; special techniques and instrumentation may be required.

216. Selected Topics in Inorganic Chemistry

Second semester. Three credits. Prerequisite: CHEM 214.

A systematic study in special topics format of the theory, bonding, and structure of the transition metals and their compounds. The correlation of structure and electronic states with physical properties will be developed.

232Q. Quantitative Analytical Chemistry

Second semester. Four credits. Two class periods and two 3-hour laboratory periods. Prerequisite: CHEM 128 or 130 or 138 or 154. (Two credits for students who have passed CHEM 152 or 230.) Recommended preparation: CHEM 263. Open to sophomores or higher.

Fundamentals of analytical chemistry. While it is a course for chemistry majors, it is also suitable for students in other technical fields who have an interest in learning quantitative analytical chemistry procedures applicable to analytical instrumentation. Traditional wet chemical techniques and instrumental methods. Quantitative chemistry and chemical computations.

234Q. Instrumental Analysis I

First semester. Four credits. Two class periods and two 3-hour laboratory periods. Prerequisite: CHEM 232 (or CHEM 152 or 230). Recommended preparation: CHEM 264.

Instrumental analytical techniques including

molecular spectroscopy, atomic spectroscopy, electrochemistry, separations, and introductory electronics. This course is an extension of the instrumental portion of CHEM 232.

235. Instrumental Analysis II

Second semester. Four credits. Three class periods and one 3-hour laboratory period. Prerequisite: CHEM 234.

Analytical aspects of electron, X-ray, vibrational, and other spectroscopic methods. Analysis of surfaces. Advanced topics in data analysis and modern analytical methodology.

240. Organic Chemistry Laboratory

Either semester. One credit. One 4-hour laboratory period. Not open for credit to students who have passed CHEM 245. Prerequisite: CHEM 243. This course is open only to Chemical Engineering or Bio-medical Engineering majors or by consent of instructor. Open to sophomores or higher.

Introduction to techniques, manipulations, calculations and spectroscopy.

242W. Advanced Organic Chemistry Laboratory

Either semester. Three credits. One class period and two 3-hour laboratory periods. Prerequisite: CHEM 245; ENGL 105 or 110 or 111 or 250.

Advanced techniques and fundamentals of organic synthesis and identification.

243. Organic Chemistry

Either semester. Three credits. (Two credits for students who have passed CHEM 141.) Prerequisite: CHEM 128 or 130 or 138 or 152 or 154. Open to sophomores or higher.

Structure and reactions of the simpler classes of the compounds of carbon.

244. Organic Chemistry

Either semester. Three credits. Prerequisite: CHEM 243. Open to sophomores or higher.

A continuation of CHEM 243.

245. Organic Chemistry Laboratory

Either semester. Three credits. (Students who have passed CHEM 240 will receive only 2 credits for CHEM 245. Students who have passed CHEM 142 will receive only 2 credits for CHEM 245, but 3 credits will be used for calculating QPR scores.) Two 3-hour laboratory periods and one 1-hour discussion period. Prerequisite or corequisite: CHEM 244. Open to sophomores or higher.

251Q. Introduction to Quantum Chemistry

First semester. Three credits. Prerequisite: CHEM 264.

An introduction to quantum theory and its applications to atomic and molecular structure and spectroscopy.

256. Physical Chemistry Laboratory

First semester. One credit. One 3-hour laboratory period. Prerequisite or corequisite: CHEM 263. Not open for credit to students who have passed CHEM 265. This laboratory course is for students majoring in chemical engineering and cannot be counted toward the chemistry major group.

Laboratory experiments in thermodynamics, kinetics and spectroscopy.

263Q-264Q. Physical Chemistry

Both semesters. Four credits each semester. Prerequisite: CHEM 128 or 130 or 138 or 152 or 154; PHYS 123, or 132, or 142, or 152; MATH 210 or 220 for CHEM 263; and MATH 211 or 221 for CHEM 264.

A study of gases, liquids, solids, solutions, and thermodynamics in CHEM 263 and kinetics, atomic and molecular theory and spectroscopy in CHEM 264.

Chinese (CHIN)

Head of Department: Professor David K. Herzberger
Department Office: Room 228, J.H. Arjona Building

101-102. Elementary Levels I and II

103-104. Intermediate Levels I and II

101 and 103 are offered in the first semester, and 102 and 104 in the second. Please refer to the Critical Languages course descriptions in this publication. Consult the Program Director in Arjona 128 or at Ed.Benson@UConn.edu for more information.

Civil & Environmental Engineering (CE)

Head of Department: Professor Erling Smith
Associate Head of Department: Associate Professor Ramesh Malla

Department Office: Room 302, F.L. Castleman Bldg.

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

Courses in Applied Mechanics are listed under that heading, immediately following the Civil Engineering courses. Also see courses listed under Engineering.

201. Decision Analysis in Civil and Environmental Engineering

(Also offered as ENVE 201.) First semester. Three credits. Prerequisite: MATH 114 or 116. May not be taken for credit if the student has taken CE 251, 281, or ENVE 251. *Anagnostou, Ivan*

Time value of money. Evaluation of alternative projects. Fundamentals of probability theory and statistics. Introduction to critical path method for project scheduling and optimization using linear mathematical models.

202. Operations Research in Civil and Environmental Engineering

Second semester. Three credits. Prerequisite: CE 201. This course and CE 256 may not both be taken for credit.

Critical path method for scheduling and managing engineering project tasks. Resource allocation subject to constraints. One and two-phase simplex method for linear programming. Optimization of non-linear problems.

222. Civil Engineering Materials

Second semester. Three credits. Two lectures. One 3-hour laboratory. Prerequisite or corequisite: CE 287. *Accorsi, Davis, Frantz, Smith*

Engineering properties of steel, Portland cement concrete, bituminous cement concrete, and timber; laboratory measurement of properties; interpretation of results. Written reports.

222P. Civil Engineering Materials

Prerequisite: CE 287, which may be taken concurrently; ENGL 105 or 110 or 111 or 250. Must be taken with another P course in Civil Engineering to equal one W course.

230. Mechanics of Materials and Structures Laboratory

Two credits. One hour lecture and one 2-hour Laboratory. Prerequisite: CE 222; and prerequisite or corequisite: CE 234 and CE 236. *Smith, Davis*

Laboratory experiments to complement, reinforce and develop concepts learned in Mechanics of Materials, Basic Structural Analysis and Basic Structural Design. Topics include tension, torsion, flexure and buckling. Written reports.

265S. Physical Chemistry Laboratory (W,C)

Either semester. Two credits. Two 3-hour laboratory periods. Prerequisite: CHEM 264, may be taken concurrently; ENGL 105 or 110 or 111 or 250.

270W. Technical Communications

First or second semester. Three credits. Prerequisite: CHEM 243; ENGL 105 or 110 or 111 or 250.

This course will cover various aspects of technical writing and oral presentation of technical reports. The student will be introduced to the broad spectrum of the chemical literature; various approaches to information retrieval, including computer searches, will be demonstrated. Short reports based on chemical literature will include references and bibliographies. A major paper on a technical topic will be evaluated and corrected at each stage of its development. An oral report based on this material will also be required.

280. Polymeric Materials

Second semester. Three credits. Prerequisite: CHEM 244. Not open for credit to students who have passed CHEG 256.

Structure, properties and chemistry of high polymers. Methods of production and applications.

291. Variable Topics

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

293. Foreign Study

Either or both semesters. Credits and hours by arrangement up to a maximum of six credits. May be repeated for credit. Consent of Department head required prior to student's departure. May count toward the major with consent of the Department Head.

295. Undergraduate Seminar

First semester. One credit. Open only to chemistry majors or by consent of instructor. With a change of subject, this course may be repeated once for credit. Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

Discussion of topics relevant to further study and work in the field of chemistry.

296. Undergraduate Research

Either or both semesters. Credits, not to exceed 3 each semester, and hours by arrangement (three laboratory hours for each credit). Open only with consent of instructor.

Original investigation carried on by the student under the guidance of a staff member. The student is required to submit a brief report at the end of each semester.

297W. Thesis for Undergraduate Chemistry Majors

Either semester. Three credits. Hours by arrangement. Prerequisite: A minimum of three credits in CHEM 296 or 299; ENGL 105 or 110 or 111 or 250. Open only with consent of instructor.

A formal thesis is required, based on original investigation carried on by the student.

298. Special Topics

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

299. Independent Study

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

234. Basic Structural Analysis

Second semester. Three credits. Prerequisite: CE 287. *Accorsi, DeWolf, Epstein, Frantz, Malla*

Analysis of statically determinate structures; influence lines; deflection of trusses, beams, and frames; introduction to indeterminate analysis using consistent deformation and moment distribution; computer programming.

236. Basic Structural Design

Second semester. Four credits. Three class periods and one 3-hour Laboratory. Prerequisite: CE 287. *DeWolf, Epstein, Frantz, Malla, Smith*

Loads; design of principal components – beams, columns and simple connections – of steel and reinforced concrete structures. Design projects.

237. Advanced Structural Analysis

First semester. Three credits. Prerequisite: CE 234. *DeWolf, Epstein, Malla*

Approximate analysis techniques, analysis of indeterminate elastic structures using classical and matrix methods of analysis. Computer programming

238. Reinforced Concrete Structures Design

First semester. Three credits. Prerequisite: CE 234 and 236. *DeWolf, Epstein, Frantz*

Design for flexure, shear, torsion, and axial loads; two-way slabs; serviceability considerations. Applications to buildings.

239. Steel Structures Design

Second semester. Three credits. Prerequisite: CE 234 and 236. *DeWolf, Frantz*

Beam columns, composite members, plate girders, connections; introduction to plastic design. Applications to buildings. Written reports.

239P. Steel Structures Design

Prerequisite: CE 234 and 236; ENGL 105 or 110 or 111 or 250. Must be taken with another P course in Civil Engineering to equal one W course.

240. Soil Mechanics and Foundations

First semester. Four credits. Three class periods and one 3-hour laboratory period. Prerequisite or corequisite: CE 287 and CE 297. *Demars*

Fundamentals of soil behavior and its use as a construction material. Effective stress principle, seepage and flow nets, consolidation, shear strength, limit equilibrium analysis. Written reports.

240P. Soil Mechanics and Foundations

Prerequisite: CE 287 and CE 297, may be taken concurrently; ENGL 105 or 110 or 111 or 250. Must be taken with another P course in Civil Engineering to equal one W course.

241. Foundation Design

First semester. Three credits. Prerequisite: CE 240. *Demars*

Application of soil properties to design of foundations, retaining structures, excavation drainage, shallow footings, deep foundations, specifications, subsurface exploration.

242. Soils Engineering

Second semester. Three credits. Prerequisite: CE 240.

Earth structures, slope stability, consolidation and settlement of soil, vertical drains, surcharging, pressures on buried pipes, and tunnels, numerical solutions.

242P. Soils Engineering

Prerequisite: CE 240; ENGL 105 or 110 or 111 or 250. Must be taken with another P course in Civil Engineering to equal one W course.

251. Probability and Statistics in Civil Engineering

(Also offered as ENVE 251.) First semester. Three credits. Open to sophomores or higher. Recommended

preparation: MATH 113Q or 115Q/115V. This course and CE 201 or ENVE 201 may not both be taken for credit. *Anagnostou, Aultman-Hall, Garrick, Ivan*

Application of statistical principles to the analysis of civil engineering problems. Topics include probability, random variable distributions, hypothesis testing, and linear regression analysis.

254. Transportation Engineering

Second semester. Three credits. Prerequisite: CE 271. Recommended preparation: CE 212. Open to sophomores or higher. *Aultman-Hall, Garrick, Ivan*

Design of transportation facilities. Traffic flow and capacity analysis. Travel demand analysis.

255. Case Studies in Transportation Engineering

(Also offered as CE 302.) First semester. Three credits. Prerequisite: CE 254. *Ivan, Garrick*

Analysis of case studies in transportation and urban planning and design. Application of transportation engineering and planning skills. Oral and written group reports, group discussions, individual written papers.

256. Civil Engineering Systems Analysis and Design

Second semester. Three credits. Recommended preparation: CE 251. This course and CE 202 may not both be taken for credit. *Davis, Ivan*

Optimization, decision and risk analysis, and simulation in design of civil engineering systems. Network analysis and project scheduling.

256P. Civil Engineering Systems Analysis and Design

Prerequisite: ENGL 105 or 110 or 111 or 250. Recommended preparation: CE 251. Must be taken with another P course in Civil Engineering to equal one W course.

260. Water Quality Engineering

(Also offered as ENVE 260.) Second semester. Three credits. Prerequisite: CE 263 and (CE 297 or CHEG 223). *Abboud, Smets*

Physical, chemical, and biological principles for the treatment of aqueous phase contaminants; reactor dynamics and kinetics. Design projects.

262. Environmental Engineering Laboratory

(Formerly offered as CE 264.) (Also offered as ENVE 262.) Second semester. Three credits. Two class periods and one 3-hour laboratory period. Prerequisite: CE 263; and prerequisite or corequisite: CE 297 or CHEG 223. *Abboud, Holmen, Smets*

Aqueous analytical chemical techniques, absorption, coagulation/flocculation, fluidization, gas stripping, biokinetics, interpretation of analytical results, bench-scale design projects, written and oral reports.

262P. Environmental Engineering Laboratory

(Also offered as ENVE 262P.) Prerequisite: CE 263; CE 297 or CHEG 223, which may be taken concurrently; ENGL 105 or 110 or 111 or 250. Must be taken with another P course in Civil Engineering to equal one W course.

263. Environmental Engineering Fundamentals

(Also offered as ENVE 263.) First semester. Three credits. Prerequisite: CHEM 128 or 130. Open to sophomores or higher. *Hoag, MacKay, Smets*

Concepts from aqueous chemistry, biology, and physics applied in a quantitative manner to environmental problems and solutions. Mass and energy balances, chemical reaction engineering. Quantitative and fundamental description of water and air pollution problems. Environmental regulations and policy, pollution prevention, risk assessment. Written and oral reports.

265. Hydraulic Engineering

(Also offered as ENVE 265.) Second semester. Three credits. Prerequisite: CE 297 or (CHEG 223 and CHEG 224). *Anagnostou, Ogden*

Design and analysis of water and wastewater transport systems, including pipelines, pumps, pipe networks, and open channel flow. Introduction to hydraulic structures and porous media hydraulics. Computer applications.

266. Hydraulic Engineering Laboratory

(Also offered as ENVE 266.) Second semester. Two credits. One class period. One 2-hour Laboratory. Prerequisite CE 297.

Tests of the flow of water in pipes and open channels. Theory and calibration of flow measurement devices. Study of velocity profiles. Generation of pump performance curves. Physical hydraulic modeling and similitude.

267. Engineering Hydrology

(Also offered as ENVE 267.) First semester. Three credits. Prerequisite: CE 297 or (CHEG 223 and CHEG 224). *Anagnostou, Ogden*

Hydrologic cycle: precipitation, interception, depression storage, infiltration, evapotranspiration, overland flow, snow hydrology, groundwater and streamflow processes. Stream hydrographs and flood routing. Hydrologic modeling and design. Computer applications. Design project.

267P. Engineering Hydrology

Prerequisite: CE 297 or (CHEG 223 and CHEG 224); ENGL 105 or 110 or 111 or 250. Must be taken with another P course in Civil Engineering to equal one W course.

268. Limnology

(Also offered as EEB 247 and ENVE 268.) First semester. Three credits. Prerequisite: (MATH 109 or 112 or 115) and (CHEM 122, 127, or 129 or 137). Recommended preparation: BIOL 107 or an introductory biology course.

Physical, chemical, and biotic interrelationships of freshwater habitats.

269. Selected Environmental Problems

Second semester. Three credits. Open to sophomores or higher.

Ecological effects of pollution and despoilment. Organized and rational study of specific environmental problems, including social, economic, political and legislative aspects.

271. Geomatics and Spatial Measurement

First semester. Four credits. Three lecture periods and one 3-hour laboratory. Recommended preparation: MATH 109 or 112 or 115. Open to sophomores or higher.

Elementary plane surveying, geospatial coordinate systems, error and accuracy analysis, introduction to geographic information systems, theory and uses of global positioning systems, introduction to photogrammetry and land-surface remote sensing in the context of civil and environmental engineering.

275. Route Surveying

Second semester. Three credits. Two class periods. One 3-hour Laboratory. Prerequisite: CE 271.

Reconnaissance and route selection, simple, compound and reverse horizontal curves, spirals, vertical curves, earthwork, cross-sectioning, slope staking, and observations for the meridian.

276. Computer Aided Site Design

Second semester. Three credits. One 3-hour class period. Prerequisite: CE 271; and prerequisite or corequisite: CE 254.

Grading and earthwork, runoff and drainage

structures for highway design and site development using computer software.

279. Environmental Modeling

(Also offered as ENVE 279.) Second semester. Three credits. Prerequisite: CE 263 and (CHEG 223 or CE 297).

Systematic approach for analyzing contamination problems. Systems theory and modeling will be used to assess the predominant processes that control the fate and mobility of pollutants in the environment. Assessments of lake eutrophication, conventional pollutants in rivers and estuaries and toxic chemicals in groundwater.

280W. Civil Engineering Projects

Either semester. Three credits. Two 3-hour laboratory periods. Prerequisite: Departmental consent required; ENGL 105 or 110 or 111 or 250. This course can be taken no sooner than the semester in which the student completes the Professional Requirements for the B.S. degree.

Design of Civil Engineering Projects. Students working singly or in groups produce solutions to Civil Engineering design projects from first concepts through preliminary proposals, sketches, cost estimations, design, evaluation, oral presentation and written reports.

281. Engineering Economics

Second semester. One credit. Given as two 1-hour class periods weekly during first half of semester only. Prerequisite: Senior standing. This course and CE 201 or ENVE 201 may not both be taken for credit. *Leonard, Smith*

Costs of Civil Engineering projects; components of cost estimating; comparison of alternate designs; cost/benefit analysis; useful life and depreciation; basic methods of project financing.

291. Civil and Environmental Engineering Professional Issues Seminar

Either semester. No credits. One 1-hour period. Open to sophomores or higher. May be repeated. Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

Issues in the practice of Civil & Environmental Engineering: professional ethics, law/contracts, insurance/liability, global/societal issues (e.g., sustainable development, product life cycle), construction management and professional development.

294. Special Topics in Civil Engineering

Semester, credits, and hours by arrangement or as announced. Prerequisite and/or consent: Announced separately for each course. Course may be repeated for credit.

Classroom or laboratory courses as announced for each semester. For independent study see Civil Engineering 299.

299. Independent Study for Undergraduates

Either or both semesters by arrangement. Credits by arrangement, not to exceed 4 per semester. Open only with consent of supervising instructor. Course may be repeated for credit.

Designed for students who wish to extend their knowledge in some specialized area of civil engineering.

Applied Mechanics

211. Applied Mechanics I

Either semester. Three credits. Prerequisite or corequisite: MATH 210 or MATH 220. Open to sophomores or higher. *Accorsi, Demars, DeWolf, Frantz, Malla, Smith*

Fundamentals of statics using vector methods. Resolution and composition of forces; equilibrium of

force systems; analysis of forces acting on structures and machines; centroids; moment of inertia.

212. Applied Mechanics II

Either semester. Three credits. Prerequisite: CE 211 and MATH 210 or MATH 220. Open to sophomores or higher. *Epstein, Malla*

Fundamentals of dynamics using vector methods. Rectilinear and curvilinear motion, translation, rotation, plane motion; work, energy and power; impulse and momentum.

287. Mechanics of Materials

Either semester. Three credits. Prerequisite: CE 211. Open to sophomores or higher. *Accorsi, Davis, DeWolf, Epstein, Malla, Smith*

Simple and combined stress, torsion, flexure and deflection of beams, continuous and restrained beams, combined axial and bending loads, columns.

289. Intermediate Mechanics of Materials

Second semester. Three credits. Prerequisite: CE 287. This course and ME 229 may not both be taken for credit.

Stresses and strains, curved beams, torsion of non-circular sections, flat plates, strain-energy, deflections. Impact and energy loads, repeated stress, mechanical properties of materials and theories of failure, influence of stress concentration.

297. Fluid Mechanics

Either semester. Three credits. Prerequisite or corequisite: CE 212; and prerequisite: (MATH 210 or MATH 220) and MATH 211. This course and ME 250 may not both be taken for credit. *Anagnostou, Ogden*

Statics of fluids, analysis of fluid flow using principles of mass, momentum and energy conservation from a differential and control volume approach. Dimensional analysis. Application to pipe flow and open channel flow.

Classics and Ancient Mediterranean Studies (CAMS)

Head of Department: Professor David K. Herzberger
Department Office: Room 228, J.H. Arjona Building

Consult the Modern and Classical Languages Department section of this *Catalog* for requirements for Majors in Classics and Ancient Mediterranean Studies.

(Taught in English)

101. Greek Civilization

(Formerly offered as CLAS 101.) First semester. Three credits. A knowledge of Greek is not required. *Travis*

A survey of classical Greece, with emphasis on literature, thought, and influence on contemporary culture.

102. Roman Civilization

(Formerly offered as CLAS 102.) Second semester. Three credits. A knowledge of Latin is not required. *Johnson*

A survey of classical Rome, with emphasis on literature, thought, and influence on contemporary culture.

103. Classical Mythology

(Formerly offered as CLAS 103.) Either semester. Three credits. A knowledge of Greek or Latin is not required. *Travis*

Origin, nature, and function of myth in the literature and art of Greece and Rome and the re-interpretation of classical myth in modern art forms.

104. The Greek and Latin Elements in English

(Formerly offered as CLAS 104.) Either semester. Three credits. A knowledge of Greek or Latin is not required.

The historical relationship of English to Greek and Latin in vocabulary and structure. Greek and Latin prefixes, suffixes and bases, learned and applied to the analysis of unfamiliar words. Introduction to the specialized vocabularies of various academic areas.

105. Greek and Latin in Bioscientific Terminology

(Formerly offered as CLAS 105.) Either semester. Three credits. A knowledge of Greek or Latin is not required.

The Greek and Latin elements most used in the technical vocabulary of the biological and health sciences, with practice in the analysis of representative terms.

241W. Greek and Roman Epic

(Formerly offered as CLAS 241W.) Either semester, alternate years. Three credits. Prerequisite: ENGL 105 or 110 or 111 or 250. Recommended preparation: CAMS 101 or 102 or 103. A knowledge of Greek or Latin is not required.

A study of classical epic, with special emphasis on Homer's *Iliad* and *Odyssey* and Vergil's *Aeneid*, but including also other examples of the genre. Oral and literary epic, their social and political contexts, and the influence of classical epic on later literature.

242W. Greek and Roman Drama

(Formerly offered as CLAS 242W.) Either semester, alternate years. Three credits. Prerequisite: ENGL 105 or 110 or 111 or 250. Recommended preparation: CAMS 101 or 102 or 103. A knowledge of Greek or Latin is not required.

Selected plays from the works of Aeschylus, Sophocles, Euripides, Aristophanes, Plautus, Terence, and Seneca. The origin and development of Greek drama, its transformation in the Roman period, and the influence of classical drama on later literature.

243. World of Late Antiquity

(Also offered as HIST 217.) (Formerly offered as CLAS 243.) Either semester. Three credits.

The profound social and cultural changes that redefined the cities, the frontiers, and the economies of the classical world and led to the Middle Ages. Developments in the eastern and western Mediterranean lands between the second and seventh centuries, including: Neo-Platonism, the spread of Christianity, Rabbinic Judaism, and Islam.

244. Ancient Fictions

(Formerly offered as CLAS 244.) Either semester. Three credits. A knowledge of Greek and Latin is not required. *Johnson*

This course will examine a range of novels and other fictions from the Greco-Roman world. Works read will include the Greek sentimental novels, the satirical Roman novels of Petronius and Apuleius, and a variety of other pagan, Jewish, and Christian fictions.

245. The Ancient World in Cinema

Either semester. Three credits.

Representations of the ancient Mediterranean world in contemporary cinema.

250. The Early Church and Christian Thought

(Also offered as HIST 257.) Either semester. Three credits. Recommended preparation: HIST 216 or CAMS 255. *Caner*

A critical approach to the evolution of Christian thought, social organization and institutions ca. 50-450 C.E. Topics include gnosticism, apostolic succession, heresy, orthodoxy.

251. Greek Art

(Also offered as ARTH 243.) (Formerly offered as CLAS 251.) Either semester, alternate years. Three credits.

Greek art and architecture from the ninth century B.C. to the first-century A.D.

252. Roman Art

(Also offered as ARTH 246.) (Formerly offered as CLAS 252.) Either semester, alternate years. Three credits.

History of Roman art and architecture.

253. Ancient Near East

(Also offered as HIST 213.) (Formerly offered as CLAS 253.) Either semester. Three credits. *Miller*

The history of Near Eastern civilization from the Neolithic period to the Persian Empire. The birth of civilization in Mesopotamia and Egypt. The political and cultural achievements of ancient near-Eastern peoples.

254. Ancient Greece

(Also offered as HIST 214.) (Formerly offered as CLAS 254.) Either semester. Three credits.

The history of Greece from Minoan and Mycenaean times into the Hellenistic period with special emphasis on the Fifth Century and the *Golden Age* of Athens.

255. Ancient Rome

(Also offered as HIST 216.) (Formerly offered as CLAS 255.) Either semester. Three credits.

From the beginning of Rome to the reign of Justinian. The growth of the Roman Republic and Empire. Roman civilization and its influence upon later history.

256. Palestine under the Greeks and Romans

(Formerly offered as CLAS 256.) (Also offered as HEB 218, HIST 218, and JUDES 218.) Either semester. Three credits. Recommended preparation: HIST 213 or 214 or 216 or INTD 294 or HEB 202. *Miller*

The political, historical and religious currents in Greco-Roman Palestine. Includes the Jewish Revolts, sectarian developments, the rise of Christianity and the Talmudic academics.

257. Ancient Philosophy

(Also offered as PHIL 221.) Either semester. Three credits. Prerequisite: At least one of PHIL 101, 102, 103, 104, 105, 106. Open to sophomores or higher.

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

Greek

171-172. Elementary Greek I and II

(Formerly offered as CLAS 171-172.) Both semesters. Four credits each semester. Four class periods. Not open for credit to students who have had three or more years of Greek in high school, except with Departmental consent.

An intensive introduction to ancient Greek. First semester: basic morphology, syntax, and vocabulary through simple readings from the *New Testament*; second semester: transition to classical Greek through selections from Xenophon, reading of Plato's *Apology* complete.

207. Greek Philosophical Writings

(Formerly offered as CLAS 207.) Either semester, alternate years. Three credits.

Selections from Plato and Aristotle.

208. Homer

(Formerly offered as CLAS 208.) Either semester, alternate years. Three credits.

Selections from the *Iliad* or *Odyssey*.

211. Greek Drama

(Formerly offered as CLAS 211.) Either semester, alternate years. Three credits.

Selected plays of Aeschylus, Sophocles, Euripides, and Aristophanes.

212. Greek Historical Writings

(Formerly offered as CLAS 212.) Either semester, alternate years. Three credits.

Selections from Herodotus and Thucydides.

214. Greek Lyric Poetry

(Formerly offered as CLAS 214.) Either semester, alternate years. Three credits.

Selections from the early Greek lyric, elegiac, and iambic poets, including but not limited to Archilochus, Mimnermus, Solon, Sappho, Alcaeus, Anacreon, Xenophanes, Theognis, and Simonides.

215. The Greek New Testament

(Formerly offered as CLAS 215.) Either semester, alternate years. Three credits.

Selected readings, ordinarily including Acts of the Apostles and at least one Pauline letter.

*Latin***121-122. Elementary Latin I and II**

(Formerly offered as CLAS 121-122.) Both semesters. Four credits each semester. Four class periods. Not open for credit to students who have had three or more years of Latin in high school, except with Departmental consent.

A study of the essentials of Latin grammar designed to prepare the student to read simple classical Latin prose.

123-124. Intermediate Latin I and II

(Formerly offered as CLAS 123-124.) Both semesters. Three credits each semester. Prerequisite: CAMS 122 or two years of Latin in high school.

Review of the essentials of grammar. Reading of classical Latin prose and poetry with emphasis on Cicero and Ovid or Vergil.

213. Ovid and Mythology

(Formerly offered as CLAS 213.) Either semester, alternate years. Three credits.

Selections from Ovid, mainly from the *Metamorphoses*, and a study of the myths of Greece and Rome.

221. Survey of Classical Latin Literature

(Formerly offered as CLAS 221.) Either semester, alternate years. Three credits.

Extensive reading of a relatively wide range of authors of representative classical Latin prose and poetry.

224. Vergil and the Roman Epic

(Formerly offered as CLAS 224.) Either semester, alternate years. Three credits.

Books VII-XII of the *Aeneid* and a study of the relation of the *Aeneid* to earlier Greek epic and to the later epic tradition.

225. Latin Drama

(Formerly offered as CLAS 225.) Either semester, alternate years. Three credits.

Selected plays of Plautus, Terence, and Seneca, with lectures on Roman theatre and the development of drama.

226. Latin Lyric Poetry

(Formerly offered as CLAS 226.) Either semester, alternate years. Three credits.

Selections from the lyrics of Horace and Catullus, with lectures on metrical patterns and the influence of Greek lyrics.

227. Latin Historical Prose

(Formerly offered as CLAS 227.) Either semester, alternate years. Three credits.

Selections from Sallust, Livy, and Tacitus.

230. Latin Philosophical Prose and Poetry

(Formerly offered as CLAS 230.) Either semester, alternate years. Three credits.

Selections from Lucretius, Cicero, and Seneca.

231. Latin Elegiac Poetry

(Formerly offered as CLAS 231.) Either semester, alternate years. Three credits.

Selections from Tibullus, Propertius, and Ovid's *Amores*.

232. Medieval Latin

(Formerly offered as CLAS 232.) Either semester, alternate years. Three credits. Prerequisite: CAMS 124, or three or more years of Latin in high school.

Reading of texts from a number of periods and in a variety of styles, with consideration of morphological, syntactical, and semantic developments.

193. Foreign Study

(Formerly offered as CLAS 193.) Either or both semesters. Credits and hours by arrangement. May be repeated for credit. Consent of Department Head required, normally before the student's departure.

Special topics taken in a foreign study program.

293. Foreign Study

(Formerly offered as CLAS 293.) Either or both semesters. Credits and hours by arrangement. May be repeated for credit. Consent of Department Head required, normally 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

(Formerly offered as CLAS 295.) Either semester. Three credits. With a change in topic, may be repeated for credit. Prerequisites and recommended preparation vary.

298. Special Topics

(Formerly offered as CLAS 298.) Either semester. Credits and hours by arrangement. With a change in content, may be repeated for credit. Prerequisites and recommended preparation vary.

299. Independent Study

(Formerly offered as CLAS 299.) Either or both semesters. Credits and hours by arrangement. Open only with consent of instructor. With a change in content, may be repeated for credit.

Communication (COMM)

Head of Department: Professor Harvey R. Gilbert
Department Office: Room 213, Communication Sciences Building

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

100. The Process of Communication

(Formerly offered as COMS 102.) Either semester. Three credits.

A study of modern communication theories and principles useful in understanding how people affect and are affected by others through communication.

105. Principles of Public Speaking

(Formerly offered as COMS 105.) Either semester. Three credits.

Theory and performance in public speaking: overcoming apprehension; audience analysis; development of concepts; maximizing message

impact; professional presentation skills; group projects; evidence; listening and speech evaluation.

130. Mass Communication Systems

(Formerly offered as COMS 135.) Either semester. Three credits.

The history, organizational structure, economics and functioning of technologically-based communication systems and the relationship of these factors to mass communication issues and effects.

200Q. Research Methods in Communication

(Formerly offered as COMS 231Q.) Either semester. Three credits. Prerequisite: COMM 100 or COMS 102 or instructor consent. Recommended preparation: MATH 101 or equivalent.

The scientific approach as it specifically applies to communication.

205. Introduction to Research Literature in Communication

(Formerly offered as COMS 230.) First semester. Three credits. Prerequisite: COMM 200Q or COMS 231Q, COMM 210 or COMS 210, COMM 220 or COMS 205, and COMM 230 or COMS 235.

A survey of research in major sub-areas of communication.

210. Persuasion

(Formerly offered as COMS 210.) Either semester. Three credits. Three class periods or two class periods with one discussion period. Prerequisite: COMM 100 or COMS 102 or instructor consent. *Hamilton*

Introduction to theories of attitude formation, change and reinforcement. Research is used to evaluate past and present models of persuasion.

211. Advanced Persuasion and Communication

(Formerly offered as COMS 219.) Either semester. Three credits. Prerequisite: COMM 210 or COMS 210. Recommended preparation: COMM 200Q or COMS 231Q and COMM 230 or COMS 235 or instructor consent.

Advanced consideration and criticism of selected modern persuasion theories and research in communications.

212. Visual Communications

(Formerly offered as COMS 240.) Second semester. Three credits. Prerequisite: COMM 100 or COMS 102, completion of at least one C course. Recommended preparation: Completion of at least one Q course.

Theory of design and creation of graphics for professional and technical purposes, to complement or supplement written and spoken communications.

215. Communication Campaigns and Applied Research

(Formerly offered as COMS 218.) Second semester. Three credits. Prerequisite: COMM 200Q or COMS 231Q, or STAT 100V or 110V. Recommended preparation: COMM 130 or COMS 135, COMM 230 or COMS 235, and COMM 210 or COMS 210. *Snyder*

Application of media, persuasion, and social change theories to the design of communication campaigns, including focus groups, interviews and other background research. Students will work with community organizations.

220. Interpersonal Communications

(Formerly offered as COMS 205.) Either semester. Three credits. Prerequisite: COMM 100 or COMS 102 or instructor consent. *VanLear*

An introduction, analysis and critique of recent theories of interpersonal communication. Topics include person perception, theories of communication management, and the structural analysis of face to face communication behavior.

224. Introduction to Semantics

(Formerly offered as COMS 224.) Either semester. Three credits. Prerequisite: COMM 100 or COMS 102 or instructor consent.

The relationship among people, words, and meaning.

225W. Small Group Communication

(Formerly offered as COMS 216W.) Either semester. Three credits. Prerequisite: COMM 220 or COMS 205 or instructor consent; ENGL 105 or 110 or 111 or 250. Recommended preparation: COMM 210 or COMS 210. *VanLear*

Approaches, methods, and findings of research in small group communication and development of an ability to engage effectively in small group situations.

226. Organizational Communication

(Formerly offered as COMS 217.) Second semester. Three credits. Prerequisite: COMM 220 or COMS 205 and COMM 200Q or COMS 231Q or instructor consent.

Communication in formal organizations; horizontal and vertical communication; effectiveness of different organizational structures and channels; feedback; networks; norms and roles.

230. Effects of Mass Media

(Formerly offered as COMS 235.) Either semester. Three credits. Prerequisite: COMM 100 or COMS 102 or instructor consent.

An analysis of the roles of the mass media and of the effects they exert on individuals and society.

232. Media and Special Audiences

(Formerly offered as COMS 260.) (Also offered as PRLS 260.) Either semester. Three credits. Recommended preparation: COMM 100 or 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.

233. Latinas and Media

(Also offered as PRLS 264 and WS 260.) Second semester. Three credits. *Rios*

The role of ethnicity and race in women's lives. Special attention to communication research on ethnic and racial minority women.

234. Children and Mass Media

Either semester. Three credits. Prerequisite: COMM 100 or COMS 102.

Child development and the effects of mass media on young children. Educational television, frightening media, violent television, computer games, the Internet and media policy.

241. Mass Media and Political Process

(Formerly offered as COMS 238.) Either semester. Three credits. Prerequisite: COMM 130 or COMS 135, COMM 210 or COMS 210 and COMM 230 or COMS 235.

An introduction to the role of the mass media in the American political process. Topics include the relationships among the media, major political institutions, and citizenry; the interplay of the media, interest groups, and policymaking process; and the role of the media in elections and international crises.

242W. Government Communication

(Formerly offered as COMS 222W.) Either semester. Three credits. Prerequisite: COMM 100 or COMS 102; ENGL 105 or 110 or 111 or 250.

Communication in government processes. Communication theory and practical applications. Issue management, lobbying, interest-group strategies, government relations, grassroots action, and coalition building. Students may not pass this course without passing the written work.

243. Protest and Communication

(Formerly offered as COMS 236.) Either semester. Three credits. Prerequisite or corequisite: COMM 230 or COMS 235. With a change in content, this course may be repeated once for credit.

Protest movement – past and current – in light of principles, models, and theories of communication.

245. Gender and Communication

(Formerly offered as COMS 226.) (Also offered as WS 268.) Either semester. Three credits. Prerequisite: COMM 100 or instructor consent. Not open for credit to students who have passed COMS 226 or WS 278.

Differences in male/female communication, and an examination of cultural assumptions regarding gender in the communication process. Critically analyze the theory, politics and practice of communication and gender.

250. Nonverbal Communication

(Formerly offered as COMS 207.) First semester. Three credits. Recommended preparation: COMM 200Q or COMS 231Q. *Buck*

Facial expression, body movement, spatial behavior and para-language, with a consideration of applications for information theory.

251W. Advanced Nonverbal Communication

(Formerly offered as COMS 214W.) Second semester. Three credits. Prerequisite: COMM 250 or COMS 207 or instructor consent; ENGL 105 or 110 or 111 or 250. Recommended preparation: COMM 220 or COMS 205. *Buck*

Selected issues and research techniques current in the literature. Research projects of kinesic, proxemic, and/or paralinguistic behaviors involved in communication.

255. Motivation and Emotion

(Formerly offered as COMS 255.) (Also offered as PSYC 255.) Either semester. Three credits. Prerequisite: PSYC 132 and PSYC 135 or 133. *Buck*

Cognition, brain mechanisms, biofeedback, aggression, sex, competence, social influence, and conformity.

260. Information and Communication

(Formerly offered as COMS 234.) Either semester. Three credits. Prerequisite: COMM 200Q or COMS 231Q or instructor consent.

Approaches to studying communication including cybernetics, general systems theory, information theory, and human information processing.

262. New Communication Technologies

(Formerly offered as COMS 239.) Either semester. Three credits. Prerequisite: COMM 130 or COMS 135. Recommended preparation: COMM 230 or COMS 235.

An overview of new communication technologies. Topics include the uses, evolution, diffusion, operation, and effects of new communication technologies.

264. Design of Human Communication Systems

(Formerly offered as COMS 237.) Either semester. Credits and hours by arrangement. Prerequisite: COMM 130 or COMS 135. Recommended preparation: COMM 230 or COMS 235. With a change in content, this course may be repeated once for credit.

Application of communication theory and principles of information science to the design of modern systems of communication, with consideration given to the physical and social settings in which they will be used.

270W. Global Communication

(Formerly offered as COMS 206W.) Either semester. Three credits. Prerequisite: ENGL 105 or 110 or 111 or 250. Recommended preparation: COMM 130 or

COMS 135.

International communication patterns; globalization of media industries; new technologies; communication in war and peace; political, economic, social and cultural effects.

271. Communication and Change

(Formerly offered as COMS 208.) First semester. Three credits. Recommended preparation: COMM 230 or COMS 235 and COMM 210 or COMS 210. *Snyder*

The role of communication and communication technologies in social change, diffusion of new ideas, and education. Special application to third world development.

272. Cross-Cultural Communication

(Formerly offered as COMS 209.) Either semester. Three credits. Recommended preparation: COMM 220 or COMS 205.

Communication behavior within and across cultures and subcultures.

273W. Media, State, and Society

(Formerly offered as COMS 213W.) Either semester. Three credits. Prerequisite: COMM 130 or COMS 135 and COMM 230 or COMS 235, which may be taken concurrently; ENGL 105 or 110 or 111 or 250.

Forms of, rationales for, and effects of state involvement in mass media. The development of alternative media. Cultural implications of transnational media influences.

280. Communication Processes in Advertising

(Formerly offered as COMS 220.) Either semester. Three credits. Prerequisite: COMM 130 or COMS 135, COMM 230 or COMS 235 and COMM 210 or COMS 210.

Covers communications theory relevant to advertising, with specific application to the creative elements of art and copy. Students create actual print advertisements and radio commercials.

282. Public Relations

(Formerly offered as COMS 215.) Either semester. Three credits. Prerequisite: COMM 130 or COMS 135, COMM 200Q or COMS 231Q, and COMM 230 or COMS 235.

Practical applications of major theories of communication and mass media to public relations practiced by organizations. Based on readings, student research, and case histories.

288. Television Production

(Formerly offered as COMS 233.) Either semester. Three credits. Prerequisite: COMM 100 or COMS 102 and COMM 130 or COMS 135 and consent of instructor.

This course provides the student with hands-on broadcast and industrial video production. The students will rotate through all studio positions for a televised production and complete field shoots and editing for an electronic field production project. Preproduction skills such as proposal and script writing, storyboarding and budgeting will be included in each class project.

290. Research Practicum in Communication

(Formerly offered as COMS 211.) Either semester. Credits and hours by arrangement, with a maximum of three credits per semester. Prerequisite: At least 12 credits of 200-level Communication courses which must include COMM 200Q or COMS 231Q and consent of instructor. Should be taken during the senior year. May be repeated once for credit.

This course is designed to provide students with an opportunity to participate in a variety of supervised research activities in communication.

291. Internship in Communication

(Formerly offered as COMS 212.) Either semester. Credits and hours by arrangement, with a maximum of three credits per semester. Prerequisite: At least 12 credits of 200-level Communication courses and consent of instructor. Should be taken during the senior year. May be repeated once for credit. Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

This course is designed to provide students with opportunity for supervised field work in a professional communication organization. Student's performance will be evaluated both by the field supervisor and course instructor.

293. Foreign Study

(Formerly offered as COMS 293.) Either or both semesters. Credits and hours by arrangement. May be repeated for credit. Consent of Department Head required, normally granted prior to the student's departure. May count toward the major with consent of the advisor.

Special topics taken in foreign study program.

296W. Senior Thesis

(Formerly offered as COMS 296W.) Either semester. Credits and hours by arrangement. Prerequisite: ENGL 105 or 110 or 111 or 250. Open only with consent of instructor.

Preparation of a thesis and its presentation to the department.

297. Variable Topics

(Formerly offered as COMS 297.) Either semester. Three credits. With a change in topic, may be repeated for credit. Prerequisites and recommended preparation vary.

298. Special Topics

(Formerly offered as COMS 298.) Either semester. Credits and hours by arrangement. With a change in content, may be repeated for credit. Prerequisites and recommended preparation vary.

299. Independent Study

(Formerly offered as COMS 299.) Either or both semesters. Credits and hours by arrangement. Open only with consent of instructor. With a change of content, may be repeated for credit.

The course, for superior students, includes independent reading, periodic conferences, and such other work as desired by the instructor.

Communication Disorders (CDIS)

Head of Department: Professor Harvey R. Gilbert
Department Office: Room 213, Communication Sciences Building

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

150. Introduction to Communication Disorders

(Formerly offered as COMS 150.) First semester. Three credits.

Introduction to normal communicative processes and to disorders of communication.

201. Speech Science

(Formerly offered as COMS 201.) First semester. Three credits. Three class periods. *Max*

Acoustic, anatomical, neurological and physiological principles fundamental to the understanding of voice and speech production.

202. Speech and Language Acquisition

(Formerly offered as COMS 202.) Either semester. Three credits. *Grela, Johnson*

How children learn their first language; the effects of language on their thinking and behavior.

204. Methods and Issues in Child Language Research

(Formerly offered as COMS 204.) Second semester. Three credits. Two class periods, and child observations and individual conferences by arrangement. Prerequisite: CDIS 202. Open only with consent of instructor.

Critical discussion of recent research in child language, and supervised individual research projects.

241. Sign Language: Theory and Practice

(Formerly offered as COMS 241.) Second semester. Three credits.

Information about the history, structure and use of sign languages, and instruction in the basics of American Sign Language (ASL) and Signed English.

242. Directed Observations

(Formerly offered as COMS 242.) Both semesters. One credit.

Directed observations of speech-language pathology and audiology diagnostic and treatment procedures. How such procedures change with various etiologies.

244. Introduction to Neurogenic Communication Disorders

(Formerly offered as COMS 244.) First semester. Three credits. Prerequisites: CDIS 201 and 202. *Coelho*

Acquired and developmental neurogenic communication disorders. Brain mechanisms that underlie speech and language and their disorders.

247. Introduction to Phonetic Principles

(Formerly offered as COMS 247.) Second semester. Three credits. Prerequisite: CDIS 201.

The analysis of speech through the application of phonetic theory.

248. Introduction to Audiology

(Formerly offered as COMS 248.) Second semester. Three credits. Prerequisite: CDIS 250. *Moncrieff*

An introduction to the nature, causation, assessment and management of hearing impairment and the principles and techniques of public school conservation programs.

249. Introduction to Aural Rehabilitation

(Formerly offered as COMS 249.) First semester. Three credits. Prerequisite: CDIS 248. *Cienkowski*

An introduction to the effects of hearing impairment on communication. Communication strategies for adults and children with impaired hearing are discussed.

250. Audition

(Formerly offered as COMS 250.) First semester. Three credits. *Musiek*

The response to acoustic stimuli including methodology and instrumentation.

251. Introduction to Articulation, Voice, and Fluency Disorders

(Formerly offered as COMS 251.) Second semester. Three credits. Prerequisites: CDIS 201, 202, and 247. *Gilbert, Max*

Communication problems resulting from disorders of speech, voice, and fluency. Assessment and management strategies in settings including public schools, hospitals, and rehabilitation centers.

253. Introduction to Language Pathology in Children

(Formerly offered as COMS 253.) First semester. Three credits. Prerequisite: CDIS 202. *Grela*

Development, measurement, and function of language in children. Emphasis on child language

disorders and their causes. Introduction to assessment and management strategies in settings including public schools and private clinics.

293. Foreign Study

(Formerly offered as COMS 293.) Either or both semesters. Credits and hours by arrangement. May be repeated for credit. Consent of Department Head required, normally granted prior to the student's departure. May count toward the major with consent of the advisor.

Special topics taken in foreign study program.

296W. Senior Thesis

(Formerly offered as COMS 296W.) Either semester. Credits and hours by arrangement. Prerequisite: ENGL 105 or 110 or 111 or 250. Open only with consent of instructor.

Preparation of a thesis and its presentation to the department.

297. Variable Topics

(Formerly offered as COMS 297.) Either semester. Three credits. With a change in topic, may be repeated for credit. Prerequisites and recommended preparation vary.

298. Special Topics

(Formerly offered as COMS 298.) Either semester. Credits and hours by arrangement. With a change in content, may be repeated for credit. Prerequisites and recommended preparation vary.

299. Independent Study

(Formerly offered as COMS 299.) Either or both semesters. Credits and hours by arrangement. Open only with consent of instructor. With a change of content, may be repeated for credit.

The course, for superior students, includes independent reading, periodic conferences, and such other work as desired by the instructor.

Comparative Literary and Cultural Studies (CLCS)

Program Chair: Associate Professor Lucy McNece

Office: Room 242, J.H. Arjona Building

101. Classics of World Literature I

Either semester. Three credits.

Introduction to classics of world literature. Comparative approach to canonical works of Asia, Africa, the Middle East, and Latin America, as well as Europe, from antiquity to the early modern period (1600).

102. Classics of World Literature II

Either semester. Three credits.

An introduction to classics of world literature. A comparative approach to representative works of culture of Europe, the Americas, Africa, the Middle-East, and Asia, from the Renaissance (1600) to the present.

201. Comparative Literary and Cultural Studies

(Formerly offered as COML 201.) Either semester. Three credits. This course may be repeated for credit with a change of topic.

Literary and cultural questions that go beyond national boundaries: the relationship of literature to other disciplines and to the other arts; cinema as a cultural phenomena. (No foreign language required.)

203. Comparative Studies in Cultural History

Either semester. Three credits. This course may be repeated for credit with a change of topic.

The comparative study of cultural movements in literature and the arts throughout history. The course

will explore different areas of cultural practice -- e.g., social, literary, political, aesthetic, anthropological, -- with an eye as to how they are shaped, and in turn shape, dominant institutions and values. Sample topics include: World War I and the emergence of Modernism; European Fascisms; Christian, Jewish, and Muslim culture in Medieval Spain; photography and the Colonial Encounter, etc. May be repeated with change of topic.

207. Film Genres

Either semester. Three credits.

Conventions, history, and development of selected film genres.

208. Studies in Film History

Either semester. Three credits.

The history of cinema from its origins to the present in relation to relevant historical and cultural developments.

214. Introduction to World Cinema and Comparative Film Theory

Either semester. Three credits. Open to sophomores.

Introduction to the theory and criticism of film, applied to classics of world cinema. Comparative study of the development of cinematic techniques, and comparative approach to film as cultural production.

Computer Science and Engineering (CSE)

Interim Head of Department: Professor Reda Ammar

Department Office: Room 460, United Technologies Engineering Building

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

(Computer Science and Engineering courses were formerly offered under the CS department abbreviation using the same course numbers.)

101C. Computers in Modern Society

Second semester. Three credits. Two class periods and two 1-hour program design periods. Not open for credit to students who have passed CSE 110C or CSE 123C or CSE 130C. Students who anticipate extensive study or use of computers in their future work should take CSE 110C-111, or CSE 123C-124C, or CSE 130C rather than this course. *Ungar*

Introduction to computer applications in the humanities, social sciences, business, and other fields. Influence of the computer on modern society and technology. Elements of computer usage in the solution of numeric and non-numeric problems including introduction to programming methods.

110C. Introduction to Numerical Computation

Either semester. Three credits. Two 1-hour class periods and two 1-hour program design periods. Prerequisite: MATH 110Q or MATH 113Q or MATH 115Q, which may be taken concurrently. Not open for credit to students who have passed CSE123C or CSE 130C. Either CSE 110C-111 or CSE 123C-124C or CSE 130C is required of students planning on taking advanced CSE courses. *Demurjian, Ungar*

Introduction to computer organization and the computing process. Design of algorithms for computer solutions of problems, structured programming, and data organization. Analysis of computational errors and their minimization. Methods of solving numerical problems. Logic, design, verification and documentation of programs using current programming languages.

111. Introduction to Non-Numerical Computation

Either semester. Two credits. Two 1-hour class periods and one 1-hour program design period. Prerequisite: CSE 110C. Not open for credit to students who have passed CSE 124C or CSE 130C. Either CSE 110C-111 or CSE 123C-124C or CSE 130C is required of students planning on taking advanced CSE courses. *Ungar*

Design of algorithms for the processing of non-numerical information. Linked lists, trees and other advanced data structures. Practice in the design and realization of complex information processing programs.

123C. Introduction to Computing

Both semesters. Two credits. Two class periods of lecture and one 1-hour of laboratory period per week. Recommended preparation: MATH 101 or equivalent. No previous programming experience required. Not open for credit to students who have passed CSE 110C or CSE 130C. *Ungar*

Problem solving with the computer, basics of data representation and computer organization, procedural and object-oriented programming in a modern language including control structures, functions and parameter passing, one and two dimensional arrays, numerical error and basic numerical methods. Examples taken from various disciplines. Programming projects required. Intellectual property issues discussed.

124C. Computing

Second semester. Four credits. Three class periods of lecture and one 1-hour laboratory per week. Prerequisite: CSE 123C or CSE 110C. Not open for credit to students who have passed CSE 111 or CSE 130C. *Ungar*

Principles of object oriented programming including polymorphism, information hiding, and inheritance. Principles of object oriented design. Recursion. Strings, lists, stacks, queues, trees, priority queues, heaps and graphs including their use and various implementations using automatic and dynamic data allocation, linked representations, and templates. Algorithm and complexity issues involved with these data types. Sorting and searching algorithms. Introduction to computer history. Programming problems drawn from areas of computer science and engineering.

130C. Fundamentals of Computation

First semester. Four credits. Two 1-hour class periods and two 1-hour program design periods. Prerequisite: MATH 110Q or MATH 113Q or MATH 115Q, which may be taken concurrently. This is a very demanding course and is recommended for students who have had previous programming experience and have a high level of motivation for using computers in future work. Not open for credit to students who have passed CSE 110C or CSE 111 or CSE 123C or CSE 124C. Either CSE 110C-111 or CSE 123C-124C or CSE 130C is required of students planning on taking advanced CSE courses. *Ungar*

Design of algorithms to solve numerical and non-numerical problems. Top-down design techniques and structured programming. Investigation and selection on data organizations for efficient problem solutions. Analysis of computational errors in numerical calculations. Methods for the design, implementation, verification and documentation of programs using current programming languages.

201. Computer Architecture

Either semester. Three credits. Prerequisites: CSE 111 or 124C or 130. Not open to students who have credit for CSE 207 or CSE 241. Open to sophomores or higher.

Structure and operation of digital systems and computers. Fundamentals of digital logic. Machine organization, control and data paths, instruction sets, and addressing modes. Hardwired and microprogrammed control. Memory systems organization. Discussion of alternative architectures such as RISC, CICS, and various parallel architectures.

207. Digital Logic

Either semester. Three credits. Three class periods and one 1-hour discussion period. Prerequisite: CSE 110C or 123C or 130C. Open to sophomores or higher. *Ammar, Lipsky, McCartney*

Representation of digital information. Introduction to the analysis and design of combinational and sequential logic networks using Boolean algebra and register transfer techniques. Structure and operation of digital systems and computers. Introduction to programming at the machine and assembler language level. Design projects.

208W. Logic Design Laboratory

Either semester. Two credits. One 1-hour lecture and one 2-hour laboratory period. Prerequisite: Secondary school physics or PHYS 101, and CSE 207 which may be taken concurrently; ENGL 105 or 110 or 111 or 250. Open to sophomores or higher. *Barker*

Design and evaluation of combinational and sequential logic circuits. Debugging techniques. Use of computer facilities for circuit simulation, CAD and report preparation and presentation.

221. Probabilistic Performance Analysis of Computer Systems

Either semester. Three credits. Prerequisite: CSE 124C and 254 and one of STAT 220Q or 230Q or MATH 231Q. *Ammar, Lipsky*

Introduction to the probabilistic techniques which can be used to represent random processes in computer systems. Markov processes, generating functions and their application to performance analysis. Models which can be used to describe the probabilistic performance of digital systems.

228. Parallel Systems

Either semester. Three credits. Prerequisite: CSE 201 or 243, and CSE 259. *Green Shields*

Introduction to parallel systems. Fundamentals of the theory of parallel systems. Models of parallel machines. Limitations of parallel systems. Paradigmatic algorithms. Vectorization. Arithmetic structures. Classical parallel architectures.

230. Introduction to Software Engineering

Either semester. Three credits. Three class periods and one problem session. Prerequisite: CSE 254. Open to sophomores or higher. *Demurjian, Peters*

Software engineering concepts including the software life cycle and other software-development process models. Specification techniques, design methodologies, performance analysis, and verification techniques. Team-oriented software design and development, and project management techniques. Introduction to a modern programming language and the associated design and debugging tools. Homework and laboratory projects that emphasize design and the use/features of a modern programming language.

233. Programming Languages

Either semester. Three credits. Prerequisite: CSE 237.

The study of programming language features and programming paradigms. Data types, control, run-time environments, and semantics. Examples of procedural, functional, logical, and object-oriented programming. Features used for parallel and distributed processing. Classic and current programming languages and environments.

237. Theory of Computation

Either semester. Three credits. Prerequisite: CSE 254.

Formal models of computation, such as finite state automata, pushdown automata, and Turing machines, and their corresponding elements in formal languages (regular, context-free, recursively enumerable). The complexity hierarchy. Church's thesis and undecidability. NP completeness. Theoretical basis of design and compiler construction.

240. Intermediate Computer Systems Laboratory

Either semester. Three credits. Two hours lecture and 4 hours laboratory. Prerequisite: CSE 111 or 124C or 130C, and CSE 241 which may be taken concurrently.

Chip level programming of microprocessor type systems. Topics covered include I/O ports, I/O devices and controllers, DMA channels, priority interrupts, networking, multitasking. Design projects.

241. Computer Organization

Either semester. Three credits. Prerequisite: CSE 207, and CSE 208W which may be taken concurrently. *Ammar, Peters*

Fundamentals of computer organization. Instruction sets and addressing modes. The control path and microprogramming. The data path; fast arithmetic. The memory hierarchy, both logical and physical aspects. The input/subsystem; interrupts, DMA, structure and function. SIMD and MIMD parallelism. Modern architectural theories.

243. Introduction to Computer Architecture and Hardware/Software Interface

Either semester. Four credits. Three hours lecture and three hours laboratory. Prerequisite: CSE 207 and CSE 208W. Not open for credit to students who have credit for CSE 241. *Ammar, Greenshields*

An integrated introduction to computer organization and the hardware/software interface as seen at the assembly-language level. Topics included: basic machine organization; instruction sets and addressing modes; CPU design; the control path and microprogramming; FSM design; the data path; integer and floating-point arithmetic; busses; the memory hierarchy; the i/o subsystem; RISC architectures; pipelining; basic performance analysis; fundamentals of networking. Lab activities include (but are not limited to): basic assembly language programming on a CICS and RICS processor; processor benchmarking; use of cache; polled, interrupt driven and DMA I/O files; optimizing code.

244. Programming Language Translation

Either semester. Three credits. Prerequisite: CSE 230 and 237. *Santos*

Introduction to the formal definition of programming language syntax and semantics. Design and realization of programming language processing systems such as assemblers, compilers, and interpreters.

245. Computer Networks and Data Communication

Semester by arrangement. Three credits. Prerequisite: CSE 221 which may be taken concurrently. *Ammar, Greenshields, Ting*

Introduction to computer networks and data communications. Network types, components and topology, protocol architecture, routing algorithms, and performance. Case studies including LAN and other architectures.

252. Digital Systems Design

(Also offered as ECE 252.) Either semester. Three credits. Prerequisite: CSE 207.

Design and evaluation of control and data structures for digital systems. Hardware design languages are used to describe and design alternative register transfer level architectures and control units

with a micro-programming emphasis. Consideration of computer architecture, memories, digital interfacing timing and synchronization, and microprocessor systems.

254. Introduction to Discrete Systems

Either semester. Three credits. Prerequisite: CSE 111 or 124C or 130C. Not open for credit to students who have passed MATH 214Q. Open to sophomores or higher. *Selfridge*

Mathematical methods for characterizing and analyzing discrete systems. Modern algebraic concepts, logic theory, set theory, grammars and formal languages, and graph theory. Application to the analysis of computer systems and computational structures.

255. Principles of Data Bases

Either semester. Three credits. Prerequisite: CSE 259. *Shin*

Fundamentals of data base design and data indexing techniques. Hierarchical, network, and relational data models. Data base design theory. Query languages, their implementation and optimization. Data base security and concurrent data base operations.

257. Numerical Methods in Scientific Computation

(Also offered as ECE 257.) Either semester. Three credits. Prerequisite: CSE 123C and MATH 210Q and MATH 211Q.

Introduction to the numerical algorithms fundamental to scientific computation. Equation solving, function approximation, integration, difference and differential equations, special computer techniques. Emphasis is placed on efficient use of computers to optimize speed and accuracy in numerical computations. Extensive digital computer usage for algorithm verification.

258. Operating Systems

Either semester. Three credits. Prerequisite: Either CSE 230 and either CSE 201 or CSE 243. *Demurjian, Santos*

Introduction to the theory, design, and implementation of software systems to support the management of computing resources. Topics include the synchronization of concurrent processes, memory management, processor management, scheduling, device management, file systems, and protection.

259. Algorithms and Complexity

Either semester. Three credits. Three class periods. Prerequisite: CSE 254. *Goldin, McCartney, Rajasekaran*

Design and analysis of efficient computer algorithms. Algorithm design techniques, including divide-and-conquer, depth-first search, and greedy approaches. Worst-case and average-case analysis. Models of computation. NP-complete problems.

261. Digital Hardware Laboratory

(Also offered as ECE 281.) Second semester. Three credits. One 4-hour laboratory period. Prerequisite: ECE 252 or CSE 252.

Advanced combinational and sequential circuit design and implementation using random logic and microprocessor based system. Hardware and software interface to the basic system. Serial communication, user program loading and execution. Microcontrollers – familiarization and inclusion in design.

262. Software Engineering Laboratory

Second semester. Three credits. Four program design periods. Prerequisite: CSE 230. *Demurjian, Peters*

A major software design project addresses specification through delivery phases of the lifecycle. The major focus of the course is utilization and application of concepts from CSE 230 to a straightforward semester long project. This allows the

student to explore programming-in-the-large with an emphasis on techniques for teamwork, walk through, design, documentation, implementation, and debugging. Data structures and algorithm alternatives for the design and implementation phases of the lifecycle are also stressed. Formal design presentations are required by all students.

263. Networking and Distributed Systems Laboratory

Second semester. Three credits. Four hour laboratory. Prerequisite: CSE 228 and 245. *Greenshield*

Software laboratory that explores selected issues in networking and distributed systems. Topics include: Berkeley sockets; TCP and IP; atm apis; latency and bandwidth; performance models; performance evaluation of different network fabrics; MPI; simple CORBA; performance characteristics of MPI, Java, RMI, and CORBA; implementation and evaluation of a client-server system.

265. Independent Design Laboratory

Either semester. Three credits. Prerequisite: CSE 230. May be taken twice for credit. Instructor and department head consent.

Experimental design project undertaken by the student by special arrangement with a faculty member of the Department of Computer Science and Engineering.

267W. Software Laboratory on Large Computers

Semester by arrangement. Three credits. Two class periods and one 2-hour program design period. Prerequisite: CSE 240; ENGL 105 or 110 or 111 or 250.

Investigation of instruction sets, internal data representations, interrupt systems, and the input/output system of a large computer available in the Computer Center. Assembler language, related job control language, supervision conventions, linkage methods, data storage techniques and access methods. Design projects.

268. Microprocessor Laboratory

First semester. Three credits. One lecture and one 3-hour laboratory period. Prerequisite: CSE 201 or 243. *Shvartsman*

The design of microcomputer systems, including both hardware and software, for solving application problems. Hardware and software design and implementation techniques for interfacing microcomputers to other systems. Use of modern microcomputer software/hardware development facilities. Projects to design and apply microcomputer systems.

269. Computer Science Design Laboratory

Either semester. Three credits. One 4-hour laboratory period. Prerequisite: Announced separately for each course. With a change in content this course may be repeated for credit.

Design and implementation of complex software and/or hardware systems to solve problems posed by either student groups or the instructor.

275. Principles of Computer Graphics

Semester by arrangement. Three credits. Prerequisite: CSE 259 and MATH 210Q and either MATH 227Q or 215Q. Not open for credit to students who have passed MATH 255. *Peters, Roulier*

Representation of two- and three-dimensional data, internal representation of data structures, transformations, mapping of data to graphics screen, graphics hardware. Programming projects are assigned.

277. Bioinformatics

(Also offered as BME 280.) Either semester. Three credits. Prerequisite: BIOL 107, CSE 254, and either STAT 220Q or STAT 224Q.

Fundamental mathematical models and computational techniques in bioinformatics. Exact and approximate string matching, suffix trees, pairwise and

multiple sequence alignment, Markov chains and hidden Markov models. Applications to sequence analysis, gene finding, database search, phylogenetic tree reconstruction.

278. Social, Ethical and Professional Issues in Computer Science and Engineering

Either semester. Three credits. Prerequisite: CSE 230. *Engel*

Study of areas in which computer science interacts with ethical issues, and issues of public policy. Topics of professional growth, development, and responsibility. Practice in the analysis of complex issues brought about by modern technology.

280. Digital Design Laboratory

(Also offered as ECE 280.) Second semester. Three credits. Four hours of laboratory. Prerequisite or corequisite: Either CSE/ECE 252.

Digital designing with PLA and FPGA, A/D and D/A conversion, floating point processing, ALU design, synchronous and asynchronous controllers, control path; bus master; bus slave; memory interface; I/O interface; logic circuits analysis, testing, and trouble shooting; PBC; design and manufacturing.

282. Artificial Intelligence

First semester. Three credits. Prerequisite: CSE 259. *McCartney*

Design and implementation of intelligent systems, in areas such as natural language processing, expert reasoning, planning, robotics, problem solving and learning. Students will design their own versions of "classic" AI problems, and complete one substantial design project. Programming will be done primarily in Lisp, which will be covered briefly at the beginning of the course.

290. Electrical and Computer Engineering Design I

(Also offered as ECE 290.) Either semester. Two credits. Prerequisite: Senior standing.

Discussion of the design process; project statement, specification, project planning scheduling and division of responsibility, ethics in engineering design, safety, environmental considerations, economic constraints, liability, manufacturing, and marketing. Projects are carried out using a team-based approach. Selection and analysis of a design project to be undertaken in CSE/ECE 291 is carried out. Written progress reports, a proposal, an interim report, a final report, and oral presentations are required.

291. Electrical and Computer Engineering Design II

(Also offered as ECE 291.) Either semester. Three credits. Prerequisite: ECE 290. Hours to be arranged.

Design of a device, circuit, system, process, or algorithm. Team solution to an engineering design problem formulated in CSE/ECE 290, from first concepts through evaluation and documentation. Written progress reports, a final report, and oral presentations are required.

293. Computer Science and Engineering Design Project

Either semester. Three credits. Prerequisite: CSE 258 and either CSE 261 or 262 or 263 or 265 or 268 or 269.

This course is the second semester of the required major design experience. In one semester-long team project, students will propose, design, produce, and evaluate a software and/or hardware system. The project will culminate in the delivery of a working system, a formal public presentation, and written documentation. Oral and written progress reports are required.

298. Special Topics in Computer Science and Engineering

Semester and credits by arrangement. Prerequisite: Announced separately for each course. With a change in content, this course may be repeated for credit.

Classroom course in special topics as announced in advance for each semester.

299. Independent Study in Computer Science and Engineering

Semester by arrangement. Credits by arrangement, not to exceed 4 in any semester. Prerequisite: Consent of instructor and department head.

This course exposes the student to management principles and practices and the knowledge and skills necessary to develop an education project and to perform a research project.

Critical Languages Program (CRLP)

Head of Department: Professor David K. Herzberger
Department Office: Room 228, J.H. Arjona Building

The Critical Language Program is designed to offer basic language instruction (four semesters) in languages not currently offered as major fields of study in the Department of Modern and Classical Languages. The most common languages taught in the CRLP program at the University of Connecticut are listed at the end of this section. Other languages may be offered based upon student interest and the Program's ability to find the necessary personnel. Critical languages may be used to fulfill the foreign language requirement.

Note: Some critical languages, because of area study requirements or other specific circumstances, may be offered under the regular instructional method and the following course descriptions with four credits apply. These subject areas listed alphabetically throughout this course directory are: American Sign Language, Japanese, Modern Greek, and Polish.

101. Elementary Level I

First semester. Four credits. Prerequisite: Not open to students with prior contact with the language.

102. Elementary Level II

Second semester. Four credits. Prerequisite: 101 or the equivalent.

103. Intermediate Level I

First semester. Four credits. Prerequisite: 102 or the equivalent.

104. Intermediate Level II

Second semester. Four credits. Prerequisite: 103 or the equivalent.

Note: The method of instruction for most critical language courses follows the self-study format established by the National Association of Self-Instructional Language Programs (NASILP). This method relies on four hours of student self-instruction per week, using the approved book/tape program; two or three hours per week of drill sessions led by the Conversation Partner; four or five quizzes per semester; and an oral final examination conducted by the Outside Examiner, a member of the faculty of an Institution of Higher Education which offers the language. In order to be eligible to register for a course offered through the NASILP method, students must have sophomore standing, a B (3.0) cumulative Grade Point Average, and the support of their academic advisor. Students seeking to register should bring an unofficial transcript and a letter from their advisor to Room 128, J.H. Arjona Building during pre-registration for the following semester. When taught in this manner, the following course descriptions with

three credits apply. These subject areas listed alphabetically throughout this course directory are: Arabic, Chinese, Critical Languages Program, Hindi, Korean, and Vietnamese.

101. Elementary Level I

First semester. Three credits. Prerequisite: Not open to students with prior contact with the language.

102. Elementary Level II

Second semester. Three credits. Prerequisite: 101 or the equivalent.

103. Intermediate Level I

First semester. Three credits. Prerequisite: 102 or the equivalent.

104. Intermediate Level II

Second semester. Three credits. Prerequisite: 103 or the equivalent.

193. 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.

Special topics taken in a foreign study program.

293. Foreign Study

Either or both semesters. Credits and hours by arrangement. May be repeated for credit. Consent of Director 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 of topic, may be repeated for credit. Prerequisites 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 and recommended preparation vary.

299. Independent Study

Either or both semesters. Credits and hours by arrangement. Open only with consent of Director. With a change in content, may be repeated for credit.

If there is sufficient student interest, additional languages may be offered.

Cytotechnology (CYTO)

Cytotechnology Program Director: Nancy Smith
Office: University of Connecticut Health Center, Farmington Campus

See Susan Gregoire, Director of Academic Affairs for Program information, Room 228, Koons Hall

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

222. Diagnostic Cytology

Second semester. Three credits. Prerequisite: To enroll in the course, a student must have earned a "C" or better in MLS 200. Open only to Cytotechnology majors; others by consent.

This course provides students with a comprehensive knowledge of normal cytologic findings in the female genital tract and the skills necessary to accurately identify the cellular components.

243. Cytology of the Female Genital Tract

First semester. Six credits. Prerequisite: To enroll in the course, a student must have earned a "B-" or better in CYTO 222. Open only to Cytotechnology majors.

This course provides the student with comprehensive knowledge of the female genital tract

cytology and provides the skills necessary to identify accurately the cytologic changes associated with normal and abnormal cells of the female genital tract.

244. Cytology of the Respiratory Tract

First semester. Four credits. Prerequisite: To enroll in the course, a student must have earned a "B-" or better in CYTO 243. Open only to Cytotechnology majors.

This course provides the student with comprehensive knowledge of respiratory tract cytology and provides the skills necessary to identify accurately the cytologic changes associated with normal and abnormal cellular changes in the respiratory tract.

245. Cytologic Techniques

First semester. Three credits. Open only to Cytotechnology majors.

This course provides the student with both didactic knowledge and technical skills necessary to ensure optimum specimen preparation.

246. Cytology of the Alimentary Tract

Second semester. Three credits. Prerequisite: To enroll in this course, a student must have earned a "B-" or better in CYTO 245. Open only to Cytotechnology majors.

This course provides the student with comprehensive knowledge of alimentary tract cytology and provides the skills necessary to identify accurately the cytologic changes associated with normal and abnormal cellular changes in the alimentary tract.

247. Cytology of Miscellaneous Fluids

Second semester. Four credits. Prerequisite: To enroll in the course, a student must have earned a "B-" or better in CYTO 246. Open only to Cytotechnology majors.

This course provides the student with comprehensive knowledge of miscellaneous fluids cytology and provides the skills necessary to identify accurately the cytologic changes associated with normal and abnormal changes in miscellaneous fluids.

248. Cytology Aspiration Biopsy

Second semester. Three credits. Prerequisite: To enroll in the course, a student must have earned a "B-" or better in CYTO 247. Open only to Cytotechnology majors.

This course provides the student with comprehensive cytology and provides the skills necessary to identify accurately the cytologic changes associated with normal and abnormal cellular changes in aspiration biopsies.

249. Senior Seminar in Cytotechnology

Second semester. Three credits. Open only to Cytotechnology majors.

This course exposes the student to management principles and practices and the knowledge and skills necessary to develop an education project and to perform a research project.

250. Clinical Practicum

Second semester. Four credits. Prerequisite: To enroll in the course, student must have earned a "B-" or better in CYTO 248 and 249. Open only to Cytotechnology majors.

This course provides the student with clinical experience to complete the integration of didactic and laboratory components of Cytotechnology.

298. Special Topics

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

Application of the scientific method of inquiry to planning, implementing, evaluating, and reporting a study of a problem related to Cytotechnology.

299. Independent Study for Undergraduates

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

This course is primarily for students who wish to extend their knowledge in some specialized area in the field of Cytotechnology.

Diagnostic Genetic Sciences (DGS)

Diagnostic Genetic Sciences Program Director:

Martha B. Keagle

Program Office: Room 222, Koons Hall

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

222. Medical Cyto genetics

Both semesters. Four credits. Two 2-hour lectures. Prerequisite: MCB 203 and 200 or 213; all of which may be concurrent. Open to students in the Diagnostic Genetic Sciences Program; others who have met the prerequisites.

Birth defects, prenatal assessment, cell culture and harvest, staining and banding techniques, mechanisms of numerical and structural chromosome abnormality, numerical syndromes, duplication and deletion syndromes, the sex chromosomes, sex chromosome abnormalities, human chromosome nomenclature, mosaicism, genetic imprinting, cancer cytogenetics, molecular cytogenetic testing.

223. Laboratory in Cyto genetics

Both semesters. Two credits. One 3-hour laboratory period and one 1-hour discussion. Four additional laboratory sessions are required during the first half of the semester. Prerequisite: DGS 222 which may be taken concurrently. Open only to students enrolled in the Diagnostic Genetic Sciences Program; others with consent of instructor.

Human chromosome morphology and identification, aseptic technique, lymphocyte culture and harvest, chromosome banding, karyotyping and microscopic analysis of normal and abnormal cases.

224. Cancer Cyto genetics

Offered Summer I. Two credits. Prerequisite: DGS 223. Open only to students enrolled in the Diagnostic Genetic Sciences Program; others with consent of instructor.

Chromosome instability syndromes, genetic basis of cancer, cytogenetics of solid tumors and hematologic malignancies, and nomenclature of acquired changes.

225. Microscopy and Chromosome Imaging

Either semester. One credit. Prerequisite: DGS 223 which may be taken concurrently. Open only to students enrolled in the Diagnostic Genetic Sciences Program; others with consent of instructor. *Brown*

Theory and techniques of brightfield and fluorescence microscopy, photomicroscopy, and computerized imaging for karyotype production.

226. Current Genetic Research

Either semester. Variable credits. Prerequisite: DGS 222 or MCB 200 or MCB 213; instructor consent. May be repeated one time for credit.

Retrieval, review and discussion of current primary genetics literature in addition to attending and reviewing University research seminars/guest speakers.

234. Diagnostic Molecular Technologies

Both semesters. Three credits. Prerequisite: MCB 200 or 213; and MLS 208 or MCB 211 which may be taken concurrently. Open only to students enrolled in the Diagnostic Genetic Sciences Program.

DNA and RNA diagnostic technologies used in

clinical settings; clinical applications in prenatal diagnosis; cancer management, transplantation, paternity testing, forensic medicine and microbiology.

235. Laboratory in Molecular Diagnostics

Both semesters. Four credits. Prerequisite: DGS 234 or MLS 217 which may be taken concurrently. Open only to students enrolled in the Diagnostic Genetic Sciences Program.

DNA isolation, blotting techniques, fluorescent in situ hybridization, polymerase chain reaction and Genprobe assay.

246. Contemporary Issues in Human Genetics

Both semesters. Three credits. Prerequisite: DGS 223. Open only to students enrolled in the Diagnostic Genetic Sciences Program; others with consent of the instructor.

Advanced karyotyping and microscopic diagnosis; report writing; historical perspective; recent advances and future trends in human genetics; ethical issues of genetic research, technological advances, genetic diagnosis and the practice of medical genetics; exploration of the lay person's understanding of human genetics and genetic diagnosis.

260. Blotting Methods

Both semesters. Six credits. Prerequisite: In order to enroll in this course, a student must have earned a "C" or better in DGS 234 and 235. Open only to DGS molecular certificate students.

Practicum experience with blotting technologies stressing complete Southern analysis.

261. Amplification Methods

Both semesters. Six credits. Prerequisite: In order to enroll in this course, a student must have earned a "C" or better in DGS 234 and 235. Open only to DGS molecular certificate students.

Practicum experience in DNA and/or RNA amplification stressing polymerase chain reaction.

273. Research in Molecular Genetics

Both semesters. One credit. Prerequisites: In order to enroll in this course, a student must have earned a "C" or better in AH 241W, DGS 234 and 235. Open only to students enrolled in the Molecular Diagnostic Sciences Certificate Program; others with consent of the instructor.

Design and implementation of a research project in molecular genetics.

275. In Situ Hybridization Methods

Both semesters. Two credits. Prerequisites: In order to enroll in this course, a student must have earned a "C" or better in DGS 234 and 235. Open only to DGS molecular certificate students.

Practicum in fluorescence *in situ* hybridization or other *in situ* hybridization techniques.

276. Topics in Molecular Genetics

Both semesters. Two credits. Prerequisite: In order to enroll in this course, a student must have earned a "C" or better in DGS 234 and 235. Open only to students enrolled in the Molecular Diagnostic Sciences Certificate Program; others with consent of the instructor.

Exploration of an individual area of interest in molecular genetics.

277. Mutagenesis

Both semesters. Two credits. Prerequisite: In order to enroll in this course, a student must have earned a "C" or better in DGS 234 and 235. Open only to students enrolled in the Molecular Diagnostic Sciences Certificate Program; others with consent of the instructor.

Practicum experience in mutagenesis, including Ames assays and mammalian mutagenesis assays.

278. DNA Sequencing

Both semesters. Two credits. Prerequisite: In order to enroll in this course, a student must have earned a "C" or better in DGS 234 and 235. Open only to students enrolled in the Molecular Diagnostic Sciences Certificate Program; others with consent of the instructor.

Practicum experience in DNA sequencing.

279. Microbiological Applications of Molecular Diagnostics

Both semesters. Two credits. Prerequisite: In order to enroll in this course, a student must have earned a "C" or better in DGS 234 and 235. Open only to students enrolled in the Molecular Diagnostic Sciences Certificate Program; others with consent of the instructor.

Practicum experience in the application of molecular technologies to microbiology.

280. Bone Marrow Cytogenetics

Both semesters. Three credits. Prerequisite: In order to enroll in the course, the student must have earned a "C" or better in DGS 222, 223 and 224. Open only to Diagnostic Genetic Sciences majors.

Culture, harvest, banding and analysis of leukemic bone marrow samples; chromosomal abnormalities associated with hematologic malignancies.

281. Peripheral Blood Cytogenetics

Both semesters. Four credits. Prerequisite: In order to enroll in this course, the student must have earned a "C" or better in DGS 222 and DGS 223. Open only to Diagnostic Genetic Sciences majors.

Culture, harvest, banding and analysis of peripheral blood samples.

284. Variable Topics in Cytogenetics

Both semesters. One credit. Prerequisite: In order to enroll in this course, the student must have earned a "C" or better in DGS 222 and DGS 223. Open only to Diagnostic Genetic Sciences majors.

In-depth examination of a topic of the students' choosing in the field of human genetics.

285. Research in Cytogenetics

Both semesters. One credit. Prerequisite: In order to enroll in this course, the student must have earned a "C" or better in AH 241W, DGS 222 and 223. Open only to Diagnostic Genetic Sciences majors.

Design and implementation of a research project in clinical cytogenetics.

286. Prenatal Cytogenetics

Both semesters. Four credits. Prerequisite: In order to enroll in this course, the student must have earned a "C" or better in DGS 222 and DGS 223. Open only to Diagnostic Genetic Sciences majors.

Culture, harvest, banding and analysis of amniotic fluids, products of conception, and other fetal samples.

287. Practicum in Microscopy and Imaging

Either semester. One credit. Prerequisite: To enroll in this course, the student must have earned a "C" or better in DGS 222 and 225. Open only to Diagnostic Genetic Sciences majors. Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

Brightfield microscopy, fluorescence microscopy and computer imaging. Student will become proficient in karyotyping skills through regular use of a computer imaging system.

288. Practicum in Staining and FISH

Either semester. One credit. Prerequisite: To enroll in this course, the student must have earned a "C" or better in DGS 222. Open only to Diagnostic Genetic Sciences majors. Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

Traditional routine and special cytogenetic staining

techniques and fluorescence *in situ* hybridization (FISH).

289. DNA Technology in Forensic Science

Either semester. Credits and hours by arrangement. Prerequisite: To enroll in this course, the student must have earned a "C" or better in DGS 260, 261, and 273. Open only to Diagnostic Genetic Sciences molecular diagnostic sciences certificate students. *Brown*

Practicum experience with forensic applications of DNA testing.

290. Honors Research

Either semester. Three credits. Open only to Diagnostic Genetic Sciences Honors students.

Design and implementation of an honors research project.

298. Special Topics

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

Application of the scientific method of inquiry to planning, implementation, evaluating and reporting a study of a problem in cytogenetics.

299. Independent Study for Undergraduates

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

This course is designed primarily for students who wish to extend their knowledge in some specialized area in the field of diagnostic genetic sciences.

Dietetics (DIET)

Program Director: Robin Abourizk

Dietetics Program Office: Room 314, Koons Hall

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

The following courses are open only to students enrolled in the Dietetics Program. Others must obtain the permission of the Director of the Dietetics Program.

203. Applied Food Service Systems

Second semester. Two credits. Prerequisite: Student must earn a "C" or better in DIET 206, 211. Open only to Dietetics majors; others by consent of Dietetics Program Director. *Duffy*

Concepts and methods of food service systems. The relationship of nutrition care services and food service units.

206. Applied Medical Nutrition Therapy I

First semester. Three credits. Prerequisite: MCB 203, PNB 264, 265; NUSC 165. Open only to Dietetics majors; others by consent of Dietetics Program Director. *Abourizk*

Introduction to the nutrition care process, nutrition assessment, planning of special diets, and applications of medical nutrition therapy to selected disease states and conditions.

207. Applied Medical Nutrition Therapy II

Second semester. Two credits. Prerequisite: Student must earn a "C" or better in DIET 206, 211. Open only to Dietetics majors; others by consent of Dietetics Program Director. *Kerstetter*

Medical nutrition therapy for selected disease states and conditions. Continuation of DIET 206.

211. Clinical Dietetics Practicum I

First semester. One credit. Prerequisite: MCB 203; PNB 264, 265; NUSC 165. Open only to Dietetics majors; others by consent of Dietetics Program Director. *Abourizk*

Supervised practice experience in the health care setting.

212. Clinical Dietetics Practicum II

Second semester. One credit. Prerequisite: Student must earn a "C" or better in DIET 206, 211. Open only to Dietetics majors; others by consent of Dietetics Program Director. *Kerstetter*

Supervised practice experience in the health care setting.

213S. Applied Community Nutrition

Second semester. Three credits. Prerequisite: Student must earn a "C" or better in DIET 206, 211; ENGL 105 or 110 or 111 or 250. Open only to Dietetics majors; others by consent of Dietetics Program Director. *Duffy*

Assessment of community structure, agencies, and resources. Plan, implement, and evaluate nutritional care and nutritional education in the community setting. Participation in computer laboratory experiences.

214. Community Nutrition Practicum I

Second semester. One credit. Prerequisite: Student must earn a "C" or better in DIET 206, 211. Open only to Dietetics majors; others by consent of Dietetics Program Director. *Duffy*

Supervised practice experiences in community agencies.

215. Food Service Management Practicum I

Second semester. One credit. Prerequisite: Student must earn a "C" or better in DIET 206, 211. Open only to Dietetics majors; others by consent of Dietetics Program Director. *Duffy*

Supervised practice experiences in food service settings.

233. Applied Medical Nutrition Therapy III

First semester. Three credits. Prerequisite: Student must earn a "C" or better in DIET 203, 207, 212, 213S, 214, 215. Open only to Dietetics majors; others by consent of Dietetics Program Director. *Duffy*

Medical nutrition therapy for complex medical problems. Continuation of DIET 207.

234. Contemporary Nutrition Practice

First semester. Three credits. Prerequisite: Student must earn a "C" or better in DIET 203, 207, 212, 213S, 214, 215. Open only to Dietetics majors; others by consent of Dietetics Program Director. *Duffy*

Application of knowledge, skills, and competencies affecting contemporary nutrition practice in the clinical dietetics, food service management, and community nutrition settings.

236. Applied Dietetics Practicum

First semester. Two credits. Prerequisite: Student must earn a "C" or better in DIET 203, 207, 212, 213S, 214, 215. Open only to Dietetics majors; others by consent of Dietetics Program Director. *Duffy*

Supervised practice experiences in the clinical dietetics, food service management, and community nutrition settings.

238. Advanced Nutrition for the Dietetics Practitioner

First semester. Three credits. Hours by arrangement. Prerequisite: Student must earn a "C" or better in DIET 203, 207, 212, 213S, 214, 215. Open only to Dietetics majors; others by consent of Director of Dietetics.

Relationship of nutrients to each other and to body function.

244. Food Service Management Practicum II

Second semester. Three credits. 160-hour practicum. Prerequisite: Student must earn a "C" or better in DIET 233, 234, 236, 238. Open only to Dietetics majors; others by consent of Dietetics Program Director.

Application and synthesis of performance requirements in food service systems.

245. Community Nutrition Practicum II

Second semester. Four credits. Prerequisite: Student must earn a "C" or better in DIET 233, 234, 236, 238. Open only to Dietetics majors; others by consent of Dietetics Program Director.

Application and synthesis of performance requirements in community nutrition.

247. Seminar in Dietetics

Second semester. Two credits. Hours by arrangement. Prerequisite: Student must earn a "C" or better in DIET 233, 234, 236, 238. Open only to Dietetics majors; others by consent of the Director of Dietetics.

Special problems and issues in dietetics. The management role in patient care, nutrition education, and the integration of nutrition and food service units.

249. Clinical Dietetics Practicum III

Second semester. Four credits. Prerequisite: Student must earn a "C" or better in DIET 233, 234, 236, 238. Open only to Dietetics majors; others by consent of Dietetics Program Director.

Application and synthesis of performance requirements in clinical dietetics.

250. Dietetics Research Practicum

Second semester. Four credits. 160-hour self-planned supervised practice. Prerequisite: Student must earn a "C" or better in DIET 233, 234, 236, 238. Open only to Dietetics majors; others by consent of the Director of Dietetics.

Student defines objectives to extend knowledge in a specialized area of dietetics. Research project.

298. Special Topics

Either semester. Credits and hours by arrangement. Open only to Dietetics majors; others by consent of the Director of Dietetics. May be repeated for credit with a change in topic.

Application of the scientific method of inquiry to planning, implementing, evaluating, and reporting a study of a problem related to dietetics.

299. Independent Study for Undergraduates

Either semester. Credits and hours by arrangement. Open only to Dietetics majors; others by consent of the Director of Dietetics. Open only with consent of instructor. May be repeated for credit.

The course is designed primarily for students who wish to extend their knowledge in some specialized area in the field of dietetics.

Dramatic Arts (DRAM)

Head of Department: Professor Gary M. English

Department Office: Room 242, Drama – Music Building

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

101. Introduction to the Theatre

Either semester. Three credits.

Analysis of the functions of the theatre artists and their contributions to the modern theatre.

105. Drafting for the Theatre

First semester. Three credits. Two 3-hour studio periods.

The basics of hand drafting techniques and the drafting conventions for scenic designers, lighting designers and technical directors.

106. Computer Drafting for the Theatre

Second semester. Three credits. Two 3-hour studio periods.

Computer Aided Drafting techniques for theatrical applications. Use of design software for creating various 2-D plans, including light plots, set designs and technical shop drawings. Assumes a good working

knowledge of theatrical drafting conventions and techniques.

107. Theatre Production Studio

Either semester. Three credits. Two class periods and one 2-hour studio period. May be repeated with change in course content to a maximum of nine credits.

Franklin, McCaw

Elements of costume, lighting, management and stagecraft with application to departmental productions.

108. Fundamentals of Theatrical Design

Either semester. Three credits. *Saternow*

Introduction to theories of theatrical design and their application.

109. Drawing and Painting Techniques for the Theatre

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

An introduction to theatrical sketching and rendering emphasizing color composition in various media.

110. Introduction to Film

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

A basic study of film as both a means of communication and as an art form.

118. Computer Rendering for the Theatre

Second semester. Three credits. Two class periods and one 2-hour studio period. Open only to Dramatic Arts majors; others with consent of instructor.

Computer rendering for theatre design in 2-D and 3-D format.

120. Production of the Speaking Voice

Either semester. Three credits. *Stern*

Study and practice in the development of an expressive, injury-free speaking voice capable of filling most performance spaces without amplification. Students concentrate on breathing technique, throat relaxation, resonance enhancement, and the use of variety in pitch and speaking rate. The course also integrates these technical voice skills with the principles of the inner acting process.

130. History of Drama I

First semester. Three credits. Not open for credit to students who have passed DRAM 180. *McDermott*

Dramatic literature and theatre history from Classical Greece through the Spanish Golden Age, including an examination of non-western theatre traditions, especially Japanese.

131. History of Drama II

Second semester. Three credits. Recommended preparation: DRAM 130. Not open for credit to students who have passed DRAM 181. *McDermott, Molette*

Dramatic literature and theatre history from the French Renaissance to Contemporary Theatre, including an examination of non-western theatre traditions, especially Chinese.

141. Oral Interpretation

Either semester. Three credits.

An intensive study of background and thought content of literary material and the development of techniques of oral interpretation.

143-144. Introduction to Acting

Both semesters. Three credits each semester. Concurrent enrollment in DRAM 149-150 required for all acting majors.

First semester: Basic acting techniques, including improvisation and the use of the stage environment. Second semester: continuation of basic techniques with emphasis on the presentation of scenes from contemporary plays.

149. Introduction to Movement for the Actor I

First semester. Three credits. Three 2-hour studio periods. *Sabatine*

Conditioning the body to increase stretch, strength, flexibility, and sensitivity. Exploration of movement concepts in space, time and energy values, and mind body and environment relationships.

150. Introduction to Movement for the Actor II

Second semester. Three credits. Three 2-hour studio periods. *Sabatine*

Continuation of Dramatic Arts 149. Emphasis on the organization of movement expression using essence theory of emotion, intentions, gestures and physical characterization through movement.

153. Theatre Jazz Dance I

Either semester. Three credits. Three 2-hour studio periods.

Basic techniques, styles, and composition of jazz dance. Emphasis placed on technique.

154. Theatre Jazz Dance II

Either semester. Three credits. Three 2-hour studio periods. Prerequisite: DRAM 153.

Continuation of Dramatic Arts 153.

159. Practicum in Dramatic Arts

Either or both semester. Credits and hours by arrangement. Department consent required. May be repeated for credit with a change in course content to a maximum of 6 credits. Open only to Dramatic Arts majors. Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

Practical work in all areas of dramatic arts, with emphasis on running crew assignments.

163-164. Introduction to Directing

Both semesters. Three credits each semester. Prerequisite: DRAM 143.

First semester: Emphasis on theory and play analysis from the director's point of view. Second semester: Emphasis on practical staging experience, including casting techniques and rehearsal and performance methods.

180. Masterpieces of the Drama: Aeschylus to Shakespeare

Either semester. Three credits.

A study of masterpieces of Greek, Roman and Elizabethan drama with emphasis on analysis of form and content and attention to staging conventions.

181. Masterpieces of the Drama: Molière to the Present

Either semester. Three credits.

A study of masterpieces of French 17th Century; English Restoration and 18th Century; European, English, and Japanese 19th Century; and European, English, African, and American 20th Century drama. Emphasis on analysis of form and content and attention to staging conventions.

181W. Masterpieces of the Drama: Molière to the Present

Prerequisite: ENGL 105 or 110 or 111 or 250.

191. Performance Techniques in Ethnic Arts

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

Performance study and practice in selected areas of ethnic and minority dramatic arts. Topics to be alternated may include Afro-American dance, Black Heritage theatre, Indian dance.

200. Scene Construction

First semester. Three credits. Recommended preparation: DRAM 107 (Stagecraft). *McCaw*

Basic techniques of constructing two dimensional and three dimensional scenery.

201. Rigging

Second semester. Three credits. Recommended preparation: DRAM 107 (Stagecraft). *McCaw*

Rigging systems and the basic techniques for flying scenery, with an emphasis on rigging safety.

203. Stage Management for the Theatre

Either semester. Three credits.

A study of the roles of the stage manager and assistant stage manager.

205. Scenographic Techniques for the Theatre

Either semester. Three credits. Two 3-hour laboratory periods. Recommended preparation: DRAM 107 (Stagecraft). *McCaw*

A laboratory course for designers and technicians in the techniques of preparing a scene design for production in a shop. Drafting techniques, sheet layout, conventions and symbols are stressed.

206. CAD for the Theatre

Either semester. Two 3-hour laboratory periods. Recommended preparation: DRAM 205. *McCaw*

Computer Aided Drafting techniques for theatrical applications. Use of design software for creating various 2-D plans, including light plots, set designs and technical shop drawings.

207C-208. Lighting for the Theatre

Both semesters. Three credits each semester. Two class periods and one 2-hour laboratory period. Recommended preparation: DRAM 107 (Lighting), 108. *Franklin*

209 Principles of Design and Rendering

Either semester. Three credits. Two class periods and one 2-hour studio period. Recommended preparation: DRAM 108. *Crow*

Composition and color theory for designers as well as an exploration of graphic techniques in mixed media for expression of design ideas.

211-212. Scene Design

Both semesters. Three credits each semester. Two class periods and one 2-hour laboratory period. Prerequisite: DRAM 108. *Saternow*

213. Costume History

Either semester. Three credits. Two class periods and one 2-hour studio period. *Crow*

A slide survey class covering the origins and development of dress to the present day. Specifically African, Middle Eastern, an Euro-Centric dress, along with the societies and manners which created fashion.

214. Costume Design

Either semester. Three credits. Two class periods and one 2-hour studio period. Recommended preparation: DRAM 108. *Crow*

An introductory class centering on the designer's approach to the text, the creation of the designed look for the characters in the play, and the process of how to realize the costumes.

215. Sound for the Theatre

Either semester. Three credits.

Art of sound design for the theatre. Organizing and creating sound for production.

218C. Computer Rendering

Either semester. Three credits. Two class periods and one 2-hour studio period. Recommended preparation: DRAM 108. *Crow*

Computer rendering for the theatre in 2-D and 3-D format.

219. Advertising, Publicity, and Promotion in the Dramatic Arts

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

An introduction to the basic techniques of advertising copy, news releases, and feature stories.

220. Voice and Diction I

First semester. Three credits. Prerequisite: DRAM 120 and concurrent enrollment in DRAM 268. *Stern*

Study and practice in the continued development of breathing, phonation and resonance skills, with added attention being paid to non-regional pronunciation (including the standard sounds and symbols of the International Phonetic Alphabet), articulation (of colloquial and classical diction styles), and phrasing.

222. Voice and Diction II

Prerequisite: DRAM 220 and concurrent enrollment in DRAM 269. *Stern*

Continued exploration of voice production and elevated diction skills required for acting in classical and period styles. Particular attention is given to textual analysis, verse performance, and the specialized voice techniques required for highly emotional scenes.

230. Women in Theatre

Either semester. Three credits. Open to sophomores or higher. *McDermott*

A study of theatre examining the changing depiction of women in drama and the increasing participation of women in all areas of theatrical activity. Women's advancement in western and oriental theatre will be surveyed as a background for focusing on plays written in the 20th century.

230W. Women in Theatre

Prerequisite: ENGL 105 or 110 or 111 or 250. Open to sophomores or higher.

231. African-American Theatre

Either semester. Three credits. Open to sophomores or higher. *Molette*

The significant developments in African American theatre and its antecedents and an examination of selected play scripts that exemplify those developments.

231W. African-American Theatre

Prerequisite: ENGL 105 or 110 or 111 or 250. Open to sophomores or higher.

235. Period Studies in Theatre

Either or both semesters. Three credits. Prerequisite: DRAM 130, 131. May be repeated for credit with change in course content.

An in-depth examination of a major period or periods of theatre history and dramatic literature. Topics will vary.

235W. Period Studies in Theatre

Prerequisite: DRAM 130, 131; ENGL 105 or 110 or 111 or 250.

238. Theatre Jazz Dance III

Second semester. Three credits. Three 2-hour studio periods. Prerequisite: DRAM 154 and consent of instructor. May be repeated for credit with a change in course content to a maximum of 9 credits. *Sabatine*

Further work in techniques and styles of jazz dance. Projects in jazz choreography.

239. Theatre Dance I

First semester. Three credits. Prerequisite: DRAM 149, 150. *Sabatine*

Stage movement and dances from Greek to Renaissance.

240. Theatre Dance II

Second semester. Three credits. Prerequisite: DRAM 239. *Sabatine*

Stage movement and dances from the Renaissance through the Restoration.

241. Oral Interpretation of the Drama

Second semester. Three credits. Recommended preparation: DRAM 141, 143.

242. Stage Make-Up

Either semester. Two credits. One class period and one 2-hour laboratory period. Open only with consent of instructor.

243. Acting Technique I

First semester. Three credits. Three 2-hour studio periods. Open only with consent of instructor. Open to sophomores or higher. *Hill*

Voices of naturalism and realism: the study and practice of techniques utilized in the performance of modern realists.

244. Acting Technique II

Second semester. Three credits. Three 2-hour studio periods. Prerequisite: DRAM 243. Open to sophomores or higher. *McDonald*

A continuation of the study and practice of techniques utilized in the performance of modern realists.

247-248. Puppetry

Both semesters. Three credits each semester. May be repeated for credit with change in course content to a maximum of 12 credits. Open only with consent of instructor. Open to sophomores or higher. *Rocoberton*

First semester: Rod puppetry or Shadow theatre. *Second semester:* Hand puppetry or Mask theatre. Topics to alternate on a two-year rotation.

249. Acting for the Media

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

Study and practice in the principles and techniques of television performance and acting before the camera.

250. Musical Theatre Dance

First semester. Three credits. Three 2-hour studio periods. Recommended preparation: DRAM 154. May be repeated for credit with a change in course content to a maximum of 6 credits. *Sabatine*

Tap, free style, folk and social dance forms used in musical theatre. Integration of dance with song.

251. The American Film

First semester. Three credits. Prerequisite: DRAM 110. Two class periods and one 2-hour laboratory period. May be repeated for credit with a change in course content to a maximum of 6 credits.

A critical analysis of the American fiction film.

252. World Film

Second semester. Three credits. Prerequisite: DRAM 110. Two class periods and one 2-hour laboratory period. May be repeated for credit with a change in course content to a maximum of 6 credits.

A critical analysis of representative world films.

257. Fundamentals of Television I

First semester. Three credits. Two 3-hour laboratory periods. Open only with consent of instructor.

258. Fundamentals of Television II

Second semester. Three credits. Two 3-hour laboratory periods. Prerequisite: DRAM 257.

259. Practicum in Dramatic Arts

Either or both semesters. Credits and hours by arrangement. Open only with consent of instructor. Open to sophomores or higher. Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

Practical work in all areas of dramatic arts.

263. The Director in the Theatre

Either. Three credits. Prerequisite: DRAM 130, 131.

An analysis of the role and function of the director in the theatre from historical, aesthetic, and practical points of view.

265. Stage Dialects

Either semester. Two credits. One class period and one 2-hour lab. Recommended preparation: DRAM 220. *Stern*

The study and practice of those dialects and accents most frequently required by American actors. Contents include, but are not limited to, Standard British, and a range of New York City and American Southern patterns.

268. Acting Technique III

First semester. Three credits. Three 2-hour studio periods. Prerequisite: DRAM 244 and consent of instructor, and concurrent enrollment in DRAM 220 and DRAM 239 required. *McDonald*

Poetic voices of world theatre: Greek, Elizabethan, and others.

269. Acting Technique IV

Second semester. Three credits. Three 2-hour studio periods. Prerequisite: DRAM 268 and consent of instructor, and concurrent enrollment in DRAM 222 and DRAM 240 required. *McDonald*

The study and practice of acting techniques utilized in the performance of Shakespeare's plays.

272. Playwriting

Either or both semesters. Three credits. Open only with consent of instructor. May be repeated for credit with a change in course content to a maximum of 9 credits. *McDermott*

The analysis of the basic techniques in playwriting, and the reading and criticism of the students' works in progress. Scripts of outstanding merit may be produced in the Studio or Mobius Theatres.

274-275. Film Writing

Both semesters. Three credits each semester. Open only with consent of instructor.

Theoretical and practical work in the content and form of the fiction scenario.

276. Acting Technique V

First semester. Three credits. Three 2-hour studio periods. Prerequisite: DRAM 269 and consent of instructor.

The study and practice of acting techniques utilized in a range of comic styles.

277. Acting Technique VI

Second semester. Three credits. Three 2-hour studio periods. Prerequisite: DRAM 276 and consent of instructor.

The study and practice of acting techniques utilized in the performance of modern non-realists.

278. Advanced Puppetry Techniques I

First semester. Three credits. Two 3-hour laboratory periods. May be repeated for credit with change in course content to a maximum of six credits. Open only with consent of instructor. *Rocoberton*

Laboratory practice in advanced production techniques or paper sculpture for the puppet theatre.

279. Advanced Puppetry Techniques II

Second semester. Three credits. Two 3-hour laboratory periods. May be repeated for credit with change in course content to a maximum of six credits. Open only with consent of instructor. *Rocoberton*

Advanced puppetry production techniques for television or laboratory practice in materials techniques.

282. Trends in Contemporary Theatre

Either semester. Three credits. Open to sophomores or higher.

A study of the major trends in drama and theatrical production of the western world today.

282W. Trends in Contemporary Theatre

Prerequisite: ENGL 105 or 110 or 111 or 250; open to sophomores or higher.

285. Trends in the Contemporary Puppet Theatre

Either semester. Three credits. Additional project required for graduate credit. *Rocoberton*

A study of the major trends in drama, design styles and production of the puppet theatre in the western world today.

289. Theatre Administration and Organization

Either semester. Three credits.

A survey of the organizational structure of the theatre in the United States, including community, university and regional theatres, and "on," "off," and "off-off" Broadway. Personnel, budgeting, unions and audience development will be covered.

291. Performance Techniques

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

Performance study and practice in selected areas of dramatic arts.

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.

Coursework undertaken within approved Study Abroad programs, with a focus on the theatre history, dramatic literature and production in a particular country or region.

295. Environmental Theatre

Either or both semesters. Three credits. Three 2-hour studio periods. May be repeated for credit. Open only with consent of instructor.

An analysis of New Theatre concepts throughout the twentieth century, with workshops in performance.

298. Seminar

Either or both semesters. Credits and hours by arrangement. Open only with consent of instructor. May be repeated for credit.

Studies in selected areas of dramatic arts. Topics to be alternated.

299. Independent Study

Either or both semesters. Credits and hours by arrangement. Open only with consent of instructor. May be repeated for credit.

A reading or project course under the direction of an appropriate staff member.

Ecology and Evolutionary Biology (EEB)

Head of Department: Professor Gregory J. Anderson
Department Office: Room 314, Torrey Life Sciences Building

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

200. Biology of Fishes

Second semester, alternate years. Four credits. Three class periods and one three-hour laboratory period. Prerequisite: BIOL 108. Not open for credit to students who have passed NRME 200, 201 or 202 or MARN 200, 201 or 202. *Schultz*

An introduction to the biology of fishes, with an emphasis on adaptation and evolutionary diversification. Topics include the evolution of major groups, morphology, physiology, behavior, and population and community ecology. Lectures, critical discussions of current journal articles, student presentations, and exercises in the field and laboratory. Field trips required.

203. Developmental Plant Morphology

(Also offered as EEB 303.) First semester, alternate years. Four credits. Two class periods and two 2-hour laboratory periods. Prerequisite: BIOL 108 or instructor consent. *Jones*

Analysis of diversity in plant form; principles of plant construction and development.

204. Aquatic Plant Biology

(Also offered as EEB 304.) First semester, alternate years. Four credits. Two lectures and two 3-hour field trip/laboratory periods. Prerequisite: BIOL 108 or 110 or instructor consent. *Les*

Field and laboratory-oriented study of the anatomy, morphology, ecology, physiology, systematics and evolution of vascular aquatic and wetland plants.

205. Current Issues in Environmental Science

(Also offered as GEOL 205.) Second semester, alternate years. Three credits. Open to honors students. Open to non-honors students only with consent of instructor. Prerequisite: 8 credits of college level science. *Simon, Thorson*

Readings and discussions of current issues in environmental science, emphasizing linkages between earth, oceans, atmosphere, and biosphere. Topics include: climate change; watershed changes; alternative energy; population growth; endangered biodiversity; genetically-engineered organisms; deforestation/restoration; risk assessment; tradeoffs; problem-solving; alternative futures.

206. Internship in Ecology, Conservation, or Evolutionary Biology

Either semester. One to nine credits per semester. Hours by arrangement. Prerequisite: Instructor consent. May be repeated for a total of up to 15 credits using either EEB 206 and/or EEB 306. Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

Internship with a non-profit organization, a governmental agency, or a business under the supervision of Ecology and Evolutionary Biology faculty. Activities relevant to the practice of ecology, biodiversity, evolutionary biology, or conservation biology will be planned and agreed upon in advance by the job site supervisor, the faculty coordinator, and the intern. One credit may be earned for each 42 hours of pre-approved activities up to a maximum of nine credits.

207. African Field Ecology and Renewable Resources Management

Second semester, alternate years. Four credits. One class period during the semester, followed by three weeks in the field in South Africa. Recommended preparation: EEB 244. Instructor consent required.

An intensive, field oriented methods course conducted primarily in South Africa at the Basil Kent Field Station, Great Fish River Reserve in collaboration with the University of Fort Hare. An introduction to South Africa culture and history, ecology, and natural resources is provided in weekly meetings during the semester. This is followed by three weeks in the field in South Africa. Topics covered include vegetation and faunal surveys, data collection and analysis, biodiversity monitoring, and conservation management. A research paper relating to an independent study conducted by the student in the field is required.

214. Biology of the Vertebrates

First semester. Three credits. Two 1-hour lecture periods, with demonstrations. Prerequisite: Three credits of introductory Biology. Open to sophomores or higher. *Rubega, Schwenk, Wells*

Evolutionary history and diversity of vertebrates with emphasis on classification, fossil history, feeding, locomotion, physiological ecology, reproduction, defense, and social behavior.

227. Biology of Plants

First semester. Three credits. Prerequisites: BIOL 108 or 110 or instructor consent. Open to sophomores or higher. *L. Lewis*

Structure, function, evolution, and ecology of plants. Importance of plants for ecosystems and human life.

238. Limnological Methods

Second semester. Three credits. One class period and two 3-hour field/laboratory periods. Prerequisite: Consent of instructor and CE 268 or EEB 247, either of which may be taken concurrently. This course and CE 207 may not both be taken for credit. *Rich*

Field and laboratory study of physical, chemical, and biotic elements of freshwater habitats. Field trips required.

240. Biology of Bryophytes and Lichens

(Also offered as EEB 340.) Second semester, alternate years. Four credits. Three class periods and one 3-hour laboratory period. Prerequisites: Six credits of 200-level biology or instructor consent. *Goffinet*

Diversity, evolution, ecology, development and taxonomy of the bryophytes (mosses, liverworts and hornworts) and lichen-forming fungi.

243. Insect Classification and Identification

Second semester, alternate years. Four credits. Two 1-hour lecture periods and one 4-hour laboratory. Prerequisite: EEB 286 and consent of instructor. *Henry*
Insect classification, evolution, and phylogeny.

243W. Insect Classification and Identification

Two 1-hour lecture periods plus individual tutorial. Prerequisite: EEB 286 and consent of instructor; ENGL 105 or 110 or 111 or 250. *Henry*

Content as in EEB 243; field, museum, and library research; requires major writing assignment.

244. General Ecology

First semester. Four credits. Prerequisite: Six credits of college biology. Three lectures and one 2-hour discussion section. Open to sophomores or higher. *Adams, Cardon, Chazdon, Colwell, Silander, Turchin*

Fundamental ecological dynamics of communities, populations and ecosystems, with emphasis in discussion sections on reading primary literature, problem-solving, and exposure to ecological research techniques.

244W. General Ecology

Four credits. Prerequisite: Six credits of college biology; ENGL 105 or 110 or 111 or 250. Open to sophomores or higher.

Content as in EEB 244; requires major writing assignment.

245. Evolutionary Biology

Second semester. Three credits. Prerequisite: Six credits of college biology. Open to sophomores or higher. *Caira, Henry, Holsinger, Jockusch, Simon*

Introduction to evolutionary mechanisms, biogeography, and the history of major groups of plants and animals.

245W. Evolutionary Biology

Four credits. Four class periods. Prerequisite: Six credits of college biology; ENGL 105 or 110 or 111 or 250. Open to sophomores or higher.

Content as in EEB 245; requires major writing assignment.

247. Limnology

(Also offered as CE 268 and ENVE 268.) First semester. Three credits. Prerequisite: (MATH 109 or 112 or 115) and (CHEM 122, 127, or 129 or 137). Recommended preparation: BIOL 107 or an introductory biology course.

Physical, chemical, and biotic interrelationships of freshwater habitats (see also EEB 238).

252. Field Entomology

Either semester, summer sessions, or any fractions thereof. Credits and hours by arrangement, to permit offering special sessions of the course to interested students during the spring recess or between fall and spring semester break. Consent of instructor required. Collection, identification, and ecology of insects.

254. Mammalogy

(Also offered as EEB 454). First semester, alternate years. Four credits. Two class periods and one 4-hour laboratory period. Prerequisite: Six credits of 200-level biology courses and consent of instructor. EEB 214 is recommended. *Schwenk*

Diversity, behavior, reproduction, ecology, and evolution of mammals. Laboratories cover anatomy, systematics, and distribution of major groups of mammals. Field trips required.

256. Plants and Civilization

Either semester. Three credits. Prerequisite: Three credits of introductory biology. *Anderson*

Plants and animals used by people; origin, history, biology, distribution, and role in development of civilizations.

265. Herpetology

(Also offered as EEB 465). Second semester, alternate years. Four credits. Two class periods and one 4-hour laboratory period. Prerequisite: Six credits of 200-level biology and consent of instructor. EEB 214 is recommended. *Wells*

Physiological ecology, reproductive biology, behavior, and community ecology of amphibians and reptiles. Laboratories cover evolution, systematics, and distribution of amphibians and reptiles of the world. Field trips required.

268. Ecological Plant Geography

Second semester, alternate years. Three credits. Three class periods and one weekend field trip. Prerequisite: EEB 244 and 245 or instructor consent.

Geographical differences in vegetation composition and plant adaptation. A global perspective on effects of climate, soil, local conditions and ecosystem processes.

269. Social Insects

(Also offered as EEB 369.) Second semester, alternate years. Three credits. Prerequisite: Six credits of introductory biology. *Adams*

Behavior, ecology, evolution of social insects: ants, wasps, bees, and termites.

271. Systematic Botany

Second semester, alternate years. Four credits. Two class periods and two 2-hour laboratory periods. Prerequisite: BIOL 108 or 110. *Les*

Classification, identification, economic importance, evolution and nomenclature of flowering plants. Laboratory compares vegetative and reproductive characters of major families.

272. The Summer Flora

Summer session. Three credits. Prerequisite: Three credits of college botany.

Identification of Connecticut's native and exotic plants; lecture, laboratory and field study.

273. Comparative Vertebrate Anatomy

First semester, alternate years. Four credits. Three class periods and one 3-hour laboratory period. Prerequisite: BIOL 108. Open to sophomores or higher. *Schwenk*

Anatomy, development, functional morphology, and evolution of living vertebrate animals.

275. Invertebrate Zoology

First semester, alternate years. Four credits. Two class periods and one 4-hour laboratory period. Prerequisite: Six credits of introductory biology. *Caira*

Body organization, functional morphology and evolution compared among major invertebrate phyla. Field trips required.

276. Plant Anatomy

First semester, alternate years. Four credits. Two class periods and two 2-hour laboratory periods. Prerequisite: BIOL 108 or 110 or instructor consent. *Jones*

Internal structure of seed plants: development and environmental responses.

277. Floristics of Vascular Plants

First semester. Four credits. Two class periods and two 2-hour laboratory periods. Prerequisite: BIOL 110.

Taxonomy of common local vascular plants.

280. Evolution of Green Plants

(Also offered as EEB 380.) Second semester, alternate years. Three credits. Prerequisite: BIOL 108 or 110. *Goffinet, L. Lewis*

Introduction to morphological, ultrastructural, and molecular characters used for inferring evolutionary relationships of green plants, from green algae to flowering plants, with emphasis on evolutionary changes involved in the transition from aquatic to terrestrial habitats.

280W. Evolution of Green Plants

Four credits. Three class periods and one discussion period. Prerequisite: BIOL 108 or 110; ENGL 105 or 110 or 111 or 250.

Content as in EEB 280. Major writing assignment required.

281. Ornithology

Second semester. Two credits. Two class periods. Not open for credit to students who have passed EEB 285. *Rubega*

Adaptations, habits, and importance of birds.

281W. Ornithology

Second semester. Three credits. Prerequisite: Consent of instructor; ENGL 105 or 110 or 111 or 250. *Rubega*

Content as in EEB 281; requires major writing assignment.

283. Introduction to Animal Parasitology

First semester, alternate years. Four credits. Two class periods, and two 2-hour laboratory periods. Prerequisite: BIOL 108. *Caira*

Protozoan and metazoan parasites of humans and other animals.

284. Medical Entomology

Second semester, alternate years. Three credits. Two class periods and one 2-hour laboratory period. Prerequisite: BIOL 108. *Schaefer*

Identification and biology of disease-spreading poisonous, and parasitic arthropods.

284W. Medical Entomology

Four credits. Prerequisite: BIOL 108; ENGL 105 or 110 or 111 or 250.

Content as in EEB 284; requires major writing assignment.

286. General Entomology

First semester. Four credits. Two class periods and two 2-hour laboratory periods. Prerequisite: BIOL 108. *Henry, Schaefer, Wagner*

The biology of insects: anatomy, physiology, ecology, behavior, development, evolution, and diversity.

287. Ornithology Laboratory

Second semester. Two credits. One 4 hour laboratory period; required field trips. Prerequisite: Consent of the instructor. Open only to students who are currently taking, or have completed, EEB 281. *Rubega*

Methods of field study and identification of birds; functional morphology, preparation of study skins and specimens. Field trips, including at least one required day-long weekend trip.

288. Concepts of Applied Entomology

Second semester, alternate years. Three credits. Two class periods and one 3-hour laboratory period. Prerequisite: BIOL 108 or 110. *Schaefer*

Control, ecology, economics, damage assessment and detection of insect infestations.

288W. Concepts of Applied Entomology

Four credits. Two class periods and one 3-hour laboratory period. Prerequisite: BIOL 108 or 110; ENGL 105 or 110 or 111 or 250.

Content as in EEB 288. Major writing assignment required.

289. Variable Topics

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

290. Biology of the Algae

(Also offered as EEB 390.) First semester, alternate years. Four credits. Three lectures and one 4-hour laboratory. Prerequisite: BIOL 108 or 110 or instructor consent. *L. Lewis*

Laboratory and field-oriented study of major groups of algae, emphasizing structure, function, evolution, systematics, and ecology.

291. Evolution of Green Plants Laboratory

Second semester, alternate years. One credit. One 3-hour laboratory period. Prerequisite or corequisite: EEB 280 and instructor consent. *Goffinet, L. Lewis*

Study of morphological and anatomical characters of extant and fossil plants. Phylogenetic inferences from morphological and molecular characters. Discussion of primary literature.

292W. Senior Research Thesis in Ecology and Evolutionary Biology

Either semester. Three credits. Hours by arrangement. Prerequisite: Three credits of EEB 299, which may be taken concurrently; ENGL 105 or 110 or 111 or 250. Open only with consent of instructor and department honors committee. Not limited to honors students.

A "W" course for students writing a senior thesis on their independent research.

293S. Methods of Ecology (W,C)

First semester. Four credits. Two class periods and two 3-hour laboratories. Prerequisite: EEB 244 or instructor consent; ENGL 105 or 110 or 111 or 250. Recommended preparation: One course in statistics and one course in calculus. *Chazdon, Silander*

An intensive introduction to field and laboratory methods in ecology. Emphasis will be placed on the use of quantitative and analytical techniques in physiological, population, community and ecosystem ecology. An introduction to sampling procedures, data collection and statistical analysis. Computers will be used to model population and community dynamics and to analyze ecological data sets. Laboratory periods will consist of field and laboratory problems; field trips required, including occasional weekend trips.

294. Marine Biology

(Also offered as MARN 294.) First semester. Three credits. Two class periods and one 2-hour laboratory period. Prerequisite: One year of laboratory biology. *Whitlatch*

The study of the kinds and distributions of marine organisms. Particular attention is paid to biotic features of the oceans, organism-habitat and relationships and general ecological concepts influencing marine populations and communities. Field trips are required.

296. Physiological Ecology of Animals

Second semester, alternate years. Three credits. Prerequisites: BIOL 107 and BIOL 108. *Schultz*

Physiology of animals in an evolutionary context: how individuals cope and how species adapt to natural environments. Lectures, student-led presentations, and critical discussions of current journal articles.

297. Undergraduate Seminar

Either or both semesters. Credits and hours by arrangement. May be repeated for credit with a change in topic. Content varies with instructor.

298. Special Topics

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

299. Independent Study

Either or both semesters. Credits and hours by arrangement. Open only with consent of instructor and the department honors committee. May be repeated for credit with a change in topic.

Independent investigation of special problems in ecology and evolutionary biology.

Economics (ECON)

Head of Department: Professor Kathleen Segerson
Department Office: Room 328, Monteith Building

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

101. Essentials of Economics

First semester. Three credits. Not open for credit to students who have passed ECON 102, 111, 112, or 113.

A one-semester general introduction to micro- and macroeconomics. Economic concepts include: opportunity costs, demand and supply, incentives, comparative advantage, inflation and employment policies, balance of international payments, and economic growth.

102. Principles of Economics (Intensive)

(Formerly offered as ECON 113.) Second semester. Four credits. Four class periods. Recommended preparation: ECON 101. Not open for credit to students who

have passed ECON 111, 112, or 113. May not be taken concurrently with ECON 111 or 112.

Same core principles as ECON 111 and 112. One half macroeconomics and one half microeconomics. More demanding than ECON 111 and 112. Substitutes for ECON 111 or 112 as a prerequisite for all junior-senior level courses. May or may not substitute for ECON 111 and 112 outside economics; check *Catalog*.

111. Principles of Macroeconomics

Both semesters. Three credits. May be taken before or after ECON 112. Not open for credit to students who have passed ECON 102 or 113. May not be taken concurrently with ECON 102.

The organization and function of the economic system as a total unit. Economic decisions, institutions, and policies that determine levels and rates of growth of production, employment, and prices. Topical subjects (e.g., government budget deficits and current interest-rate policy).

111C. Principles of Macroeconomics**112. Principles of Microeconomics**

Both semesters. Three credits. May be taken before or after ECON 111. Not open for credit to students who have passed ECON 102 or 113. May not be taken concurrently with ECON 102.

How the invisible hand of the market functions through the economic decisions of firms and individuals. How prices, wages and profits are determined, resources are allocated and income is distributed. Topical subjects (e.g., energy policy and health care).

201. Economic History of Europe

First semester. Three credits. Prerequisite: ECON 111 and 112, or 102 or 113 (112 may be taken concurrently). Open to sophomores or higher. *Cosgel, Langlois*

Economic evolution of Europe from feudal times to the present, emphasizing the modern period: the rise of commerce, industry, and banking; the growth of population and the labor force; the changing position of agriculture; business fluctuations; and forms of economic organization.

201W. Economic History of Europe

Prerequisite: ECON 111 and 112, or 102 or 113 (112 may be taken concurrently); ENGL 105 or 110 or 111 or 250. Open to sophomores or higher.

202. Topics in Economic History and Thought

Either semester. Three credits. Prerequisite: ECON 111 and 112, or 102 or 113 or instructor consent. May be repeated for credit, with change of topic. *Carstensen, Cosgel, Langlois, Minkler*

Special topics in economic history, the history of economic thought, the philosophy and methodology of economics, or alternative economic theories.

202W. Topics in Economic History and Thought

Prerequisite: ECON 111 and 112, or 102 or 113 or instructor consent; ENGL 105 or 110 or 111 or 250.

203. Economic History of the United States

Second semester. Three credits. Prerequisite: ECON 111 and 112, or 102 or 113 (112 may be taken concurrently). Open to sophomores or higher. *Carstensen*

Issues in American economic development, including the political economy of the Constitution, the economics of slavery, the rise of modern corporations and the causes of the Great Depression.

203W. Economic History of the United States

Prerequisite: ECON 111 and 112, or 102 or 113. (112 may be taken concurrently); ENGL 105 or 110 or 111 or 250. Open to sophomores or higher.

204. Economic History of the Middle East

First semester. Three credits. Prerequisites: ECON 111 and 112, or 102 or 113. (112 may be taken concur-

rently). Open to sophomores or higher. *Cosgel*

Economic history of the Middle East, including the organization of rural and urban activity, relationship with Western Europe, and the roles of international trade, foreign capital, petroleum, and institutional structure in economic development.

204W. Economic History of the Middle East

Prerequisites: ECON 111 and 112, or 102 or 113. (112 may be taken concurrently); ENGL 105 or 110 or 111 or 250. Open to sophomores or higher.

205. History of Economic Thought

Second semester. Three credits. Prerequisite: ECON 111 and 112, or 102 or 113. *Cosgel, Cunningham, Langlois*

The evolution of economic ideas significant to their own times and to the state of current theory. Mainly nineteenth and twentieth century thinkers.

205W. History of Economic Thought

Prerequisite: ECON 111 and 112, or 102 or 113; ENGL 105 or 110 or 111 or 250.

206. Philosophy and Economics

(Also offered as PHIL 245.) Either semester. Three credits. Prerequisite: ECON 102 or 112 or 113.

An examination of the normative assumptions and implications of modern economics (for example, the connections between Classical Utilitarianism and Welfare Economics). Attention to methodological controversies in contemporary economic theory.

207. Beyond Self-Interest

First semester. Three credits. Prerequisite: ECON 102 or 112 or 113. *Minkler*

A contrast to the assumptions, values, methodology, and philosophical underpinnings of mainstream economic analysis. Altruism, role of social norms and culture, importance of work, moral assessment of economic systems, feminist and ecological economics.

207W. Beyond Self-Interest

Prerequisite: ECON 102 or 112 or 113; ENGL 105 or 110 or 111 or 250.

212V. Empirical Methods in Economics I (Q,C)

Second semester. Three credits. Two class periods and one 2-hour laboratory period. Prerequisite: ECON 111 and 112, or 102 or 113; and MATH 106Q or 113Q or 115Q or 118Q; and STAT 100V or 110V. Open to sophomores or higher. A course recommended for all students majoring in economics. *Couch, Lott, Ray*

Introduction to the empirical testing of economic theories. Student projects testing simple economic models.

213Z. Empirical Methods in Economics II (W,Q,C)

Second semester. Three credits. Prerequisite: ECON 212V; ENGL 105 or 110 or 111 or 250. *Lott, Ray*

Analysis of economic time series, estimation of single- and simultaneous-equation economic models, and statistical decision theory.

214Q. Mathematical Economics

First semester. Three credits. Prerequisite: ECON 111, 112, or 102 or 113; MATH 106Q or 113Q or 115Q or 118Q. *Heffley, Knoblauch, Lott, Ray, Segerson, Zimmermann*

Application of mathematical techniques to economic problems. Methods studied: set theory, linear algebra, equilibrium analysis, unconstrained and constrained optimization, comparative statics, and linear programming.

216V. Operations Research (Q,C)

First semester. Three credits. Two 75-minute classes per week. Seven of the classes will be held at the computer lab. Recommended preparation: ECON 111, 112, or 102 or 113; MATH 101Q or equivalent. *Sacks*

Extensive use of computer spreadsheets to find efficient solutions to problems faced by managers in both the public and private sectors. Optimization of input and output mixes, of delivery routes, and communication networks.

217. Information Technology for Economics

Either semester. Three credits. Prerequisites: ECON 111, 112, or 102 or 113; and STAT 100V or 110V. *Ahking, Cosgel, Sacks*

The presentation of economic data and testing of economic theory through the use of appropriate computer based tools. Analysis of macroeconomic concepts such as the consumption function, influence of the money supply, budget deficits, and interest rates on macroeconomic equilibrium, and the tradeoff between unemployment and inflation. Analysis of microeconomic concepts such as demand, supply, elasticity, the achievement of equilibrium price and quantity, and analysis of several industries and the stock market. Analysis of historical data such as aggregate and specific price levels, sectoral shifts in the economy, and changes in income distribution.

218. Intermediate Microeconomic Theory

Both semesters. Three credits. Prerequisite: ECON 102 or 112 or 113. Recommended preparation: ECON 111 and one of MATH 106Q, 113Q, 115Q, 118Q, or 120Q. Open to sophomores or higher. *Cosgel, Dharmapala, Heffley, Kimenyi, Knoblauch, Lott, Miceli, Minkler, Randolph, Ray, Sacks, Segerson*

Intermediate microeconomic theory, covering demand and supply, exchange and production, pricing, and welfare economics.

218Q. Intermediate Microeconomic Theory

Prerequisite: ECON 102 or 112, or 113; MATH 106Q or 113Q or 115Q or 118Q. Recommended preparation: ECON 111. Open to sophomores or higher. *Knoblauch, Randolph, Segerson*

Applies mathematical techniques to intermediate microeconomic theory.

219. Intermediate Macroeconomic Theory

Both semesters. Three credits. Prerequisite: ECON 102 or 111 or 113. Recommended preparation: ECON 112 and one of MATH 106Q, 113Q, 115Q, 118Q or 120Q. Open to sophomores or higher. *Ahking, Cunningham, Morand, Zimmermann*

Intermediate macroeconomic theory, covering national income accounting; the determination of aggregate output, employment and price levels; elements of business cycles and economic growth.

219Q. Intermediate Macroeconomic Theory

Prerequisite: ECON 102 or 111 or 113; MATH 106Q or 113Q or 115Q or 118Q. Recommended preparation: ECON 112. Open to sophomores or higher. *Ahking, Cunningham, Morand, Zimmermann*

Applies mathematical techniques to macroeconomic theory.

220. Economics of Taxation and Government Spending

Either semester. Three credits. Prerequisite: ECON 102 or 112 or 113. Recommended preparation for students who have completed ECON 112: ECON 111. Open to sophomores or higher.

Critical issues in taxation and government expenditures. Emphasis on institutions and public policy. Topics include: rationale for and effects of progressive taxation, reform of the tax system, Social Security and Medicare, welfare reform, defense, and fiscal federalism.

221. Urban Development and Policy

Second semester. Three credits. Prerequisite: ECON 112 or 102.

Education, housing, anti-poverty, economic development, and transportation policies for American

cities and metropolitan areas. Emphasis on different roles of policies that act upon people versus places. Analysis tools for regional economic development such as input-output matrices and cost-benefit analysis.

223. Economics of Poverty

(Formerly offered as ECON 257.) First semester. Three credits. Prerequisite: ECON 111 and 112, or 102 or 113. Open to sophomores or higher. *Kimenyi*

Analysis of poverty and income maintenance programs: theories of income distribution and comparison of public policies in the U.S. and other countries.

224. Women and Minorities in the Labor Market

(Formerly offered as ECON 279.) First semester. Three credits. Prerequisite: ECON 111 and 112, or 102 or 113. Open to sophomores or higher. *Kimenyi, Randolph*

Issues and problems confronting women and minorities in the workplace, using economic theory, institutional analysis, and empirical investigation. Historical background, allocation of time, discrimination, earnings determination, occupational structure, labor unions, and public policy.

225. Labor Economics

(Formerly offered as ECON 274.) Second semester. Three credits. Prerequisite: ECON 112, or 102 or 113. Recommended preparation: ECON 218. Open to sophomores or higher. *Couch, Kimenyi*

Economics of labor: human capital theory, discrimination, unemployment, manpower policy, and trade unions.

225W. Labor Economics

(Formerly offered as ECON 274W.) Prerequisite: ECON 112, or 102 or 113; ENGL 105 or 110 or 111 or 250. Recommended preparation: ECON 218. Open to sophomores or higher.

226. Labor Legislation

(Formerly offered as ECON 276.) Second semester. Three credits. Prerequisite: ECON 112, or 102 or 113. Open to sophomores or higher.

Legal status of labor, unorganized and organized, in legislation and court decisions. Emphasis on the labor contract, bargaining procedures, and union and employer tactics. Also, legislation dealing with wages, hours, child labor, old-age benefits, and accident and unemployment compensation.

228. Transitional Economies of Russia and Eastern Europe

(Formerly offered as ECON 244.) First semester. Three credits. Prerequisite: ECON 111 and 112, or 102 or 113. Open to sophomores or higher.

Economic transition of these formerly socialist economies into capitalist, market economies. Comparison of centrally planned and market economies. Problems of macroeconomic imbalance, economic distortions, shortages and repressed inflation. Means and timing of price liberalization, privatization, restructuring, currency convertibility, and building legal and financial institutions.

230. Money and Banking

Both semesters. Three credits. Prerequisite: ECON 111 and 112, or 102 or 113. (112 may be taken concurrently.) Open to sophomores or higher. *Ahking, Cunningham, Lott*

The nature of money, the origins of monetary standards and systems, the development and operation of commercial banking, the Federal Reserve System, and international monetary agencies.

232. Government and Industry

(Formerly offered as ECON 264.) Second semester. Three credits. Prerequisite: ECON 112, or 102 or 113. Open to sophomores or higher. *Knoblauch, Langlois, Minkler*

Relations between government and business. Public policies enforcing, supplementing, or replacing competition in particular markets, studies of selected industries and legal cases.

233. Economics of the Oceans

Either semester. Three credits. Prerequisite: ECON 102 or 112 or 113. Recommended preparation for those students who have passed ECON 111. Open to sophomores or higher.

Economies of industries that use and manage ocean resources. Applications of industrial organization, law and economics, natural resource theory, and environmental economics.

237. Special Problems in Money and Banking

(Formerly offered as ECON 231.) Second semester. Three credits. Prerequisites: ECON 230, and 219 or 219Q. Recommended preparation: One of: MATH 106Q, 113Q, 115Q, 118Q, or 120Q. Not open for credit to students who have passed ECON 231. *Ahking*

Emphasis on public policy: commercial bank regulations; the relation of liquidity to economic fluctuations; government lending agencies; and central bank policies and credit control.

242. International Trade

Either semester. Three credits. Prerequisite: ECON 218 or 218Q. Recommended preparation: ECON 111 or 102, or 113, and one of: MATH 106Q, 113Q, 115Q, 118Q, or 120Q.

Economic basis of international trade, trade policies, and international economic organizations.

242W. International Trade

Prerequisite: ECON 218 or 218Q; ENGL 105 or 110 or 111 or 250. Recommended preparation: ECON 111 or 102, or 113, and one of: MATH 106Q, 113Q, 115Q, 118Q, or 120Q.

243. International Finance

Either semester. Three credits. Prerequisites: ECON 219 or 219Q. Recommended preparation: ECON 112, or 102, or 113, and one of: MATH 106Q, 113Q, 115Q, or 120Q. *Ahking, Cunningham, Zimmermann*

Payments and financing of international trade: foreign exchange markets, the balance of payments, capital flows, and international monetary arrangements.

247. Economic Development

Either semester. Three credits. Prerequisites: ECON 111, or 102, or 113 and 218 or 218Q. Recommended preparation: One of: MATH 106Q, 113Q, 115Q, 118Q, or 120Q. *Randolph, Zimmermann*

Economics of problems facing developing nations: theories of development, and strategies and policies to promote economic development.

247W. Economic Development

Prerequisites: ECON 111, or 102, or 113 and 218 or 218Q; ENGL 105 or 110 or 111 or 250. Recommended preparation: One of: MATH 106Q, 113Q, 115Q, 118Q, or 120Q.

253. Public Finance

Either semester. Three credits. Prerequisites: ECON 218 or 218Q. Recommended preparation: ECON 111, 102, or 113, and one of: MATH 106Q, 113Q, 115Q, 118Q, or 120Q. *Dharmapala, Kimenyi, Miceli, Sacks, Segerson*

Government expenditures and tax policies: theories of public choice, size and mix of government budgets, alternative tax systems, and tax reform.

253W. Public Finance

Prerequisites: ECON 218 or 218Q; ENGL 105 or 110 or 111 or 250. Recommended preparation: ECON 111, 102, or 113, and one of: MATH 106Q, 113Q, 115Q, 118Q, or 120Q.

258W. Contemporary Problems in Economics

Either semester. Three credits. Prerequisites: ECON 218 and 219 (one of which may be taken concurrently); ENGL 105 or 110 or 111 or 250. Recommended preparation: One of: MATH 106Q, 113Q, 115Q, 118Q, or 120Q.

Current issues of government economic policy, primarily microeconomic: energy, income maintenance, labor markets for minorities and women, government regulation, health care, and others.

259. Urban and Regional Economics

(Also offered as URBN 259.) Second semester. Three credits. Prerequisite: ECON 218 or 218Q. Recommended preparation: ECON 111, 102 or 113 and one of: MATH 106Q, 113Q, 115Q, 118Q, or 120Q. *Heffley, Miceli*

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.

259W. Urban and Regional Economics

Prerequisite: ECON 218 or 218Q; ENGL 105 or 110 or 111 or 250. Recommended preparation: ECON 111, 102 or 113 and one of: MATH 106Q, 113Q, 115Q, 118Q, or 120Q.

261. Health Economics

Second semester. Three credits. Prerequisite: ECON 218 or 218Q. Recommended preparation: One of: MATH 106Q, 113Q, 115Q, 118Q, or 120Q. *Heffley*

Economic analysis of the health sector: organization and performance of health care delivery systems; economic behavior of patients and providers; markets for health services; health-care finance and insurance; health-care policy; and cost-benefit analysis of health-care programs.

267. Organization of Industry

First semester. Three credits. Prerequisite: ECON 218 or 218Q. Recommended preparation: One of: MATH 106Q, 113Q, 115Q, 118Q, or 120Q. *Knoblauch, Langlois, Minkler*

The nature of competition and economic organization. Competitive effects of business practices, and their influence on price, production, and technological change.

268. Economics of the Law

Either semester. Three credits. Prerequisite: ECON 218 or 218Q. Recommended preparation: ECON 111, or 102 or 113 and one of: MATH 106Q, 113Q, 115Q, 118Q, or 120Q. *Langlois, Miceli*

The law as an economic institution. Primary focus on the Common Law, property, tort, and contract. Applications to pollution control, land-use, hazardous wastes, product liability, and worker safety. Ethical as well as economic approaches to the law.

275. Theory of Labor Markets

Either semester. Three credits. Prerequisite: ECON 218 or 218Q. Recommended preparation: One of: MATH 106Q, 113Q, 115Q, 118Q, or 120Q. *Couch, Kimenyi*

Theoretical analysis of labor markets: labor supply and demand; wage differentials; human capital; and the inflation-unemployment tradeoff.

286W. Seminar in Economics

Either semester. Three credits. Prerequisite: ECON 218 and 219 (one of which may be concurrent); ENGL 105 or 110 or 111 or 250. Recommended preparation: One of: MATH 106Q, 113Q, 115Q, 118Q, or 120Q.

Special topics in micro- and macroeconomic theory, applications, and testing. Recommended for capable students who are motivated to develop and extend their knowledge of economics in creative ways. Required for Honors Scholars in Economics, Econom-

ics Scholars, and Candidates for a Degree with Distinction in Economics.

289W. Senior Thesis in Economics

Either semester. Three credits. Hours by arrangement. Open only with consent of instructor. Prerequisite: ECON 286W or consent of the Department Honors Advisor; ENGL 105 or 110 or 111 or 250.

The student should define a general subject area for the thesis before choosing a thesis advisor and seeking consent at the time of registration. The student should then submit a written proposal for the senior thesis to the advisor by the end of the semester preceding enrollment for thesis credit.

293. Foreign Study

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

Special topics taken in a foreign study program.

294. Internship – Field Study

Both semesters. Two credits. Hours by arrangement. Consent of instructor is required. Students must have: nine credits of 200-level economics courses (six of which may be concurrent). Students must be at least 6th-semester and have a minimum GPA of 2.25 or a minimum of 2.5 in 200-level economics courses. Students must secure a satisfactory intern position before the end of the second week of the semester of enrollment in this course. They should begin consultation with the instructor several months in advance. Does not count toward the economics major. Must be taken concurrently with ECON 295; no credit will be given for one course without the other. Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory). *Cunningham*

Supervised field work, of six to eight hours per week, relevant to some area of economics, with a business firm, government agency or non-profit organization. Evaluation by the field supervisor and by the instructor (based on a detailed written report submitted by the student).

295. Internship – Research Paper

Both semesters. One credit. Hours by arrangement. Consent of instructor required. Students must have nine credits of 200-level economics courses (six of which may be concurrent). Students must be at least 6th-semester and have a minimum TGPA of 2.25 or a minimum of 2.5 in 200-level economics courses. Must be taken concurrently with ECON 294; no credit will be given for one course without the other. *Cunningham*

Research paper of 3,000-4,000 words on approved topic related to the internship field study.

297. Variable Topics

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

298. Special Topics

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

299. Independent Study

Either or both semesters. Credits and hours by arrangement. Open only to seniors with consent of instructor. A student may receive credit for no more than 6 credits of ECON 299.

Tutorial course to enable qualified students to round out their training in economics. Independent reading conferences and short research papers.