A study of poverty, violence, and development in two major Third World regions, and the causes and consequence of these interrelated factors. Strategies for change and their effects on jobs, income distribution, modernization, indigenous and external relations, food, agriculture, industrialization, urbanization, inflation, political and military structures, and human rights will be examined.

132. World Studies and Human Resource Development
Either semester. Three credits.

A comparative exploration of three major world cultures (Chinese, Latin American, and Middle Eastern) which relates to the themes of authority, legitimacy, and loyalty in each. Third World perspectives and development issues will be emphasized.

180. FYE University Learning Skills
Either semester. One credit. One class period. Open to freshman and sophomore students only.

A component of the First Year Experience (FYE) program, this course is intended to acquaint students with the university and expand their learning experiences in order for them to adjust to the new expectations they will face. The course involves assignments that will provide opportunities for students to enhance their academic and interpersonal skills.

181. FYE Learning Community Seminar
Either semester. One credit. One class period. Open to freshman and sophomore students only. This course must be taken in combination with a cluster of three courses; with the permission of the instructor, one of the cluster courses may have been completed previously. With a change in content, this course may be repeated for credit.

A component of the First Year Experience (FYE) program, this seminar course is intended to provide an opportunity to integrate the consideration of material from three courses through discussion, assignments, and projects. Students will have opportunities to enhance their academic and interpersonal skills.

182. FYE Faculty/Student Seminar
Either semester. One credit. One class period. Open to freshman and sophomore students only. With a change in content, this course may be repeated for credit.

A component of the First Year Experience (FYE) program, this course is intended to provide an opportunity for students to investigate topics of professional interest to the faculty instructor through guided research or reading, discussion, and some writing. The course will help students learn independently and engage actively in the academic life of the university.

193. Foreign Study
Either or both semesters. Credits and hours by arrangement. May be repeated for credit (to a maximum of 15). Consent of appropriate area studies director required before departure.

Course work undertaken within approved Study Abroad programs, usually focusing on the history, culture, and society of a particular country.

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

196. Interdisciplinary Special Topics Seminar
Either semester. Credits and hours as determined by the Senate Curricula and Courses Committee. May be repeated for credit with a change in topic.
222. Linkage through Language
Either semester. One credit. Prerequisite: Language skills equivalent to four semesters of college course work in a single foreign language (may be completed concurrently). May be repeated for credit, with a change in content. Offered only at the Avery Point campus.

224. Spanish Language and Culture for the Health Professions (“Taping”)
Either semester. One credit. Open with the consent of instructor to students in health care professions and social services. With a change in content, may be repeated for credit. Offered by Spanish/Modem & Classical Languages department in collaboration with the department offering the companion course.

This course supplements a three-credit course in a particular discipline by studying selected foreign language texts related to the topic of its companion course. Practice in oral and written expression.

240. Social Science Data Utilization
Either semester. Three credits. Three class periods and one 1-hour laboratory. This course is also listed under Political Science and Sociology. This course may not be counted toward the major in Political Science or in Sociology. Offered by the Social Science Data Center and the Political Science Department. Davis

Introduction to social science data analysis and utilization. Laboratory assignments will use the University Computer Center facility for the execution of statistical package setups, and data bases by the Social Science Data Center/Roper Center.

#240C. Social Science Data Utilization

249. Violence: Sources and Alternatives
First semester. Three credits. Blank, Prewitt, Reed

Sources of violence in the individual, the home, the nation, and among nations are examined. Alternatives to the use of violence at each of these levels are explored.

250. Global Militarism and Human Survival
Second semester. Three credits. Two class periods (one 2-hour and one 1-hour). Lustor

A consideration of the threat posed to humanity’s survival by a growing global militarism and the unprecedented destructiveness of nuclear weapons.

257. The Poor Countries of the World
Either semester. Three credits. This course is also listed under Economics and Sociology. This course may not be counted toward the major in Economics. Offered by the Economics and Sociology Departments. Gugler

Multidisciplinary approach to key issues in development in the “Third World” today. Special emphasis on either a topic, e.g., urbanization in developing countries, or a region, e.g., Subsaharan Africa.

262. Introduction to American Studies
Either semester. Three credits. Open to sophomores. Tilton

A multi-disciplinary survey of American societies and cultures.

280. Library Research Methods
Either semester. Two credits. Two class periods. Offered at the Waterbury Campus.

Specific instruction in the use of a university library and in the use of the bibliographic tools and methods that are an essential part of library research.

291. Interdisciplinary Honors Seminar
Either semester. Three credits. Open only with consent of instructor. An interdisciplinary seminar designed for honors students and open to other qualified students. Topics vary from semester to semester. May be repeated once for credit with change of topic. Offered by the Office of Honors Programs.

293. Foreign Study
Either or both semesters. Credits and hours by arrangement.

May be repeated for credit (to a maximum of 17). Consent of appropriate area studies director or major advisor required before departure. May count toward the major with consent of advisor.

Course work undertaken within approved Study Abroad programs, usually focusing on the history, culture, and society of a particular country.

294. The Bible
First semester. Three credits, which may be counted toward the related field requirement in History, Philosophy, or English. Offered by and listed under the English, History, and Philosophy Departments.

The literary, historical, and philosophical content, circumstances and problems of the Old and New Testaments.

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

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

299. Independent Study
Either semester. Credits and hours by arrangement. Open only with consent of instructor. May be repeated for credit.

200W. Newswriting I
(Formerly offered as Journalism 211.) Either semester. Three credits. One 75-minute lecture and one 2-hour laboratory plus field work. Open to sophomores. Worcester

Definition of news, newswriting style, community reporting, covering governmental meetings and writing statistical matter. Laboratory offers intensive practical writing exercises. Field trips required.

211W. Newswriting II
(Formerly offered as Journalism 221.) Either semester. Three credits. One 75-minute lecture and one 2-hour laboratory plus field work. Prerequisite: JOUR 200 or 211. Open to sophomores. DuPré

Provides in-depth explanations and demonstrations of what reporters can expect to find, and report, in the courts, schools, town halls, land use agencies and other civic offices, boards and commissions.

202. Journalism Ethics
Either semester. Three credits. Prerequisite: JOUR 102. Breen

Discussion of such contemporary problems as privacy, good taste, community standards, effectiveness of the press and responsibility of the press.

212W. Feature Writing
Either semester. Three credits. Prerequisite: JOUR 201 or 211. Open to sophomores.

Emphasis on finding, developing and writing feature stories. Outside stories will be assigned weekly.

213W. Magazine Journalism
Either semester. Three credits. Prerequisite: JOUR 201. Recommended preparation: JOUR 212.

Students research, report and write, for publication, a magazine-length non-fiction article.

216. Publication Practice
Either semester. One to 3 credits. May be repeated for credit. Hours by arrangement. Open only with consent of instructor. Worcester

Students and faculty work together to research, write, edit and produce a publication.

219. Daily Campus Critique
First semester. One credit. One class period. Open only with consent of instructor. May be repeated only once for credit.

A weekly critique of the content of the student daily from news stories, through editorials to advertising copy and printing.

220. Law of Libel and Communications
Either semester. Three credits.

Typical subjects: libel, slander, invasion of privacy, obscenity, legal problems of newsgathering, protecting the political process, protecting state secrets, protecting the public welfare.

230W. Copy Editing I
(Formerly offered as Journalism 214.) Either semester. Three credits. Prerequisite: JOUR 211 or 201.

Editing for grammar, style and content, headline writing, introduction to basic newspaper design concepts.

231C. Copy Editing II
Second semester. Three credits. Prerequisite: JOUR 230. Croteau

Emphasis on copy and picture selection, copy fitting, photo editing and computer-assisted editing, page layout and production.

233. Opinion Writing
First semester. One credit. Prerequisite: JOUR 201. One two-hour lab-lecture period. Breen

Writing for the editorial and op-ed pages.
235C. Advanced Reporting Techniques
First semester. Three credits. Prerequisite: JOUR 201.

Dufresne

Using the Internet, databases, and other computer resources to research and report on the actions of courts, businesses, public agencies, and governments. Consideration of ethical questions.

240W. Newswriting for Radio and Television
Three credits. Either semester. Prerequisite: JOUR 200 or 211. Two 75-minute lab-lecture sessions plus a field trip.

Application of newswriting techniques to the broadcast media.

245. Specialized Journalism
Either semester. Three credits. Prerequisite: JOUR 200 or 211.

An introduction to specialized fields such as business, science, education, arts, sports, and entertainment reporting. Students will examine some of the best work in the fields and will consider ethical issues and other problems.

250. Professional Seminar
Three credits. Three hours. Prerequisite: JOUR 211 or 200, which may be taken concurrently (Also available for one credit. Two hours. No prerequisite. ) May be repeated once for a maximum total of four credits.

Journalists discuss the economic, technological, sociological and ethical issues that challenge their profession.

253. Foreign Study
Either or both semesters. Credits and hours by arrangement. May be repeated for credit with permission of Department Head. Consent of Department Head required before the student’s departure. May count toward the major with consent of the advisor. Croteau

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

297. Supervised Field Internship
Either semester. One to three credits. Hours by arrangement. Prerequisite: JOUR 200, 201 and 220. Open only with consent of Department Head. Croteau

Students research, report and write for newspapers, news departments of radio and television stations, and public relations offices under supervision of professionals.

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

299. Independent Study
Either semester. Credits and hours by arrangement. Open only with consent of instructor. May be repeated for credit.

Open to qualified students who present suitable projects for independent work in journalism.

Judaic Studies (JUDS)

Associate Director, Center for Judaic and Studies and Contemporary Life:
Professor Stuart S. Miller
Office: Room 154, Thomas J. Dodd Research Center and Room 220, Arjona Building

For minor and individualized major requirements, see Center for Judaic Studies and Contemporary Jewish Life in the Special Facilities and Programs section of this Catalog.

101. The Land of Israel from Biblical Times to the Present
(Also offered as Hebrew 101.) Either semester. Three credits. Offered in alternate years. Miller

An in-depth look at the history, culture and civilizations of the land of Israel. The importance of the land in Judaism and its significance for Christianity and Islam will be discussed. Lectures and discussion will be enhanced by slide presentations.

103. Literature and Civilization of the Jewish People
(Also offered as Hebrew 103.) Either semester. Three credits. Miller

The major concepts, personalities and literary works of the Hebraic tradition from the Biblical and Talmudic periods to the present.

104. Modern Jewish Thought
(Also offered as Hebrew 104.) Second semester. Three credits.

Nationalism, culture, ethics and philosophy in the writings of the major Jewish thinkers from Spinoza to the present. Emphasis will be placed on the work of Moses Mendelssohn, Nachman Krochmal, Ahad Haam, Hermann Cohen, Franz Rosenzweig, Martin Buber and Mordecai Kaplan.

201. Selected Books of the Hebrew Bible
(Also offered as Hebrew 201.) Either semester. Three credits. Prerequisite: INTD 294 or HIST 213 or HEB 103, which may be taken concurrently, or consent of instructor. A knowledge of Hebrew is not required. May be repeated with change of content and consent of instructor. Miller

Focusses on a biblical book (or books) and emphasizes its literary structure and content using modern approaches as well as midrashic and medieval exegesis. Historical and archaeological material introduced where relevant.

202. Sects and Movements in Judaism
(Also offered as Hebrew 202.) Either semester. Three credits. Offered in alternate years.

Varies of Jewish expression and belief from Biblical times to the present. Topics include: the Dead Sea Sect, Pharisees, Sadducees, Karaites, Mannanos, Hasidism and the Reform, Conservative, Orthodox and Reconstructionist movements of the modern era.

203. The Holocaust
(Also offered as Hebrew 203.) Either semester. Three credits.

A discussion of the Holocaust to be preceded by an examination of the roots of anti-semitism and its effect upon the Jewish experience. Special emphasis will be given to the impact of the Holocaust on Jewish and Christian thought.

218. Palestine Under the Greeks and Romans
(Also offered as Classics 256, Hebrew 218, and History 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 academies.

242. American Jewry
(Also offered as Sociology 242.) Three credits. Either semester. Dushesky

Historical, demographic, organizational, and sociopsychological perspectives.

Latin American Studies (LAMS)

Director, Center for Latin American and Caribbean Studies: Professor Elizabeth Mahan
Office: Room 4, Human Development Center

For major requirements, see the College of Liberal Arts and Sciences section of this Catalog. For information about courses on Latin America in other departments consult the list published by the Center before pre-registration each semester.

190. Perspectives on Latin America
Either semester. Three credits.

A multidisciplinary course including geography, indigenous peoples, colonization and nation formation; society, politics, economy, and culture of contemporary Latin America and its place in today’s world.

190W. Perspectives on Latin America

193. Foreign Study
Either or both semesters. Credits and hours by arrangement. May be repeated for credit (to a maximum of 15). Consent of Director of Latin American and Caribbean Studies required before departure.

Course work undertaken within approved Study Abroad programs, usually focussing on the history, culture, and society of a particular Latin American or Caribbean country or countries.

270. Latin American Popular Culture
Second semester, alternate years. Three credits. Mahan

Culture, subcultures, and culture industries in Latin America. Conditions that affect the mass production, dissemination and reception of entertainment products.

275. Cinema and Society in Latin America
Either or both semester. Variable credit up to a maximum of three credits. Hours by arrangement. With a change in content, this course may be repeated once for credit.

The aesthetic, social, and political significance of Latin American film.

284. Latin America
Either semester. Credits and hours by arrangement. Open only with consent of instructor and director of the Center for Latin American and Caribbean Studies. This number covers courses in Latin American Studies taken at other Universities by special arrangement for University of Connecticut credit.

290. Latin American Studies Research Seminar
Either semester. Three credits. Prerequisite: Consent of instructor.

Capstone course in which majors and minors in Latin American Studies design, execute and write up original, library-based research on Latin America. Some readings may be in Spanish or Portuguese.

293. Foreign Study
Either or both semesters. Credits (to a maximum of 17) and hours by arrangement. Consent of Director of Latin American and Caribbean Studies required before departure. May count toward the major with consent of advisor.

Special topics taken in a foreign study program.
Linguistics (LING)

Head of Department: Professor Diane Lillo-Martin
Department Office: Room 230, Monteith Bldg.

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

101. Language and Mind
Either semester. Three credits.
The special properties of human language and of the human mind that make verbal communication possible. Basic topics in the psychology of language.

102. Language and Environment
Second semester. Three credits. Anderson
The birth, spread, and death of languages. A basic survey of the effects of geography, society, and politics on language families.

103. Foreign Study
Either or both semesters. Credits and hours by arrangement. May be repeated for credit. Consent of Department Head or advisor may be required prior to the student’s departure.

Special topics taken in a foreign study program.

202. Principles of Linguistics
Either semester. Three credits. Open to sophomores.
A survey of theory, methods and findings of linguistic research: the relation between sound and meaning in human languages; social variation in language; language change over time; universals of language; the mental representation of linguistic knowledge.

205Q. Phonology
First semester. Three credits. Prerequisite: LING 202. Calabrese
The analysis of sound patterns in language within a generative framework: distinctive features, segmental and prosodic analysis, word formation, the theory of markedness.

206Q. Syntax and Semantics
The analysis of form and meaning in natural languages in a Chomskyan framework: surface structures, deep structures, transformational rules, and principles of semantic interpretation.

208W. The Linguistic Basis of Reading and Writing
Semester by arrangement. Three credits. Prerequisite: LING 202. Open to sophomores.
The relationship between writing systems and linguistic structures; the psycholinguistic basis of reading.

215C. Experimental Linguistics
Semester by arrangement. Three credits. Prerequisite: PSYC 132; and required preparation: LING 101 or 202. Lillo-Martin, Snyder
Research methods and laboratory techniques for the study of language acquisition and/or sentence processing. Students design and conduct a study using a computer database of child speech.

225. Second Language Acquisition.
Either semester. Three credits. Prerequisite: LING 101, or 202, or consent of instructor. Bar-Shalom
The relationship between linguistic theory and second language acquisition. Effects of mother tongue and linguistic input. Pedagogical implications of second language acquisition research.

244W. Language and Culture
First semester. Three credits. Not open for credit to students who have passed ANTH 244 prior to Fall 1998. Anderson, Bar-Shalom
The study of language, culture, and their relationship. Topics include the evolution of the human language capacity; the principles of historical language change including reconstruction of Indo-European and Native American language families; writing systems; linguistic forms such as Pidgins and Creoles arising from languages in contact; the interaction between language and political systems, the struggle for human rights, gender, ethnicity, and ethnobiology.

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 the consent of the advisor.

Special topics taken in a foreign study program.

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

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

299. Independent Study
Either or both semesters. Credits and hours by arrangement. May be repeated for credit.

Management (MGMT)

Head of Department: Professor John F. Veiga
Department Office: Room 212, School of Business Administration

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

198. Contemporary Issues in the World of Management
Semester by arrangement. One credit. May be repeated in different sections, in combination with MGMT 198, up to a maximum of three credits. May not be used to satisfy Upper Division/major requirements of the School of Business Administration.

201. Managerial and Interpersonal Behavior
Either semester. Three credits. Prerequisites: ACCT 131, ECON 111 and 112, ENGL 105 and 109, MATH 106 or 114 or 116, STAT 100 or 110.
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.

203. Development of American Business
Semester by arrangement. Three credits.
Historical development of business and business leadership, concentrating on changes in formulating and implementing top management policies. The total environment is considered as it affects business behavior. Case studies based on a variety of historical situations are used.

225. International Business
Semester by arrangement. Three credits. Prerequisite: FNCE 201, OPIM 204, MGMT 201, MKTG 201, or consent of instructor.
An introduction to the basic problems of the manager making decisions involving international trade, payments, and investment. Through extensive use of actual case studies, the special features of decision-making within the multinational enterprise integrating business operations among national economics are given particular attention. Lecturer, discussion, and case analyses.

234. Management of Small Businesses and Venture Enterprises
Semester by arrangement. Three credits. Prerequisite: ACCT 200, FNCE 201, BLAW 271 or 275, OPIM 203, MGMT 201, MKTG 201, and senior standing.
Emphasis on managerial aspects of organizing and operating small firms by means of case discussions and assigned readings. Students can obtain insights regarding opportunities of self-employment in traditional small businesses as well as entrepreneurial careers in more sophisticated business ventures.

235. Entrepreneurship and Venture Management
Semester by arrangement. Three credits. Prerequisite: ACCT 200, FNCE 201, MGMT 201, MKTG 201, Senior standing preferred.
In this field course, students investigate the special problems of newly formed firms. Course emphasis is on the planning skills necessary for start-up operations. The course is designed to acquaint students with the unique strategic problems faced by such firms and to teach them how to evaluate new venture plans.

239. Managing a Diverse Workforce
Semester by arrangement. Three credits.
This course examines issues related to managing an increasingly diverse workforce. Diversity in the workplace may result from differences in individual characteristics such as gender, race, ethnicity, national origin, and physical ability/disability. Diversity-related issues with management implications to be examined include personal identity, recruitment and selection, work group interactions, leadership, career development and advancement, sexual harassment, work and family; accommodation of people with disabilities, and organizational strategies for promoting equal opportunity and a positive attitude toward diversity among all employees.

245. Managerial Behavior in Cross-Cultural Settings  
Semester by arrangement. Three credits.  
The objective of this course is to introduce the student to the work values and behaviors of individuals in countries around the world. Some of the topics presented in the cross-cultural comparisons discussed in this course will include: approaches to motivation, communication, decision making, and negotiation. Particular emphasis will be placed on the developed and developing parts of the world that are major players in today’s global economy.

250W. Management Communications  
Semester by arrangement. Three credits. Open to Management majors only.  
This course has two objectives: to acquaint the student with the functional importance of communication in business management, and to teach the techniques of oral and written communication.

265. The Dynamics of Organization  
Semester by arrangement. Three credits.  
Dynamics of organization; relationship between people and organization. The organization viewed as a system interacting with a changing environment, as a structure of organized human cooperation, as an instrument of management strategy. Experiential exercises and case studies used to gain a better understanding of organization strategy, design and structure.

265W. The Dynamics of Organization  
271. Human Resources Management  
Semester by arrangement. Three credits. Prerequisite: MGMT 201 or consent of instructor.  
Study of the personnel function from the managerial perspective. Emphasizes human resources planning, recruitment, selection, employee and management development, and performance evaluation.

272. Career Development in Business  
Either semester. One credit. Meeting once per week for one hour and fifty minutes for 6 weeks (first or second half of semester), plus 2 or 3 evenings or Saturday morning for papers and discussions. Prerequisite: Sixth or seventh semester standing. Open only to students in the School of Business Administration.
Topics covered include: self-assessment, exploration of career information resources, informational interviewing, development of an individual career plan, development of job search strategies and skills, discussion of career transition issues, overview of the career life cycle, and introduction to career development in organizations.

273. Labor Relations  
Semester by arrangement. Three credits. Prerequisite: MGMT 201.  
Study of employer-employee relations in unionized settings, both public and private sectors. Covers such areas as the National Labor Relations Act, labor contract negotiation, and administration.

276. Compensation Analysis and Administration  
Semester by arrangement. Three credits. Prerequisite: MGMT 271.  
Provides a systematic study of compensation theory and practice including wage theory, job analysis, job design, job evaluation, wage survey, pricing of the job structure, wage incentives, profit sharing and fringe benefits.

278. Purchasing and Materials Management  
Semester by arrangement. Three credits. Prerequisite: MGMT 201, MKTG 201, ACCT 131, FNCE 201, OPIM 203C and BLAW 271 or 275.  
Purchasing and Materials (Strategic Supply) Management is concerned with the management of materials and control of material costs in business and institutional enterprises. It emphasizes purchasing as the primary materials activity. At the same time, it integrates the purchasing activity in the context of a total business operation, including marketing, engineering, production control, inventory management finance, information management, strategic management and operations management.

281. Corporate Social Responsibility  
Semester by arrangement. Three credits.  
This course is designed to help the student relate business and its external culture, the social system, and the total environment. Develops an understanding of the role of the manager as the linking element between the business organization and the social environment.

281W. Corporate Social Responsibility  
289. Field Study Internship  
Either or both semesters. One to six credits. Hours by arrangement. Prerequisite: Completion of Lower Division School of Business Administration Requirements and consent of instructor and Department Head.
This course is designed to provide students with an opportunity for field work relevant to one or more major areas within the Department. Students will work under the supervision of one or more professionals in the specialty in question. Student performance will be evaluated on the basis of an appraisal by the field supervisor and a detailed written report submitted by the student.

290. Strategy, Policy and Planning  
Either semester. Three credits. Prerequisite: ACCT 200, FNCE 201, OPIM 203 and 204, MGMT 201, MKTG 201, and either BLAW 271 or 275, or consent of instructor. Open only to School of Business Administration students with senior class standing.
An integrative analysis of the administrative processes of the various functional areas of an enterprise viewed primarily from the upper levels of management. The formulation of goals and objectives and selection of strategies under conditions of uncertainty as they relate to the planning, organizing, directing, controlling and evaluating policies and activities in each of the functional areas separately and jointly to achieve corporate objectives. Developing an integral business perspective is an integral part of the course.

291. Small Business Consulting  
Semester by arrangement. Three credits. Hours by arrangement. Prerequisite: 7th semester or higher standing in the School of Business Administration plus a minimum of one course from each of the following areas: ACCT, BLAW, FNCE, MGMT, MKTG and OPIM.
Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

Management and Engineering for Manufacturing (MEM)  
Co-Directors: School of Business Administration: Professor James R. Marsden  
School of Engineering: Associate Professor Robert G. Jeffers

151. Introduction to Management and Engineering for Manufacturing Program  
Second semester. Three credits. Prerequisite: ENGR 150C or consent of instructor.
Introduction to the goals of engineering and management for manufacturing enterprises. Review of the history of technological development, including its effects on new products and processes. Written and oral communication skills will be developed.

210. Manufacturing Equipment Lab  
Either semester. One credit. One and one-half hours of laboratory per week. Open to sophomores.
Introduction to machine shop equipment, metrology, general safety, and hands on experience in machining and fabrication of metals. Topics include: introduction to instrumentation; knee miller, engine lathe, drill press, grinder, and sander operation; welding; chipping; and grinding.

211. Introduction to Manufacturing Systems  
Second semester. Three credits. Prerequisite: STAT 110W. Open to sophomores.
Overview of manufacturing operations management and the systems used in controlling manufacturing enterprises including the concepts of global competition and manufacturing as a competitive weapon.

215W. Advanced Manufacturing Systems  
Second semester. Four credits. Two three-hour laboratory periods. Prerequisite: MIE 221 and MEM 210 or consent of instructor.
Capstone design course for the MEM Program. Design applications involving construction and
analysis of manufacturing system models. Students submit write-ups for several small projects. One large project is completed by all students in the course, with a written report and oral presentation. Projects incorporate major concepts studied in prior courses.

221. Introduction to Products and Processes
First semester. Three credits. Prerequisite: MEM 211 or consent of instructor.

Overview of the factors affecting the design of products and the various processes used in their manufacture. An introduction to manufacturing processes and their capabilities and limitations. Value engineering, methods improvement and simplification techniques will be covered.

225. Advanced Products and Processes
First semester. Three credits. Prerequisite: MEM 221 or consent of instructor.

Introduction to advanced topics relevant to the design and manufacture of products. Special emphasis on the relationship between manufacturing products and processes. Student projects.

231. Computers in Manufacturing
Second semester. Three credits. Prerequisite: EE 220, MEM 211, and OPIM 203C, which may be taken concurrently.

The utilization of computers and information systems in manufacturing, with special emphasis placed on Computer Integrated Manufacturing (CIM). The study of actual CIM applications will be incorporated.

1296. Manufacturing Internship
One or more summer semesters. No credits. Hours by arrangement. Prerequisite: Consent of instructor and MEM program director. May be repeated.

This course is designed to educate students in the MEM program with the realities of the manufacturing environment and to provide them with the opportunity to exercise problem solving skills while fulfilling a need of the internship sponsor.

Marine Sciences (MARN)

Head of Department: Professor R.B. Whitlatch
Department Office: Marine Sciences, Avery Point
For major requirements, see the College of Liberal Arts and Sciences section of this Catalog.

135. The Sea Around Us
Second semester. Three credits.

History of ocean exploration, interaction between the oceans and the atmosphere, impact of technology on the marine environment, climate modification and exploitation of ocean resources.

170. Introduction to Oceanography
Either semester. Three credits. Three class periods per week and two afternoon cruises per semester. A background in secondary school physics, chemistry or biology is recommended.

Processes governing the geology, circulation, chemistry and biological productivity of the world’s oceans. Emphasis is placed on the interactions and interrelationships between physical, chemical, biological and geological processes that contribute to both stability and the variability of the marine environment.

196. Oceanography Laboratory
Fall semester (Avery Point). One credit. Concurrent or past enrollment in MARN 170 (or equivalent) required. May be repeated for credit.

This course is complementary to but independent from Marine Sciences 170. This course will emphasize experiential learning of fundamental oceanographic concepts using hands-on exercises. Laboratory sessions will include a variety of observations, measurements and experiments that teach principles of oceanography.

210. Coastal Systems Science I
Second semester (Avery Point). Three credits. Prerequisite: MARN 170 and any two of the following: BIOL 107, 108, CHEM 127Q, 128Q, PHYS 121Q, 122Q, 131Q, 132Q. Open to sophomores. J. Kremer and Staff.

Biological, chemical, physical, and geological structure and function of coastal systems; a worldwide survey with emphasis on important coastal habitats and processes.

211. Coastal Systems Science II
Either semester (Avery Point). Four credits. Three hours lecture and two hours laboratory. Prerequisites: MARN 170 and any two of the following: BIOL 107, 108; CHEM 127Q, 128Q; PHYS 121Q, 122Q, 131Q, 132Q. J. Kremer and Staff.

Biological, chemical, physical and geological structure and function of coastal systems; a worldwide survey with emphasis on important coastal habitats and processes.

212C. Measurement and Analysis in Coastal Ecosystems
First semester (Avery Point). Four credits. Two 1-hour lectures and two 3-hour laboratories. Required field trips. Prerequisites: MARN 170 and any two (2) of the following: BIOL 107, 108; CHEM 127Q, 128Q; PHYS 121Q, 122Q, 131Q, 132Q. J. Kremer and Staff.

Examination of oceanographic processes in local coastal systems; collection and analyses of samples from field trips and lab experiments; data analysis using computers.

2200. Environmental Reaction and Transport
Second semester. Three credits. Prerequisite: CHEM 127 and one additional semester of CHEM, BIOL or PHYS; one semester of calculus (MATH 112, 115, 118 or 120) or concurrent enrollment in Calculus (115, 118, 120). Open to sophomores. Torgersen.

An introduction to the chemical/biological reactions and transport dynamics of environmental systems. Mass balances, elementary fluid mechanics and the coupled dynamics of lakes, rivers, oceans, groundwater and the atmosphere as biogeochemical systems.

230. Coastal Circulation and Sediment Transport
First semester (Avery Point). Three credits. Required preparation: MARN 210 and 211; MATH 112 or 115 or 118 or 120.

Circulation and mixing in estuaries and the inner continental shelf, including surface gravity waves, tides, and buoyancy and wind-driven circulation. Coastal sediments, geomorphology, and processes of sedimentation, erosion and bioturbation. Required field trips.

235. Environmental Fluid Dynamics
First semester. Three credits. Required preparation: PHYS 122 or 132 or 142 or 152; and MATH 220 (may be taken concurrently). Bogden.

Introduction to fluid dynamics with applications to coastal waters, estuaries, rivers, lakes, and ground water flows. Topics include waves, tides turbulence, mixing, drag, lift, effects on organisms, and wind driven circulation.

236. Marine Microbiology
(Also offered as Biology: MCB 236.) First semester. (Avery Point) second semester (Storrs). Three credits. Two lecture-discussion class periods and one 2-hour laboratory period for which field trips may be substituted. Prerequisite: Biology: MCB 229, or the consent of instructor. Buck, Vischer.

A general survey of the taxonomy, physiology and ecology of marine microorganisms.

240. Seminar on Marine Mammals
Joint program with Mystic Marinelife Aquarium. First semester. Three credits. One 3-hour class period; one field trip. Offered at Mystic Marinelife Aquarium. Prerequisite: one year college laboratory biology and permission of instructor.

Instructors from different areas of expertise discuss the natural history, evolution, anatomy, physiology, husbandry, and conservation of marine mammals. Current research is emphasized. (Special registration and fee: Contact Mystic Marinelife Aquarium, Mystic, CT 06355. 860-572-5955.)

241. Marine Invertebrate Biology: Adaptations and Community Structure
First semester (alternate years). Three credits. Prerequisite: BIOL 107, 108; Required preparation: MARN 170 or consent of instructor. Ward.

Comparative examination of major adaptations and functional responses of marine invertebrates to biotic and abiotic factors in the marine environment. Field trips required.

242. Environmental Physiology of Marine Animals
First semester (alternate years). Three credits. Prerequisite: BIOL 107, 108; Required preparation: MARN 170 or consent of instructor.

Introduction to the study of marine environmental physiology: behavioral and physiological adaptations of marine animals to different environments (intertidal, estuarine, coastal, oceanic); compensatory responses to changing ambient conditions; and basic animal energetics. Laboratory exercises focus on food consumption, energy transformations, and principles of physiological measurement.

244. Coastal Ecology
Joint program with Mystic Marinelife Aquarium. Summer. Three credits. Offered at Mystic Marinelife Aquarium. Prerequisite: One year college laboratory biology and permission of instructor.

A special introductory course providing students with theoretical as well as practical knowledge of ecological sampling techniques, estuarine productivity, and selected continental shelf communities. Laboratory portion of this course consists of a 5-day study cruise in coastal New England waters. (Special registration and fee: contact Mystic Marinelife Aquarium, Mystic, CT 06355. 860-536-4208.)

255W. Coastal Studies Seminar
Second semester (Avery Point). Two credits. Required preparation: MARN 210, 211, and 212, or consent of instructor.

Scientific analysis of coastal zone issues and their interdisciplinary implications. Written analysis and discussion of readings from the primary literature.

256. Science and the Coastal Environment
Second semester (Avery Point). Three credits. Required preparation: MARN 210, 211, and 212; or at least two (2) of the following: MARN 270, 275, and 280. J. Kremer.

Specific cases of multiple impacts on environmental resources and coastal habitats. Current
280W. Marine Biogeochemistry
First semester. Three credits. Prerequisite: PHY 122 or PHY 123.
Composition, origin and solution chemistry of sea water. Marine biogeochemical cycles of water, salt, carbon, nutrients, gases and trace elements. Effects of ocean circulation, biological cycles and crustal exchanges on the distribution and transfer of substances in the marine environment.

282. Coastal Pollution and Bioremediation
First semester (alternate years). Three credits. Two 1-hour lectures, two 1-hour lab periods. Prerequisite: CHEM 128, MATH 114 or 116, PHYS 122 or equivalents. Fitzgerald
Overview of processes and compounds leading to pollution in the nearshore marine environment. The impact of pollution on the marine food web and its response is emphasized. Alleviation of pollution through metabolism of organisms, including bacteria, seagrasses, and salt marshes.

294. Marine Biology
(Also offered as Biology: EEB 294.) First semester. Three credits. Two class periods and one 2-hour laboratory period. Prerequisite: One year of laboratory biologic. Whithalch
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. Variable Topics
Either semester. Three credits. Change in topic, may be repeated for credit. Prerequisite, required preparation, and recommended preparation vary.

297. Internship in Marine Sciences
Either semester. Variable credits. With a change in topic, may be repeated for credit. Not to exceed 3 credits. Required preparation: Nine credits of MARN courses at the upper division level. Consent of Instructor.
An internship under the direction of MARN faculty. Placements subject to application of academic advising. A journal of activities is required. One credit may be earned for each 40 hours of pre-approved activities in a semester to a maximum of three credits.

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

299. Independent Study
Either or both semesters. Credits and hours by arrangement. Open only with consent of instructor. May be repeated for credit.

Marketing (MKTG)

Head of Department: Professor Susan Spiggle
Department Office: Room 417, School of Business Administration
For major requirements, see the School of Business Administration section of this Catalog.

201. Introduction to Marketing Management
Either semester. Three credits. Prerequisite: ACCT 131, ECON 111 and 112, ENGL 105 and 109, MATH 106, or 114 or 116, STAT 100 or 110.
An introduction to the marketing system, its foundations and institutions. Students are exposed to product, promotion, price, distribution decision areas, strategic alliances, relationship marketing, and total marketing quality.

208. Consumer Behavior
Either semester. Three credits. Prerequisite: MKTG 201 and either PSYC 133 or SOCI 107, or consent of instructor. Not open for credit to students who have passed or are currently enrolled in, Marketing 209.
The analysis of consumer decision processes as they relate to marketing management decision areas. Several models of consumer behavior are studied as are the psychological phenomena of learning, motivation, and attitude development, and the sociological influences of social class, reference groups and culture.

209. Industrial Buyer Behavior
Either semester. Three credits. Prerequisite: MKTG 201 and either PSYC 133 or SOCI 107, or consent of instructor. Not open for credit to students who have passed, or are currently enrolled in, Marketing 208.
This course provides an analysis of industrial markets and develops the tools required to thoroughly analyze these markets for marketing strategies. Differences between consumer and industrial products and services will be emphasized. Emphasis will be on high technology products and services.

225. Integrated Marketing Communications
Either semester. Three credits. MKTG 201 or its equivalent is strongly recommended as preparation.
The design, coordination, integration, and management of marketing communications. The course focuses on advertising and sales promotion with an emphasis on the competitive and strategic value of communications in the marketplace.

225W. Integrated Marketing Communications
Open to Marketing majors only.

227. Product and Price Policies
First or second semester. Three credits. Prerequisite: MATH 106 or 111, or 114, or 116; STAT 100V or 110V; MKTG 201.
Consideration in depth of the product and price variables as elements of marketing strategy and tactics. Emphasis will be placed on conceptual as well as decision-making aspects. The roles of technology, social change, innovation and creativity are included in the treatment of product. Institutional, behavioral, governmental and economic factors are included in the treatment of price.

241. Retail Management
First or second semester. Three credits. Prerequisite: MKTG 201.
A study of the management of retail operations, including buying, pricing, inventory control and selling.

252. Professional Selling and Sales Management
Either semester. Three credits. Prerequisite: MKTG 201.
This course focuses on the selling process as well as the activities and problems of sales force management. In the selling component, emphasis is placed on the tactical and strategic aspects of the professional selling process. It includes such topics as: account strategy, prospecting, objection handling, buyer behavior, and negotiation skills. In the sales management component, particular emphasis is placed on organizing the sales force, recruiting, training, compensation, motivation, forecasting, territory design, evaluation, and control. Learning tools include: role play, role groups, case studies, and outside business interactions.

265. Marketing on the Internet
First and/or second semester. Three credits. Prerequisite: MKTG 201.
Topics include comparisons of business models in physical space and cyberspace and integration of marketing efforts between the world-wide-web, and other menas of communications, distribution, and selling. This course relies on the Internet as a teaching tool. Students need access to a computer with an Internet Browser.

270. Global Marketing Strategy
First or second semester. Three credits. Prerequisite: MKTG 201; MKTG 208 or 209; MKTG 280 and senior class standing.
A study of the marketing concepts and analytical processes used in the development of programs in international markets. The course emphasizes comparative differences in markets, marketing functions, and political considerations. It includes the application of a systems approach to the evaluation of opportunity and to the solution of major global marketing problems. Emphasis is placed on the analysis and synthesis of marketing programs to determine the appropriate marketing mix for various international business enterprises.

280. Marketing Research
Either semester. Three credits. Prerequisite: MKTG 201 and OPIM 203.
This course covers strategies and techniques for obtaining and using market information from consumer and business-to-business markets. Emphasis on: translating managerial problems into research questions, designing research, selecting alternate research methods, developing research instruments, and conducting surveys.
research methods, and analyzing and interpreting market research data. Students gain hands-on, computer-based experience in analyzing market data.

282. Marketing Planning and Strategy
First or second semester. Three credits. Prerequisite: MKTG 201, 208 or 209, 280, and senior class standing.

The application of a systems approach to the evaluation of opportunity and to the solution of major problems from the perspective of the top marketing executive. Emphasis is placed on the analysis and synthesis of marketing programs to determine the appropriate marketing mix for various business enterprises.

282W. Marketing Planning and Strategy
† Students taking this course will be assigned a final grade

1289. Professional Practice in Marketing
Either or both semesters. One to three credits. Hours by arrangement. Prerequisite: completion of Lower Division School of Business Administration requirements and consent of instructor and Department Head.

This course is designed to provide students with an opportunity for supervised field work in relevant major areas within the Department. Students will work with one or more professionals in the field of marketing. 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.

296W. Senior Thesis in Marketing
Either semester. Three credits. Hours by arrangement. Open only to Marketing Department Honor 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.

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

Mathematics (MATH)

Head of Department: Professor Charles Vinsonhaler
Department Office: Room 102, Mathematical Sciences Building

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

Students must pass the Q-course Readiness Test or Mathematics 101 before taking any “Q” courses.

101. Basic Algebra with Applications
Either semester. Three credits. This course does not meet distribution requirements or count toward the minimum credit requirement for graduation. Not open to students who have passed any Q-course.

Polynomials, exponents, Cartesian coordinate system, linear and quadratic equations, inequalities.

102Q. Problem Solving
Either semester. Three credits. Not eligible for course credit by examination. Not open for credit to students who have passed any mathematics course other than MATH 101, 103, 105, 107, or 109 Vinsonhaler.

An introduction to the techniques used by mathematicians to solve problems. Skills such as Externalization (pictures and charts), Visualization (associated mental images), Simplification, Trial and Error, and Lateral Thinking learned through the study of mathematical problems. Problems drawn from combinatorics, probability, optimization, cryptology, graph theory, and fractals. Students will be encouraged to work cooperatively and to think independently.

103Q. Elementary Discrete Mathematics
Either semester. Three credits. Not open for credit to students who have passed any MATH course other than MATH 101, 102, 105, 107, or 109.

Problem solving strategies, solutions of simultaneous linear equations, sequences, counting and probability, graph theory, deductive reasoning, the axiomatic method and finite geometries, number systems.

105Q. Mathematics for Business and Economics
Either semester. Three credits.

Linear equations and inequalities, exponents and logarithms, matrices and determinants, linear programming. Applications.

106Q. Calculus for Business and Economics
Either semester. Three credits. (One credit for students who have passed MATH 113, 115, or 120.) Recommended preparation: MATH 105. Not open for credit to students who have passed MATH 118.

Derivatives and integrals of algebraic, exponential and logarithmic functions. Functions of several variables. Applications.

109Q. Algebra and Trigonometry
Either semester. Three credits. Not open for credit to students who have passed MATH 107, 112, 115, or 120.

A review of algebra, simultaneous and quadratic equations, logarithms, the trigonometric functions, solution of triangles, trigonometric equations.

112Q. Introductory Calculus 1
Either semester. Four credits. Four class periods. Not open for credit to students who have passed MATH 115 or 120. Students who have not passed the Calculus Readiness Test take this course rather than MATH 115 or MATH 120.

Limits, derivatives, and extreme values of algebraic functions, with supporting algebraic topics.

113Q. Introductory Calculus 2
Either semester. Four credits. Four class periods. Prerequisite: MATH 112. Not open for credit to students who have passed MATH 115 or 120. May be used in place of MATH 107, 115 or 120 to fulfill any requirement satisfied by MATH 107, 115 or 120.

Limits, derivatives, and extreme values of trigonometric functions, with supporting trigonometric topics; anti-derivatives of algebraic and trigonometric functions; the definite integral and applications.

114Q. Introductory Calculus 3
Either semester. Four credits. Four class periods. Prerequisite: MATH 113. Note: MATH 115 is not adequate preparation for MATH 114. Not open for credit to students who have passed MATH 116 or 121. May be used in place of MATH 116 or 121 to fulfill any requirement satisfied by MATH 116 or 121.

The transcendental functions, formal integration, polar coordinates, infinite sequences and series, lines and planes in three dimensions, vector algebra.

115Q or V. Calculus I
Either semester. Four credits. Four class periods. Prerequisite: Passing score on the Calculus Readiness Test, or former MATH 107. Not open to students who have passed MATH 112 or 120. Suitable for students with some prior calculus experience. May be used in place of MATH 112 or 120 to fulfill any requirement satisfied by MATH 112 or 120.

Limits, continuity, differentiation, antiderivatives, definite integrals, with applications to the physical and engineering sciences. Sections with V credit integrate computer-laboratory activity.

116Q or V. Calculus II
Either semester. Four credits. Four class periods. Prerequisite: MATH 115 or 120, or advanced placement credit for calculus (a score of 4 or 5 on the Calculus AB exam or a score of 3 on the Calculus BC exam). Not open to students who have passed MATH 121. Substitutes for MATH 114 or 112 as a requirement.

Transcendental functions, formal integration, polar coordinates, infinite sequences and series, vector algebra and geometry, with applications to the physical sciences and engineering. Sections with V credit integrate computer-laboratory activity.

118Q. A Survey of Calculus with Applications I
Either semester. Three credits. Not open for credit to students who have passed MATH 106, 113, 115, or 120.

Derivatives and integrals of elementary functions including the exponential and logarithmic functions; applications include optimization, marginal functions, exponential growth and decay, compound interest.

120Q. Enhanced Calculus I
Either semester. Four credits. Four class periods. Prerequisite: Passing score on the Calculus Readiness Test, or the former MATH 107. Not open for credit to students who have passed MATH 113 or 115. May be used in place of MATH 113 or 115 to fulfill any requirement satisfied by MATH 113 or 115. Intended to provide superior preparation for prospective mathematicians, science and engineering majors. Recommended for those who have taken a semester of calculus in high school.

The subject matter of MATH 115 in greater depth, with emphasis on the underlying mathematical concepts.

121Q. Enhanced Calculus II
Either semester. Four credits. Four class periods. Prerequisite: MATH 120 or advanced placement credit for calculus (a score of 4 or 5 on the calculus AB examination or a score of 3 on the Calculus BC examination) or consent of instructor. Not open for credit to students who have passed MATH 114 or 116. May be used in place of MATH 114 or 116 to fulfill any requirement satisfied by MATH 114 or 116. Intended to provide superior preparation for prospective mathematicians, science and engineering majors. Recommended for those who have taken a semester of calculus in high school.

The subject matter of MATH 116 in greater depth, with emphasis on the underlying mathematical concepts.

193. Foreign Study
Either or both semesters. Credits and hours by arrangement. May be repeated for credit (to a maximum of 15 for MATH 193 and 293 together). Consent of the Department Head or Undergraduate Coordinator required, normally before the student’s departure.
220Q. Enhanced Multivariable Calculus
Either semester. Four credits. Prerequisite: MATH 114 or 116 or 121. Open to sophomores. Not open to students who have passed MATH 210. MATH 220 satisfies any requirement met by MATH 210, and provides superior preparation for prospective mathematics, science, and engineering majors.

The subject matter of MATH 210 in greater depth, with emphasis on the underlying mathematical concepts.

221Q. Enhanced Differential Equations
Either semester. Three credits. Prerequisite: MATH 114 or 116 or 121. Open to sophomores. Not open to students who have passed MATH 211. MATH 221 satisfies any requirement met by MATH 211, and provides superior preparation for prospective mathematics, science, and engineering majors.

The subject matter of MATH 211 in greater depth, with emphasis on the underlying mathematical concepts.

223Q. Geometry
Either semester. Three credits. Prerequisite: MATH 113 or 115 or 120. MATH 113 may be taken concurrently. Open to sophomores.

Deductive reasoning and the axiomatic method. Euclidean geometry, parallelism, hyperbolic and other non-Euclidean geometries, geometric transformations.

224Q. Projective Geometry
Either semester. Three credits. Prerequisite: MATH 213Q. Finite and infinite geometries as logical systems based on axioms. Synthetic and analytic projective geometry.

225Q. Probability
Either semester. Three credits. Prerequisite: MATH 210 or 220, which may be taken concurrently with the consent of the instructor.

Introduction to the theory of probability. Discussion of some of the probability problems encountered in scientific and business fields.

226Q. Elementary Stochastic Processes
(Also offered as STAT 235Q.) Either semester. Three credits. Required preparation: STAT 220 or 224 or 230 or MATH 231. Not open to credit to students who have passed STAT 235Q.

Conditional distributions, discrete and continuous time Markov chains, limit theorems for Markov chains, random walks, Poisson processes, compound and marked Poisson processes, and Brownian motion. Selected applications from actuarial science, biology, engineering, or finance.

227Q. Introduction to Mathematical Logic
Either semester. Alternate years. Three credits. Prerequisite: MATH 213 or 214 or CS 254.

Finite automata and regular languages, pushdown automata and context-free languages and grammars. Turing machines, recursively enumerable sets and grammars, Church's thesis, the halting problem, and other undecidable problems. Computational complexity and NP-completeness.

228W. History of Mathematics
Either semester. Alternate years. Three credits. Prerequisite: MATH 210 and 211, or 221. This course may not be counted in any of the major groups described in the Mathematics Departmental listing.

A historical study of the growth of the various fields of mathematics.

230Q-248Q. Fundamentals of Algebra and Geometry
Either semester. Three credits each semester. Prerequisite: PSYC 132 and three credits of Mathematics other than MATH 101. Not open for credit to students who have passed MATH 210 or 211 or 220. This course may not be counted in any of the major groups described in the Mathematics Departmental listing.

The development of the number system with applications to elementary number theory and analytic geometry. This course is recommended for students in elementary education.

235Q. Introduction to Number Theory
Either semester. Alternate years. Three credits. Prerequisite: MATH 213 or 214.

Congruences, unique factorization, primitive roots, numerical functions, quadratic reciprocity and other selected topics, with emphasis on problem solving.

242Q. History of Mathematics
Either semester. Alternate years. Three credits. Prerequisite: MATH 210 and 211, or 221. MATH 252Q not open for credit to students who have passed MATH 352.

Functions of a complex variable, integration in the complex plane, conformal mappings.

245Q. Principles of Computer Graphics
Either semester. Three credits. Prerequisite: CS 111 or 130, MATH 227 or 215, MATH 210, and consent of instructor. Not open for credit to students who have passed CS 275.

Representation of two- and three-dimensional data, internal representation of data structures, transformations, mapping of functions to graphics screens, graphics hardware. Programming projects assigned.

258Q. Introduction to Number Theory
Either semester. Alternate years. Three credits. Prerequisite: MATH 213 or 214.

Congruences, unique factorization, primitive roots, numerical functions, quadratic reciprocity and other selected topics, with emphasis on problem solving.

272Q. Differential Equations for Applications
Either semester. Three credits. Prerequisite: MATH 210 and 211, or 221. Not open for credit to students who have passed MATH 279.


273Q-274Q. Analysis
Either semester. Three credits each semester. Prerequisite: MATH 213 or 214, and 211 or 221.

Introduction to the theory of functions of one and several real variables.
distributions, life tables, life insurance, life annuities, concurrently.

Solution of first and second order partial differential equations with applications to engineering and the sciences.

3. Credit. Prerequisite: MATH 231 or its equivalent. MATH 278 not open for credit to students who have passed MATH 378.

287Q. Partial Differential Equations (Also offered as Mathematics 378.) Either semester, alternate years. Three credits. Prerequisite: MATH 272 or its equivalent. MATH 278Q not open for credit to students who have passed MATH 378.

290. Field Study Internship Either or both semesters. One to three credits. May be repeated for credit (to a maximum of 6 credits). Consent of the Department Head. Director of the Actuarial Program, or the Undergraduate Coordinator required. Prerequisite: Completion of lower division required courses in the major.

292W. Senior Thesis in Mathematics Either semester. Three credits. Open only by consent of Department Head or Departmental Honors Committee.

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 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. Credit and hours by arrangement. Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

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

298. Senior Thesis in Mathematics Either semester. Three credits. Open only by consent of Department Head or Departmental Honors Committee.

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 submit a written proposal for the senior thesis to the advisor by the end of the semester preceding enrollment for thesis credit.

299Q. Actuarial Mathematics (Also offered as MATH 387-388.) Either semester. Three credits each semester. Prerequisite: MATH 231 or STAT 230; and MATH 285, which may be taken concurrently.

Survival distributions, claim frequency and severity distributions, life tables, life insurance, life annuities, net premiums, net premium reserves, multiple life functions, and multiple decrement models.

289. Financial Mathematics II Either semester. Three credits. Prerequisite: MATH 285. Also ACCT 131, which may be taken concurrently.

The continuation of MATH 285Q. Measurement of financial risk, the mathematics of capital budgeting, mathematical analysis of financial decisions and capital structure, and option pricing theory.

292. Actuarial Mathematics II Either semester. Three credits. Prerequisite: MATH 285. Also ACCT 131, which may be taken concurrently.

The continuation of MATH 285Q. Measurement of financial risk, the mathematics of capital budgeting, mathematical analysis of financial decisions and capital structure, and option pricing theory.
224. Analysis and Design of Mechanisms
First semester. Three credits. Prerequisite: MATH 210 and 211 and CHEG 211.
Application of kinematics in the analysis and synthesis of mechanisms. Type and dimensional design of linkages, cams and gears based on motion requirements and kinetostatic force transmission, in contrast to the strength requirements. Graphical, analytical, and computer methods in analysis and design of mechanisms. Design considerations in mechanism synthesis. Design project.

Both semesters. Three credits. Prerequisite: CSE 123, CE 287, MATH 210 and consent of instructor.
Introduction to computer-aided graphics, modeling and design. Applications of graphics software and hardware with mini- and micro-computer systems. Interactive computer graphics techniques. Extensive laboratory study of wire-frame and raster computer graphics. Static and dynamic graphic presentation methods.

227. Design of Machine Elements
First semester. Three credits. Prerequisite: ME 205 and CE 287.
Application of the fundamentals of engineering mechanics, materials and manufacturing to the design and analysis of machine elements.

228. Introduction to Fatigue in Mechanical Design
Second semester. Three credits. Prerequisite: CE 287 or consent of instructor. Not open to students who have passed ME 365.
Design calculation methods for fatigue life of engineering components. Crack initiation and crack propagation fatigue lives; introduction to current literature in the field. Emphasis on finite life prediction by strain life methods.

229. Machine Design
Second semester. Three credits. Prerequisite: CE 287. This course and CE 289 may not both be taken for credit.

230. Linear Automatic Control Systems
Semester by arrangement. Three credits. Prerequisite: MATH 210 and 211.
Consolidated treatment of system analysis including modelling of electromechanical, pneumatic, hydraulic, thermal, and mechanical systems and their components. Closed loop control concepts related to these systems. Stability, instability issues. Basic treatment of Routh diagram algebra, signal-flow graphs, Mason’s rule, transient analysis of system response, convolution integral, Duhamel’s integral, Green’s function, stability of linear systems, Routh-Hurwitz method, root locus, frequency response, Bode and polar representations, introduction to feedback systems.

234. Applied Thermodynamics
First semester. Three credits. Prerequisite: ME 233 or CHEG 211.
Introduction to the analysis of cycles. Investigation of properties of real gases, mixtures, and psychrometry. Fundamentals of combustion thermodynamics. Cycle design with considerations of specific applications, alternative cycles, and equipment operation and maintenance are emphasized.

238. Thermal Science
Second semester. Three credits. Prerequisite: MATH 210 and 211, which may be taken concurrently. This course and ME 233, or CHEG 211 may not both be taken for credit.
The basic laws of thermodynamics and the thermodynamic properties of perfect and real gases, vapors, solids and liquids. Analysis of fundamental processes and cycles together with an introduction to heat transfer.

239. Pollution from Combustion
Either semester. Three credits. Prerequisite: ME 234.
Introduction to combustion processes and chemical kinetics. Mechanism of the formation of pollutants such as nitrogen oxides, carbon monoxide, soot, and unburned hydrocarbons in stationary and vehicular power plants.

240. Principles of Combustion
First semester. Three credits. Prerequisite: ME 234, and 250, or equivalent.
A first course in combustion introducing some basic chemical thermodynamics and chemical kinetic principles as a background for an elementary treatment of flame propagation in pre-mixed mixtures, diffusion flames, explosions and detonations. Some aspects of coal combustion will also be discussed.

242. Heat Transfer
First semester. Three credits. Prerequisite: ME 233, and 250.
A study of the fundamental laws of conduction, convection and radiation of thermal energy and of mass transfer. Application of the general laws of heat transfer, and heat exchange to heat exchangers and insulation. The analytical, numerical, and graphical solution of one, two, and three dimensional problems.

245. Aerodynamics
Semester by arrangement. Three credits. Prerequisite: MATH 210 and 211 and either ME 250 or CE 297.
Application of fluid mechanics to the aerodynamics of flight. Classical inviscid theory for two-dimensional shapes and finite-span wings.

247. Flight Mechanics
Semester by arrangement. Three credits. Prerequisite: ME 220 or EE 232 or consent of instructor.
Static and dynamic behavior of flight vehicles with primary emphasis on conventional aircraft. Application of small-disturbance methods in classical dynamic stability. Illustrative examples for aircraft motion calculations require familiarity with computer programming.

250. Fluid Dynamics I
Second semester. Three credits. Prerequisite: ME 205 and 233, and MATH 210 and 211. This course and CE 297 may not both be taken for credit.
The laws of conservation of mass, momentum, and energy in fluid systems. Potential flow, boundary layers, introduction of compressible flow.

251. Fluid Dynamics II
Either semester. Three credits. Prerequisite: ME 250 or CE 297.

253. Linear Systems Theory
First semester. Three credits. Prerequisite: ME 205, which may be taken concurrently, CE 212 and MATH 211Q.
Mathematical modeling of dynamic systems, linearization of nonlinear behavior, Laplace domain representation of dynamics, transfer functions, block diagram algebra, signal-flow graphs, Mason’s rule, transient analysis of system response, convolution integral, Duhamel’s integral, Green’s function, stability of linear systems, Routh-Hurwitz method, root locus, frequency response, Bode and polar representations, introduction to feedback systems.

255. Computational Mechanics
First semester. Three credits. Prerequisite: MATH 211Q and CE 287.
Topics include elementary numerical analysis, finite differences, initial value problems, ordinary and partial differential equations and finite element techniques. Applications include structural analysis, heat transfer, and fluid flow.

256. Introduction to Nuclear Power Engineering
Semester by arrangement. Three credits. Prerequisite: MATH 211Q and CE 287.
Atomic and nuclear physics for reactor technology. Study of neutrons and chain reactions. Elements of reactor technology. Nuclear power and economics.

260W. Measurement Techniques
Second semester. Three credits. Two class periods and one 3-hour laboratory period. Prerequisite: EE 220.
Theory and practice of measurement including analysis and application of electromechanical transducers. Methods of measuring length, area, time, pressure, temperature, force and strain. The determination of the phase relation between a driving potential and the response of a system. The application of statistical methods to analysis of experimental data.

262. Introductory Thermo-Fluids Laboratory
First semester. Three credits. One class period and one 3-hour laboratory period. Prerequisite: ME 231 or 233, which may be taken concurrently.
Introduction to experimental methods in Mechanical Engineering. Review and use of pressure, temperature, and flow measuring devices. Data acquisition and analysis including use of computers. Principles of good experimental design. Experiments selected mainly from within the thermo-fluids area.

263W. Experimental Mechanical Engineering I
(Formerly offered as ME 264W.) First semester. Four credits. Two class periods and one 3-hour laboratory period. Prerequisite: ME 242 and ME 250, both of which may be taken concurrently.
Analyses of basic engineering problems with subsequent verification of the analyses.

265. Experimental Mechanical Engineering II
Second semester. Four credits. One 4-hour laboratory period. Prerequisite: ME 263 or 264.
Analyses of advanced engineering problems with subsequent verification of the analyses. Qualified students are encouraged to undertake term projects of their own choosing. A written report and oral presentation of the design project are required. Shop safety qualification is required.

270. Engineering Design Project
Second semester. Four credits. Two 3-hour laboratory periods. Prerequisite: ME 227.
Design of a device, machine, process, or system. Students working singly and in small groups produce a solution to an engineering design problem, from first concepts through preliminary sketches, analysis, construction, evaluation and report. A written report and oral presentation of the design project are required. Shop safety qualification is required.

271P. Experimental Mechanical Engineering
First semester. Two credits. Prerequisite: ME 242, which may be taken concurrently, and ME 260W.
This course treats primarily the modeling of physical systems and experimental verification. Nonlinearities, simplifying assumptions are covered. Written reports are required.

272P. Senior Design Project I
First semester. Three credits. Prerequisite: ME 271P, which may be taken concurrently.
This course is the first part of the senior design experience. It will cover topics on design process, planning, and costs. Design for manufacture and assembly will be covered. Both oral and written reports are required.

273P. Senior Design Project II
Second semester. Three credits. Prerequisite: ME 272P.
Projects which have started in the previous semester will be completed. The project analysis, design, and manufacture stages will take place. Both written and oral reports will be required.

295. Special Topics in Mechanical 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.

298. Mechanical Engineering Undergraduate Seminar
Second semester. One credit. One class period. Open only to seniors in mechanical engineering.
Presentation and discussion of advanced topics in mechanical engineering.

299. Problems in Mechanical Engineering
Semester and hours by arrangement. Credits by arrangement, not to exceed four. Open only to seniors in mechanical engineering. This course, with a change in topic, may be repeated for credit.
This course is designed primarily for students who wish to pursue a special line of study or investigation. The program of study is to be approved by the head of the department and by the instructor before registration is completed.

Metallurgy & Materials Engineering (MMAT)

Head of Department: Professor John Morrall
Department Office: Room 111, Institute of Materials Science Building
For major requirements, see the School of Engineering section of this Catalog.

(Metallurgy & Materials Engineering courses were formerly offered under the MTGY department abbreviation using the same course numbers.)

201. Materials Science & Engineering I
Both semesters. Three credits. Prerequisite: CHEM 128 or 130 and PHYS 122, 132, or 152.
Relation of crystalline structure to chemical, physical, and mechanical properties of metals and alloys. Testing, heat treating, and engineering applications of ferrous and non-ferrous alloys.

202. Materials Science & Engineering Lab
Both semesters. One credit. One 3-hour laboratory period. Prerequisite: MMAT 201, which may be taken concurrently.
Illustrative experiments on microstructure, phase equilibria, heat treatment and mechanical properties.

203. Materials Science & Engineering II
Semester by arrangement. Three credits. Prerequisite: MMAT 201.
Structures, properties and processing of ceramics, polymers, and composites. Further development of the properties of these materials and of metals, including electrical, thermal, magnetic and optical behaviors. Case studies in materials selection.

204. Chemical Metallurgy
Semester by arrangement. Three credits. Prerequisite: CHEM 128, PHYS 151, Derrveux
Principles of chemical thermodynamics, reaction kinetics, and electrochemistry. Applications to interfacial phenomena, extraction and refining, and corrosion and electro-deposition.

205. Introduction to Mechanical Metallurgy
Semester and hours by arrangement. Three credits. Prerequisite: MMAT 201 or 203.
Elements of plastic deformation of metals and the role of crystal structure. Strengthening mechanisms. Fracture; including fatigue, stress corrosion and creep rupture. Test methods. Forming of metals.

206. Defects in Metals and Semiconductors
Semester by arrangement. Three credits. Prerequisite: MMAT 201 or 203, Galligan
Equilibrium and non-equilibrium defects in crystals, their influence on various metallurgical and semiconducting properties of materials. Interrelationship of equilibrium defects to non-equilibrium defects and the influence on various properties of materials.

207. Failure Analysis
Second semester. Three credits. Prerequisite: MMAT 201.
Methods for determining the nature and cause of materials failure in structures and other mechanical devices. Analysis of case histories.

211. Structure and Properties of Alloys
Semester by arrangement. Three credits. Prerequisite: MMAT 201 or 203, Clough
Microstructures of alloys and relationships between microstructure and properties.

217. Extractive Metallurgy
Semester by arrangement. Three credits. Prerequisite: CHEM 128 or 130, Derrveux
Pertinent engineering principles. General introduction to important extractive processes. Overall concepts of separation.

219. The Metallurgy of Welding
Either semester. Three credits. Prerequisite: MMAT 201 or 203, Kittanum
Basic metallurgical principles applied to welding and brazing processes. Effects of welding on material. Treatment and properties of welded joints. Welding defects and quality control.

222. Materials Processing – Metals
First semester. Three credits. Prerequisite: MMAT 201 or 203.
Achievement of desired dimensional, physical and chemical properties with manufacturing economy. Solidification, powder methods, joining, deformation, and surface treatments. Field trips.

229. Physical Ceramics
Semester and hours by arrangement. Three credits. Prerequisite: CHEM 128 or 130 and PHYS 152, Kittanum
Microstructure of crystalline ceramics and glasses and role of thermodynamics and kinetics on its establishment. Effect of process variables on microstructure and ultimately on mechanical, chemical and physical properties.

230. Introduction to Composite Materials
Either semester by arrangement. Three credits. Prerequisite: MMAT 205 or MMAT 266.

232. Introduction to High Temperature Materials
Semester by arrangement. Three credits. Prerequisite: MMAT 201 or 203, or consent of the instructor.
Plastic deformation of metals and other solid materials at elevated temperatures. Dislocation mechanisms; creep processes; oxidation. Strengthening mechanism, including ordering and precipitation hardening.

234. Materials Protection
Semester by arrangement. Three credits. Not open for credit to students who have passed MTGY 343, Greene

236. Materials Characterization
Semester by arrangement. Three credits. Two class periods and, every other week, a 3-hour laboratory period. Laboratory sections in addition to that listed in Directory of Classes will be arranged.
Principles and experimental methods of optical, electron, and x-ray examination of engineering materials. Emphasis on use of x-ray analysis, with introduction to electron microscopy, Auger spectroscopy, scanning electron microscopy, and microanalysis.

238. Alloy Casting Processes
Second semester by arrangement. Three credits. Prerequisites: MMAT 203 or MMAT 265 and MMAT 255 or equivalent.
Principles of alloy solidification are discussed and
applied in the context of sand, investment, and die casting; continuous and direct chill casting; electroslag and vacuum arc remelting, crystal growth, rapid solidification, and laser coating.

243. Introduction to Structure, Properties, and Processing of Materials I
First semester. Two credits. Co-requisites: CHEM 128 and MATH 116. Not open for credit to students who have passed MMAT 201. Open to sophomores.

Principles underlying the selection of materials and the characterization of micro- and atomic structure will be introduced, with emphasis on atomic and molecular structure, crystallography, solid solutions, binary phase diagrams, mass mass transport, cross linking, entanglement, and the relation of microstructure to properties.

244. Introduction to Structure, Properties, and Processing of Materials II
Second semester. Three credits. Prerequisites: MMAT 243 or MMAT 201. Open to sophomores.

Principles underlying the selection of materials and the control of microstructure through processing will be introduced, with emphasis on injection molding, extrusion, casting, particulate processing, electrochemistry, corrosion, refining, vapor processing, processing-property relations.

255. Transport Phenomena in Materials Processing
First semester. Four credits. Three hours lecture and two hours laboratory. Co-requisites: MMAT 265 and MATH 210Q.

Mechanisms and quantitative treatment of mass, energy, and momentum transfer will be applied to design and analysis of materials processing. Increasingly complex and open-ended engineering design projects will be used to illustrate principles of diffusion; heat conduction, convection, and radiation, and fluid flow.

265. Applied Thermodynamics of Materials
Second semester. Three credits. ME 233 or CHEG 263 and MMAT 265.

Thermodynamic principles will be applied to the behavior and processing of materials. Topics covered will include solution thermodynamics: activity and activity coefficients; phase equilibrium; electrochemistry; slag metal and gas metal reactions.

266. Structure-Property Relations I: Phase Transformation Kinetics and Applications
First semester. Three credits. Prerequisite: PHYS 152Q.

Corequisite: MMAT 243 or MMAT 210. Principles and applications of phase transformations to control microstructure and materials properties. In depth, quantitative coverage will include atomic and molecular arrangements; lattices; point, line, and surface defects; cross links, entanglements, glasses, diffusion; kinetics of nucleation and growth; and thermal treatments to control microstructure.

267. Structure-Property Relations II: Strengthening and Toughening Mechanisms
Second semester. Three credits. Prerequisite: MMAT 265.

Principles and applications of strengthening and toughening mechanisms will be treated quantitatively with emphasis on line defects, microplasticity, displacive and diffusional transformations, fillers, sintering, creep, and creep rupture.

268. Structure-Property Relations III: Electromagnetic and Environmental
First semester. Three credits. Prerequisite: MMAT 266.

Principles underlying electrical, magnetic, and chemical behavior will be applied to the selection and design of materials. Topics covered will include: thermoelectricity, photoelectricity, conductors, semiconductors, dielectrics, superconductors, magnetism, corrosion, and oxidation.

276. Materials Processing I: Thermal Mechanical

Fundamental principles of materials processing and their quantitative application to process design will be illustrated for deformation processes: forging, rolling, drawing, extrusion, injection molding, powder compaction and sintering.

277. Materials Processing II: Thermal Fluid

Fundamental principles of materials processing and their quantitative application to process design will be illustrated for materials processes involving liquids and gasses: crystal growth, zone refining, shape casting, continuous casting, refining, welding, and vapor deposition.

283. Materials Characterization Laboratory I
First semester. Three credits. Co-requisite: MMAT 243. Not open for credit to students who have passed MMAT 202. One 3-hour laboratory period. Open to sophomores.

Principles of materials characterization and materials selection illustrated by hands-on experience with microscopy, testing, and analysis of design criteria for selection of materials for engineering systems (reverse engineering).

284. Materials Processing Laboratory

Principles of materials processing will be illustrated by hands-on experience with qualitative and quantitative microscopy, testing, and reverse engineering, with experiments on polymer extrusion and injection molding, alloy casting, elutriation, particle compaction, sintering, forging, welding, and electrodeposition.

285. Mechanical Behavior Laboratory
First semester. One credit. Co-requisite: MMAT 265. Three hours laboratory.

Characterization of mechanical properties of materials and fundamentals of materials deformation and fracture processes will be experienced through hands-on projects with tensile, rheological, cyclic, and high temperature testing; drawing; forging; extrusion; rolling; and hot pressing.

286. Materials Characterization Laboratory II
Second semester. One credit. Prerequisite: MMAT 265. One 3-hour laboratory period.

Hands-on experience with materials characterization will be gained through work shops on X-ray fluorescence and diffraction, scanning electron microscopy, electronic and magnetic property measurement, and failure analysis.

287. Capstone Design Project I
First semester. Two credits. Four hours practicum. Prerequisites: MMAT 266 and MMAT 276.

Seniors working in teams with faculty and industry mentors will work on open ended projects in design of materials, products, and processes. Oral and written reports are collected in each semester. For students with high academic standing the BSE and MS projects may overlap.

288. Capstone Design Project II
Second semester. Two credits. Four hours practicum. Prerequisites: MMAT 266 and MMAT 276.

Seniors working in teams with faculty and industry mentors will work on open ended projects in design of materials, products, and processes. Oral and written reports are required in each semester. For students with high academic standing the BSE and MS projects may overlap.

289. Special Topics in Metallurgy
Both semesters. Three credits. Prerequisite: Consent of instructor. With a change in topic this course may be repeated for credit.

290. Introduction to Research
Both semesters. Credits and hours by arrangement. Prerequisite: Consent of instructor. With a change in topic this course may be repeated for credit. Some sections of this course are graded Satisfactory/Unsatisfactory.

Methods of research and development. Laboratory investigation. Correlation and interpretation of experimental results. Writing of technical reports.

Military Science (MISI)

Head of Department: Lieutenant Colonel Charles P. Lynch
Department Office: ROTC Office, Army, 28 North Eagleville Road

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

131. General Military Science I
Either semester. One credit. One class period. Army Staff

Organization of the Army, basic soldier skills; ropes, knots, and rappelling; individual physical fitness; land navigation; time management; role of regular Army, Reserve and National Guard; M16 rifle.

132. General Military Science I
Either semester. One credit. One class period. Army Staff

Organization and equipment of small military units, fundamentals of marksmanship and military instruction techniques. Leadership lab as announced. Army customs and traditions; land navigation; heat and cold survival; tactical communications; military correspondence; leadership/professional ethics; branches of Army; encoding and decoding messages.

133. General Military Science: Air Rifle Marksmanship
Both semesters. One credit. One class period, two hours lecture and laboratory. May be taken only once for credit. Army Staff

Air Rifle Marksmanship will provide an introduction to the fundamentals of rifle marksmanship, the safe and proper use, and care of the rifle, the elements of competitive shooting, and the psychology of shooting.

145. General Military Science II
Either semester. One credit. One class period and leadership laboratory. Army Staff

Map reading, mountaineering, principles of war.

146. General Military Science II
Either semester. One credit. One class period and leadership laboratory. Army Staff

Emergency First Aid, leadership, military instruction techniques.

252. General Military Science III
First semester. Three credits. One 3-hour class period and leadership laboratory. One weekend field training exercise. Prerequisite: Completion of the basic course
in military science, basic training, or a six-week basic summer camp. In all cases, approval of the Professor of Military Science is required. Army Staff

Leaderhip principles, techniques, and the responsibilities of command. Military instruction techniques, to include student class presentations.

253. General Military Science III
Second semester. Three credits. One 3-hour class period and leadership laboratory. One weekend field training exercise. Prerequisite: MISI 252. Army Staff

Dynamics of small unit tactics, and branches of the Army.

297. General Military Science IV
First semester. Three credits. One 3-hour class period and leadership laboratory. One weekend field training exercise. Prerequisite: MISI 253. Army Staff

Army staff organization, unit administration and management, logistics, military intelligence, leadership seminar, the international system, and strategic doctrine.

298. General Military Science IV
Second semester. Three credits. One 3-hour class period and leadership laboratory. One weekend field training exercise. Army Staff

Military law, obligations and responsibilities of an officer, contemporary human problems, and a leadership seminar.

Modern and Classical Languages

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

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

Consult the Departmental Handbook for courses being offered in the appropriate semesters and further description of these courses.

Classics (CLAS)

Classics and Ancient Mediterranean Studies
(Taught in English)

101. Greek Civilization
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
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
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
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
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.

*193. Foreign Study

241W. Greek and Roman Epic
Either semester, alternate years. Three credits. Required preparation: CLAS 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
Either semester, alternate years. Three credits. Required preparation: CLAS 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.) Either semester. Three credits.

The profound social and cultural changes that transformed 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
Either semester. Three credits. A knowledge of Greek or 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 Apeleius, and a variety of other pagan, Jewish, and Christian fictions.

251. Greek Art
(Also offered as ARTH 243.) Either semester, alternate years. Three credits. Given

Topics in Greek art and architecture from the emergence of Archaic culture in the ninth century B.C. to the first-century collapse of the Hellenistic empires.

252. Roman Art
(Also offered as ARTH 246.) Either semester, alternate years. Three credits. Given

Topics in the history of Roman art and architecture, spanning the period from the Roman Republic through the late Empire.

253. Ancient Near East
(Also offered as HIST 213.) 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.) Either semester. Three credits.

* See description at end of Classics section.

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.) 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
(Also offered as HEB 218 and HIST 218.) Either semester. Three credits. Recommended preparation: HIST 213 or 214 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 academies.

257. Ancient Philosophy
(Also offered as PHIL 221.) First semester. Three credits. Required preparation: At least one of PHIL 101, 102, 103, 104, 105, 106. Open to sophomores. Wheeler

An historical review of Greek philosophy from its origin in the Pre-Socratic through its influence on early Christianity. Lectures and discussions center on readings from the works of Plato and Aristotle.

*293. Foreign Study.

*295. Variable Topics

*298. Special Topics.

Greek

171-172. Elementary Greek I and II
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.

*193. Foreign Study

207. Greek Philosophical Writings
Either semester, alternate years. Three credits. Prerequisite: CLAS 172.

Selections from Plato and Aristotle.

208. Homer
Either semester, alternate years. Three credits. Prerequisite: CLAS 172.

Selections from the Iliad or Odyssey.

211. Greek Drama
Either semester, alternate years. Three credits. Prerequisite: CLAS 172.

Selected plays of Aeschylus, Sophocles, Euripides, and Aristophanes.

212. Greek Historical Writings
Either semester, alternate years. Three credits. Prerequisite: CLAS 172.

Selections from Herodotus and Thucydides.

214. Greek Lyric Poetry
 Either semester, alternate years. Three credits. Prerequisite: CLAS 172.

Selections from the early Greek lyric, elegiac, and iambic poets, including but not limited to Archilochus,
Either semester, alternate years. Three credits. Prerequisite: CLAS 172.
Selected readings, ordinarily including Acts of the Apostles and at least one Pauline letter.

* 293. Foreign Study
* 295. Variable Topics
* 296. Special Topics
* 299. Independent Study

Latin

121-122. Elementary Latin I and II
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
Both semesters. Three credits each semester. Prerequisite: CLAS 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.

* 193. Foreign Study

213. Ovid and Mythology
Either semester, alternate years. Three credits. Prerequisite: CLAS 124, or three or more years of Latin in high school.
Selections from Ovid, mainly from the Metamorphoses, and a study of the myths of Greece and Rome.

221. Survey of Classical Latin Literature
Either semester, alternate years. Three credits. Prerequisite: CLAS 124, or three or more years of Latin in high school.
Extensive reading of a relatively wide range of authors of representative classical Latin prose and poetry.

224. Vergil and the Roman Epic
Either semester, alternate years. Three credits. Prerequisite: CLAS 124, or three or more years of Latin in high school.
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
Either semester, alternate years. Three credits. Prerequisite: CLAS 124, or three or more years of Latin in high school.
Selected plays of Plautus, Terence, and Seneca, with lectures on Roman theatre and the development of drama.

226. Latin Lyric Poetry
Either semester, alternate years. Three credits. Prerequisite: CLAS 124, or three or more years of Latin in high school.
Selections from the lyrics of Horace and Catullus, with lectures on metrical patterns and the influence of Greek lyrics.

227. Latin Historical Prose
Either semester, alternate years. Three credits. Prerequisite: CLAS 124, or three or more years of Latin in high school.
Selections from Sallust, Livy, and Tacitus.

230. Latin Philosophical Prose and Poetry
Either semester, alternate years. Three credits. Prerequisite: CLAS 124, or three or more years of Latin in high school.
Selections from Lucretius, Cicero, and Seneca.

231. Latin Elegiac Poetry
Either semester, alternate years. Three credits. Prerequisite: CLAS 124, or three or more years of Latin in high school.
Selections from Tibullus, Propertius, and Ovid's Amores.

232. Medieval Latin
Either semester, alternate years. Three credits. Prerequisite: CLAS 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.

* 293. Foreign Study
* 295. Variable Topics
* 296. Special Topics
* 299. Independent Study

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

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

299. Independent Study
Either or both semesters. Credits and hours by arrangement. Open only with consent of Director. With a change in content, may be repeated for credit.

* See description at end of Classics section.

Critical Languages Program (CRLP)

101-102. Elementary Levels I and II
103-104. Intermediate Levels I and II
Either semester. Four credits each semester. Four 1-hour class periods and a 1-hour laboratory practice except for languages taught in the Self-Instructional mode which have two 1-hour sessions with a native-speaking tutor and five 1-hour laboratory periods. Open only with consent of the Director.
Languages with low enrollment may be offered through the Self-Instructional Language Program (SILP) method involving intensive, independent study.

The most frequently offered languages in CRLP are:
Arabic
Chinese
Arabic
French
Japanese
Chinese
Korean
Greek (Modern)
Polish
Hindi
Vietnamese
Hungarian

If there is sufficient student interest, additional languages may be offered.

STUDY ABROAD
The University sponsors semester, academic year or summer programs in Tianjin, Beijing, Nanjing, Shanghai, and Taipei. Courses are offered in Chinese language and area studies.

French (FREN)
Consult the Modern and Classical Languages Department listing in this Catalog for requirements for Majors in French.

161-162. Elementary French I and II
Both semesters. Four credits each semester. Four class periods and a one-hour laboratory period. The fourth
class period is devoted to culture and society and reinforces through these areas the linguistic skills taught in the preceding classes. Not open for credit to students who have had three or more years of high school French, except with Departmental consent.

Elementary French grammar. Emphasis is on the skills of speaking, oral and written comprehension, reading of simple texts and writing.

163-164. Intermediate French I and II
Both semesters. Four credits each semester. Four class periods and a one-hour laboratory period. The fourth class period is devoted to culture and society. Prerequisite: FREN 162 or 173 or two years of high school French.


165-166. French for Reading Knowledge
Either semester. Three credits per course. Open only to seniors and graduate students. Not open for credit to undergraduates who have had FREN 161-162 or 172-173. May not be used to meet the undergraduate foreign language requirement or as a prerequisite for other French courses.

Basic French grammar and intensive practice in reading expository prose in a variety of subjects, for use as a research tool and in preparation for the Ph.D. reading examination.

169. Studies in the French-Speaking World
Either semester. Three credits. Conducted in English.

Recent trends in French life. Selected materials to acquaint students with the French contribution to the changing face of modernity. Weekly topics include: popular culture, women in France, cultural myths, the Francophone world, regionalism, decolonization and racism, etc.

171. French Cinema
Either semester. Three credits. One 3-hour class period. Readings, viewings and lectures in English. May not be used to meet the foreign language requirement. Weekly screenings of French films from the first comedies and surrealism to the New Wave and the young filmmakers of the 1990's. Introduction to film history, analysis, and interpretation of films.

172 through 175. Intensive French I-IV
Both semesters. Eight credits each semester. Two hours a day, four days a week, plus a 2-hour laboratory practice. Open only with consent of instructor.

Intensive coverage of two years in two semesters. French 172-173 (fall) covers the same material as 161-162; French 174-175 (spring) covers the same material as 163-164.

193. Foreign Study
Either or both semesters. Credits and hours by arrangement. May be repeated for credit. Consent of Department Head required, normally before the the semester's departure. Special topics taken in a foreign study program.

210. French Art and Civilization
First semester. Three credits. Recommended preparation: FREN 164 or 175 or three years of high school French or consent of instructor.

Development of French history through the innovations of art; modern perspectives on historical and cultural events. Some lectures by and discussions with experts from Anthropology, Music, Political Science, History, and Art History. Strong audio-visual support.

211. Contemporary France
Second semester. Three credits. Recommended preparation: FREN 164 or 175 or three years of high school French or consent of instructor.

An interdisciplinary course analyzing the politics, economics, social structures and cultural life of France today, France in relation to Western Europe as well as to a broader international framework. Some lectures by and discussions with experts from Anthropology, Music, Political Science, History, and Art History.

215. Practical Translation
Either semester. Three credits. Recommended preparation: FREN 267 or 268 or consent of instructor.

The course is primarily designed to acquaint students with the practical aspect of translating by working on a variety of articles on politics, science, business, and the arts.

217. Business French
Either semester. Three credits. Recommended preparation: FREN 164 or 175 or three years of high school French or consent of instructor.

Study of commercial French style and documents. Designed primarily for students aiming at careers in multinational business and foreign service. Prepares the student for the level I and level II examinations administered by the Paris Chamber of Commerce.

218. Francophone Studies
Either semester. Three credits. Recommended preparation: FREN 261 or 262 or 210 or 211 or consent of instructor.

The literature and cultural and social issues of French-speaking countries in North Africa, West Africa, the Caribbean, the Pacific and of Francophone communities in the U.S.

220. Theater Studies
Either semester. Three credits. Recommended preparation: FREN 261 or 262 or consent of instructor.

A study of French dramatic texts and genres (tragedy, comedy, etc.). Popular theatre. The theory and practice of performance in contemporary France. The semiotics of stage production. Use of audio-visual material.

221. Forms and Topics in French Fiction
Either semester. Three credits. Recommended preparation: FREN 261 or 262 or consent of instructor.

The study of a specific topic emerging from the French literary tradition. Questions of form, narrative and discourse in the novel, nouvelle and short story. Aesthetic categories such as realism, avant-garde, modernism.

222. Poetry
Either semester. Three credits. Recommended preparation: FREN 164 or 175 or three years of high school French or consent of instructor.

Examples of poetry of different epochs ranging from the epic to the lyric to the limerick.

223. French Film and Theory
Either semester. Three credits. One class period. Recommended preparation: FREN 261 or 262 or 210 or 211 or consent of instructor.


224. Issues in Cultural Studies and the Social Sciences
Either semester. Three credits. Recommended preparation: FREN 211 or consent of instructor.

A selection of some of the most important world issues debated in France today in the writing of political figures, historians, sociologists, journalists, promoters of cultural activity.

230. The Middle Ages: Myths and Legends
Either semester. Three credits. Recommended preparation: FREN 261 or 262 or consent of instructor.

Founding myths and legends of Occidental culture, including a socio-cultural approach. Strong audio-visual component.

231. The Renaissance
Either semester. Three credits. Recommended preparation: FREN 261 or 262 or consent of instructor.

Important changes in France during the 16th century; parallel evolution in visual and performing arts.

232. French Classical Culture and Society
Either semester. Three credits. Recommended preparation: FREN 261 or 262 or consent of instructor.

Exploration of cultural and social issues through literature, performing arts, and paintings. Women, the Salons and social changes, discourses on love, Versailles and the Sun King, myths and tragedy, the birth of the modern subject.

233. The 18th Century: Travelers, Philosophers, and Libertines
Either semester. Three credits. Recommended preparation: FREN 261 or 262 or consent of instructor.

The most important texts and figures of the Enlightenment: Montesquieu, Voltaire, Diderot, and Rousseau.

234. Romanticism, Realism, Fin de Siècle: 19th-Century Literature
Either semester. Three credits. Recommended preparation: FREN 261 or 262 or consent of instructor.

The literary and artistic innovations that made France the center of 19th-century culture. The Fantastic, Realism, Naturalism, and Decadence.

235. French Modernity: 20th-Century Literature
Either semester. Three credits. Recommended preparation: FREN 261 or 262 or consent of instructor.

The literary and artistic trends marking Modern period of the 20th century. Surrealism, the Absurd, Existentialism, Oulipo, Francophone literature.

250. Communicating in French
Either semester. Three credits. Recommended preparation: FREN 164 or 175 or three years of high school French or consent of instructor.

Intensive study of oral French. Learning of oral techniques of communication in conjunction with weekly topics of conversation. Rigorous and active oral practice through dialogues, interviews, roundtables, and oral reports.

251. Advanced French Conversation
Either semester. Three credits. Recommended preparation: Four years of high school French or French 250 or consent of instructor.

Extensive practice in oral French based mainly on authentic cultural materials. Emphasis on perfecting language skills for self expression and communication, on developing new vocabulary, and on recognizing and working with linguistic differences associated with various francophone cultures.

257. French Phonetics
Either semester. Three credits. Recommended preparation: FREN 164 or 175 or three years of high school French or consent of instructor.

A systematic study of the sounds of French with exercises in pronunciation and phonetic transcription.

258. French Language: From Old French to Modern French Languages
Modern Slang
Either semester. Three credits. Recommended preparation: FREN 261 or 262 or consent of instructor.
French language through the ages, from the very first literary texts written in “Old French” to the modern variations corresponding to different linguistic levels.

261. From the Holy Grail to the Revolution: Introduction to Literature
Either semester. Three credits. Recommended preparation: FREN 164 or 175 or three years of high school French or consent of instructor.
Texts from the Middle Ages to the 18th-Century, including Arthurian legend, Renaissance poetry, Classical theater, and philosophy of the Enlightenment.

262. From the Romantics to the Moderns: Introduction to Literature
Either semester. Three credits. Recommended preparation: FREN 164 or 175 or three years of high school French or consent of instructor.
Study of poetry, theater and prose fiction that marks the evolution from the psychology of the romantic hero and heroine to Existentialist philosophy and the New Novel.

267. French Language and Culture I
Either semester. Three credits. Recommended preparation: FREN 164 or 175 or three years of high school French or consent of instructor.
The study of French and Francophone culture through fiction, non-fiction, journalism and film. Emphasis on perfecting both oral and written expression through discussion, presentations, and composition on assigned topics.

268. Writing in French
Either semester. Three credits. Recommended preparation: FREN 164 or 175 or three years of high school French or consent of instructor.
Advanced study of French texts and extensive written practice in a variety of forms ranging from compositions, essays, summaries and film reviews.

269. Advanced French Grammar
First or second semester. Three credits. Three hours per week. Recommended preparation: French 268 or equivalent.
Intensive course in French grammar through a variety of fictional and non-fictional texts.

270W. French Literature and Civilization in English
Either semester. Three credits.
Representative works of French literature, on a particular theme. How literary forms articulate the ideas and values of different periods.

272. Introduction to Literary Theory and Critical Writing
Either semester. Three credits. Recommended preparation: FREN 268 or consent of instructor.
Oral and written approaches to the study of texts, from, for example, thematic, structural, semiotic, sociological and psychoanalytic perspectives. Emphasis is on analysis and synthesis as well as developing critical writing abilities.

280. Women’s Studies in French
Either semester. Three credits. Recommended preparation: FREN 261 or 262 or 210 or 211 or consent of instructor.

281. Quebec Studies
Either semester. Three credits. Recommended preparation: FREN 261 or 262 or 210 or 211 or consent of instructor.
Study of French-Canadian society and its literary and artistic production. Special attention will be given to current issues.

282. French Moral Thought
Either semester. Three credits. Recommended preparation: FREN 261 or 262 or consent of instructor.
Study of moral thought in French prose from Montaigne to Rousseau.

293. Foreign Study
Either or both semesters. Credits and hours by arrangement. May be repeated for credit. Consent of Department Head required, normally to be granted prior to the student’s departure. May count toward the major with consent of the advisor.
Special topics taken in a foreign study program.

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

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

299. Independent Study
Either or both semesters. Credits and hours by arrangement. Open only with consent of instructor. With a change in content, may be repeated for credit.

STUDY ABROAD PROGRAM IN FRANCE
The University sponsors an academic program at the University of Paris in France. A program description can be found in this Catalog within the Modern and Classical Languages Departmental listing, College of Liberal Arts and Sciences.

German (GERM)

111 through 114. Special Intensive Course
First and second semesters. Eight credits per semester. Two hours a day, four days a week, plus a 2-hour laboratory practice. Open only with consent of instructor. Not open for credit to students who have passed GERM 131 through 134.

131-132. Elementary German I and II
Both semesters. Four credits each semester. Four class periods, and one 1-hour laboratory practice. Not open for credit to students who have three or more years of German in high school, except with Departmental consent. Not open for credit to students who have passed GERM 111-112.

131-134. Intermediate German I and II
Both semesters. Four credits each semester. Four class periods and one 1-hour laboratory practice. Prerequisite: GERM 132 or two years of high school German. Not open for credit to students who have passed GERM 113-114.

145-146. German Readings in the Sciences and Humanities
Both semesters. Three credits each semester. Not open for credit to students who have passed GERM 131-132 or equivalent. May be used to meet the undergraduate language requirement.

152. Active Language Skills I
First semester. Two credits. Two class periods. Corequisite or prerequisite: GERM 133. Practice in audio-lingual skills. Emphasis on everyday vocabulary. Recommended for students intending to study abroad.

154. Active Language Skills II
Second semester. Two credits. Two class periods. Corequisite or prerequisite: GERM 134.

190. German Folk Songs
Either semester. One credit. One 2-hour class period. May not be used to meet the undergraduate foreign language requirement.

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.

200. Intensive Language Practice
Second semester. Three credits. Hours by arrangement. Prerequisite: GERM 133 or equivalent and consent of instructor.

201-202. Composition
Both semesters. Three credits each semester. Prerequisite: GERM 134 or three years of German in high school. May only be used for transfer credit or for study abroad. Not open for credit to students who have passed GERM 233-234.

204-205. Conversation
Both semesters. Three credits each semester. Prereq-
uire: GERM 134 or three years of German in high school. May only be used for transfer credit or for study abroad. Not open for credit to students who have passed GERM 233-234. Intensive oral practice based primarily on cultural readings.

220. German Recitation in Applied Mechanics
First semester. One credit. One class period. Prerequisite or corequisite: GERM 133 and PHYS 151Q or equivalent.
Technical German in engineering through the basic concepts and problem solving techniques used in applied mechanics.

221. Introduction to the Sciences in German
Second semester. One credit. One class period. Prerequisite or corequisite: GERM 134, CHEM 128Q, and PHYS 152Q or equivalent.
A series of lectures and discussion periods about basic concepts in the physical sciences presented in German. Topics will be primarily from the various engineering disciplines, chemistry, physics, and mathematics.

222. Fields of Technology
First semester. One credit. One class period. Prerequisite: GERM 220 and GERM 221.
A series of lectures and discussion periods on special topics in science and engineering. Open only with consent of instructor.

231-232. Commercial German
Both semesters. Three credits each semester. Prerequisite: GERM 134 or equivalent.
Practice in reading and writing using the specialized vocabulary and expressions of German business language. Preparation for the Goethe Institute’s test of commercial German, the Wirtschaftsprüfung Deutsch International.

233-234. Advanced Language Skills I and II
Both semesters. Three credits each semester. Prerequisite: GERM 134 or equivalent. Not open for credit to students who have passed GERM 201-202 or GERM 204-205.
Extensive practice in oral and written German, based on cultural materials. Emphasis on vocabulary expansion, active use of language for self-expression and communication, grammatical accuracy and reading strategies. Designed in relation to and preparation for upper-level German courses.

240W. German Literature in Translation
Either semester. Three credits. May not be used to satisfy the undergraduate foreign language requirement or the major requirement in German.
Reading and analysis of significant works of German literature from one or more periods.

243-244. Advanced Conversation and Composition I and II
Both semesters. Three credits. Prerequisite: GERM 234 or the equivalent or consent of instructor.
Practice in perfecting both oral and written expression through discussions, presentations and compositions on assigned topics.

251. German Culture and Civilization
Either semester. Three credits. Conducted in English. Not open for credit to students who have passed GERM 250.
An interdisciplinary course on the German-speaking countries, analyzing cultural life and past and present development. Period or thematic emphasis may vary. Discussion of selected non-fictional and fictional readings, films, slides and recordings.

252. Studies in Early German Literature
Either semester. Three credits. Prerequisite or corequisite: GERM 233 or consent of instructor.
Study of a cohesive group of texts that mark the periods of the Middle Ages, Humanism, Reformation, and Baroque. Emphasis may vary. Attention will be given to the relevant socio-historical context and, when possible, to the visual and performing arts.

253. Studies in German Literature Around 1800
Either semester. Three credits. Prerequisite or corequisite: GERM 233 or consent of instructor.
Study of a cohesive group of texts that mark the periods of Enlightenment, Storm and Stress, Classicism and Early Romanticism. Emphasis may vary. Attention will be given to the relevant socio-historical context and to the visual and performing arts.

254. Studies in 19th Century German Literature
Either semester. Three credits. Prerequisite or corequisite: GERM 233 or consent of instructor.
Study of a cohesive group of texts that mark the periods of Late Romanticism, Vormärz, Realism and Naturalism. Emphasis may vary. Attention will be given to the relevant socio-historical context and to the visual and performing arts.

255. Studies in 20th Century German Literature
Either semester. Three credits. Prerequisite or corequisite: GERM 233 or consent of instructor.
Study of a cohesive group of texts that mark the period. Attention will be given to the relevant socio-historical context and to the visual and performing arts.

260. Women’s Studies in German
Either semester. Three credits. Prerequisite or corequisite: GERM 234 or consent of instructor.
Women in the literature of the German-speaking countries. Women’s writings. The development of German feminism. Contemporary gender issues in the German-speaking countries.

271. Principles of Translation I
First semester. Three credits. Prerequisite: GERM 234 or equivalent. Open only to juniors and seniors, with consent of instructor. Wright
Theory and practice of translating and interpreting written and oral materials from German into English.

280W. Introduction to Germanic Linguistics
First semester. Three credits. Prerequisite: GERM 132 or LING 202 or consent of instructor. McCormick
A study of the relationship among modern and historical Germanic languages. Lectures, readings, and class discussions in English.

281. German Film and Culture
Either semester. Three credits. Prerequisite or corequisite: GERM 233.
Cultural analysis of artistic issues in writing screenplays and making movies. Dynamic interplay between German film, the other arts, and their socioeconomic context. Taught in German.

First semester. Three credits. Taught in English.
Cultural aspects of international business. Lectures by speakers from the German-speaking countries and representatives of institutions and companies related to those countries. Discussion and analysis of the lectures.

285. Topics in German Culture
Either semester. Three credits. Prerequisite or corequisite: GERM 233 or consent of instructor. With a change in topic, this course may be repeated for credit.
An analysis of the cultural trends of a selected period or theme in a German-speaking country, taking into account the historical, political, and socioeconomic background, aspects of daily life, philosophical trends, major literary works and other artistic achievements in art, music, and architecture. Specialists from other departments will be invited as guest lecturers.

290. German Language Practicum
Either semester or summer. Credits (not to exceed six) and hours by arrangement. Prerequisite: Three years of college-level German or the equivalent. Open only to juniors and seniors with consent of instructor.
Placement of students as trainees in business, industry and social or government agencies where foreign language skills can be put to use.

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 advisor.
Special topics taken in a foreign study program.

295. German Play Production
Second semester. Three credits. Hours by arrangement. Prerequisite: GERM 111 or 131 and consent of instructor. May not be used to meet the undergraduate foreign language requirement. With a change in topic, this course may be repeated for credit.
Extensive and intensive study, discussion and interpretation of a German drama, followed by casting, rehearsals and eventual performance. Students are given both on-stage and off-stage assignments and responsibilities. Term paper.

296. German Seminar
Either semester. Credits and hours by arrangement. Open only to juniors and seniors with consent of instructor. May be repeated for credit.
Intensive investigation of selected problems in German literature and/or German studies.

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

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

299. Independent Study
Either or both semesters. Credits and hours by arrangement. Open only with consent of instructor. With a change in content, may be repeated for credit.

GERMAN STUDY ABROAD
An academic year or spring semester at the University of Salzburg, Austria, operated jointly with other New England state universities, allows students to earn up to 34 credits in all disciplines. The University of Connecticut sponsors a variety of programs at any of nine universities in the state of Baden-Württemberg. Students also have the possibility of language study at a Goethe Institute, and a combination of study and work through programs in Mannheim and Regensburg.
Hebrew (HEB)

149-150. Elementary Biblical Hebrew I and II
Both semesters. Four credits each semester. Four class periods. Not open for credit to students who have had three or more years of Hebrew in high school, except with Departmental consent. An introduction to the biblical language for the student with no previous background. Grammar and drills, using simple texts, prepare the student for independent reading of Hebrew Scripture in the original.

151-152. Elementary Modern Hebrew I and II
Both semesters. Four credits each semester. Four class periods and one 1-hour laboratory practice. Not open for credit to students who have had three or more years of Hebrew in high school, except with Departmental consent. Elementary Hebrew grammar. Drill in pronunciation. Reading of simple texts. Practice in easy conversation.

153-154. Intermediate Hebrew I and II
Both semesters. Four credits each semester. Four class periods and one 1-hour laboratory practice. Prerequisite: HEB 152 or the equivalent. Review of elementary Hebrew grammar. Graded composition and translation. Intensive and extensive reading. Oral practice in the language. The basic structure patterns of Hebrew.

** 193. Foreign Study
251-252. Advanced Hebrew
Both semesters. Three credits each semester. Prerequisite: HEB 154 or consent of instructor.
Further grammar study. Practice in composition involving the use of everyday vocabulary and idiomatic expressions. Readings in Hebrew culture and history.

** 293. Foreign Study
** 295. Variable Topics
** 298. Special Topics
** 299. Independent Study for Undergraduates

Hebrew Civilization
(in English)
None of the following courses may be used to meet the foreign language requirement.

101. The Land of Israel from Biblical Times to the Present
(Also offered as JUDS 101.) Either semester. Three credits. Offered in alternate years. Miller An in-depth look at the history, culture and civilizations of the land of Israel. The importance of the land in Judaism and its significance for Christianity and Islam will be discussed. Lectures and discussion will be enhanced by slide presentations.

103. Language and Civilization of the Jewish People
(Also offered as JUDS 103.) Either semester. Three credits. Miller The major concepts, personalities and literary works of the Hebraic tradition from the Biblical and Talmudic periods to the present.

104. Modern Jewish Thought
(Also offered as JUDS Studies 104.) Second semester. Three credits. Miller Nationalism, culture, ethics and philosophy in the writings of the major Jewish thinkers from Spinoza to the present. Emphasis will be placed on the work of Moses Mendelssohn, Nachman Krochmal, Ahad Haam, Hermann Cohen, Franz Rosenzweig, Martin Buber and Mordecai Kaplan.

** 193. Foreign Study
201. Selected Books of the Hebrew Bible
(Also offered as JUDS 201.) Either semester. Three credits. Prerequisite: INTD 294 or HIST 213 or HEB 103, which may be taken concurrently, or consent of instructor. A knowledge of Hebrew is not required. May be repeated with change of content and consent of instructor. Miller Focuses on a biblical book (or books) and emphasizes its literary structure and content using modern approaches as well as midrashic and medieval exegesis. Historical and archaeological material introduced where relevant.

202. Sects and Movements in Judaism
(Also offered as JUDS 202.) Either semester. Three credits. Offered in alternate years. Varieties of Jewish expression and belief from Biblical times to the present. Topics include: the Dead Sea Sect, Pharisees, Sadducees, Karaites, Marranos, Hasidism and the Reform, Conservative, Orthodox and Reconstructionist movements of the modern era.

203. The Holocaust
(Also offered as JUDS 203.) Either semester. Three credits. A discussion of the Holocaust to be preceded by an examination of the roots of anti-Semitism and its effect upon the Jewish experience. Special emphasis will be given to the impact of the Holocaust on Jewish and Christian thought.

218. Palestine Under the Greeks and Romans
(Also offered as CLAS 256 and HIST 218, and JUDS 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 academies.

277. The Culture of East European Jewry
First semester. Three credits. The life, folklore, literature and thought of the Jews of Poland and Russia from the sixteenth to the twentieth century. The distinctive contributions of both the Jewish little-town (shetel) and the larger urban community will be explored.

279. Literature of Modern Israel
Second semester. Three credits. The major themes and literary achievements of modern Hebrew writing. Authors to be emphasized include Feierberg, Bialik, Brenner, Berdichevsky, Tschernichowsky, Agnon, Greenberg, and Alterman.

** 293. Foreign Study
** 295. Variable Topics
** 298. Special Topics
** 299. Independent Study for Undergraduates

193. Foreign Study
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. Specific topics taken in a foreign study program.

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

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

299. Independent Study
Either or both semesters. Credits and hours by arrangement. Open only with consent of instructor. With a change in content, may be repeated for credit.

STUDY ABROAD IN ISRAEL

Students may spend a semester or academic year at Hebrew University in Jerusalem, Tel Aviv, Haifa or Ben Gurion Universities. Students should take at least one semester of Hebrew at UConn before studying abroad. The University also sponsors an archeological excavation at Sepphoris during the month of June. This is a six-credit program.

Italian (ITAL)

Consult the Modern and Classical Languages Departmental listing in this Catalog for requirements for Majors in Italian.

145-146. Elementary Italian I and II
Both semesters. Four credits each semester. Four class periods and one 1-hour laboratory practice. Not open for credit to students who have had three or more years of Italian in high school, except with Departmental consent.


147-148. Intermediate Italian I and II
Both semesters. Four credits each semester. Four class periods and one 1-hour laboratory practice. Prerequisite: ITAL 146 or equivalent.

** 193. Foreign Study
213. Year Abroad in Italy: Preparation
Second semester. Three credits. Open only to students selected for the Year Abroad in Florence Program. A comprehensive review of Italian language and civilization.

237. Italy Today
First semester. Three credits. Prerequisite: ITAL 148. A survey of contemporary Italian political, social, economic and cultural life.

238. Italian Civilization in the Renaissance
Either semester. Three credits. Prerequisite: ITAL 148 or equivalent. A survey of social, cultural and artistic trends in Italy during the Renaissance.

*** See description at end of Italian section.
239. **Italian Composition and Conversation I**
First semester. Three credits. Prerequisite: ITAL 148 or equivalent.
Practice in written and oral composition. Syntax study.

240. **Italian Composition and Conversation II**
Second semester. Three credits. Prerequisite: ITAL 239 or equivalent.
Further practice in written and oral composition. Treatment of the finer points in syntax.

243. **Main Currents of Italian Literature Through the Renaissance**
First semester. Three credits. Prerequisite: ITAL 148 or equivalent.
The history of Italian literature through the Renaissance is traced through its main developments. The aim of the course is to acquaint the student with the principal authors, literary schools and trends.

244. **Main Currents of Italian Literature After the Renaissance**
Second semester. Three credits. Prerequisite: ITAL 148 or equivalent.
The history of Italian literature after the Renaissance is traced through its main developments. The aim of the course is to acquaint the student with the principal authors, literary schools and trends.

250. **Italian Theatre of the Eighteenth Century**
Second semester. Three credits. Prerequisite: ITAL 237 or 239 or 243 or equivalent.
Readings from Metastasio, Goldoni, and Alfieri.

251-252. **Machiavelli, Michelangelo and Renaissance Literature**
Both semesters. Three credits each semester. Prerequisite: ITAL 237 or 239 or 243 or equivalent.
Selected readings from the works of Poliziano, Leonardo da Vinci, Lorenzo de' Medici, Michelangelo, Ariosto, Machiavelli, Castiglione, Tasso, and others.

253. **Dante and His Time**
Either semester. Three credits. Prerequisite: ITAL 237 or 239 or 243 or equivalent.
Selected readings from Dante, Petrarch, Compagni, Villani.

254. **Boccaccio and His Time**
Either semester. Three credits. Prerequisite: ITAL 237 or 239 or 243 or equivalent.
Readings from Boccaccio and others with special attention to the problems of social and sexual ethics.

261. **Twentieth-Century Italian Literature**
Either semester. Three credits. Recommended preparation: ITAL 237 or 239 or 243 or 240 or consent of the instructor. Bouchard
Major trends in twentieth-century Italian literature from the early modern period to contemporary times.

262. **Nineteenth-Century Italian Literature**
Either semester. Three credits. Recommended preparation: ITAL 237 or 239 or 240 or consent of the instructor. Bouchard
Nineteenth-century Italian drama, poetry, and narrative from the Napoleonic period to the years immediately following the conquest of Rome in 1870.

*** 293. Foreign Study
*** 295. Variable Topics
*** 298. Special Topics

299. **Independent Study**
Either or both semesters. Credits and hours by arrangement. Openly with consent of instructor. With a change in content, may be repeated for credit.

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**Florence Program**
The Florence Program is open to sophomores, juniors, and seniors. Courses include intensive Italian, Italian literature, and, with the consent of the director of the Program, any course offered by the University of Florence. Offered at the Florence campus.

**Italian Studies**
*(in English)*

101. **The Italian Renaissance**
First semester. Three credits. A knowledge of Italian is not required. Taught in English.
A survey of Italian Renaissance civilization, with emphasis on literature and intellectual life.

149. **Cinema and Society in Contemporary Italy**
Second semester. Three credits. Three class periods and one 2-hour laboratory period. Lectures in English. Films in Italian with English subtitles.
A critical analysis of contemporary Italian society seen through the media of film and literature.

*** 193. Foreign Study

255W. **Dante's Divine Comedy in English Translation**
First semester. Three credits. This course may not be counted in the Italian major group.
A literary and historical survey of Dante’s major poem.

256W. **The Literature of the Italian Renaissance**
Second semester. Three credits. Not open to students who have passed ITAL 251-252. This course may not be counted in the Italian major group.
A survey, in English, of the major literary and philosophical currents of the Italian Renaissance. Selections from Boccaccio, Petrarch, Pico della Mirandola, Machiavelli, Castiglione, and others.

260W. **Italian Cinema**
Either semester. Three credits. Two class periods and one 2-hour laboratory period. Lectures in English. Films in Italian with English subtitles. *Bouchard*
Italian cinema from the silent era to the present. Its genres, such as epic film, melodrama, comedy “Italian-style,” “Spaghetti-Westerns,” and political cinema. Cinema as a reflection on and comment upon the social and political contexts of Italian history from pre-fascist Italy to modernization and beyond.

*** 295. Variable Topics
*** 298. Special Topics

193. **Foreign Study**
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.

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**Portuguese (PORT)**

135-136. **Elementary Portuguese I and II**
Both semesters. Four credits each semester. Four class periods and one hour of laboratory practice. The fourth class period is devoted to culture and society. Not open for credit to students who have had three or more years of Portuguese in high school, except with Departmental consent.
Emphasis is on oral and written communication skills.

137-138. **Intermediate Portuguese I and II**
Both semesters. Four credits each semester. Four class periods including one 1-hour class on Portuguese, Brazilian and Afro-Portuguese culture and social issues, and one hour of laboratory practice. Prerequisite: PORT 136 or two years of Portuguese in high school.
Further development of understanding, speaking, reading and writing skills within a cultural setting. Readings to enhance awareness of the Portuguese-speaking world.

140. **Major Works of Portuguese and Brazilian Literature in Translation**
Either semester. Three credits. Knowledge of Portuguese is not necessary.
A study of major works selected from Portuguese and Brazilian writers.

193. **Foreign Study**
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.

220. **Contemporary Portugal**
Either semester. Three credits. Prerequisite: PORT 138 or consent of instructor.
An analysis of the social structures and cultural life of Portugal today.

221. **Contemporary Brazil**
Either semester. Three credits. Prerequisite: PORT 138 or consent of instructor.
An analysis of the politics, economics, social structures and cultural life of Brazil in relation to other Latin American countries.

234. **Portuguese Composition**
Either semester. Three credits. Prerequisite: PORT 138 or consent of instructor.
Treatment of the finer points of Portuguese grammar. Exercises in translation and free composition. Stylistic analysis of texts chosen from Portuguese and Brazilian authors, newspapers and magazines.

236. **Modern Brazilian Literature**
Either semester, alternate years. Three credits. Prerequisite: PORT 232-233, or 240 and 241, which may be taken concurrently.
Prose, poetry, and theatre of nineteenth- and twentieth-century Brazil.

237. **Modern Portuguese Literature**
Either semester, alternate years. Three credits. Prerequisite: PORT 232-233, or 240 and 241, which may be taken concurrently.
Prose, poetry, and theatre of nineteenth- and twentieth-century Portugal.
240. Studies in Portuguese Literature I
Either semester. Three credits. Prerequisite: PORT 138 or consent of instructor.
Selected novels, plays, and poems of the Middle Ages and the 16th, 17th, and 18th centuries. Literature in relation to society.

241. Studies in Portuguese Literature II
Either semester. Three credits. Prerequisite: PORT 138 or consent of instructor.
Selected novels, plays, and poems of the 19th and 20th centuries in relation to social and cultural issues.

242. Studies in Brazilian Literature I
Either semester. Three credits. Prerequisite: PORT 138 or consent of instructor.
Selected novels, stories, plays and poems from the 16th to the 19th century, focusing on a particular aspect of Brazilian cultural history.

243. Studies in Brazilian Literature II
Either semester. Three credits. Prerequisite: PORT 138 or consent of instructor.
Selected novels, stories, plays, and poems of the 19th and 20th centuries. Emphasis is on aesthetic, social and cultural qualities particular to Brazilian literature.

244. Portuguese Literature of the Discoveries
Either semester. Three credits. Prerequisite: PORT 138 or consent of instructor.
Selected readings from Camões' Os Lusíadas, Fernão Mendes Pinto's Peregrinação, História Trágico-Marítima, and other major works.
A study of the confrontation between the old and the new worlds.

251. Advanced Portuguese Conversation
Either semester. Three credits. Prerequisite: Four years of high school Portuguese or PORT 138 or instructor's consent.
Extensive practice in oral Portuguese based on authentic cultural materials. Development of language skills and vocabulary for effective communication and self-expression through debates and oral reports on Portuguese films and news programs viewed in class.

270. Business Portuguese
Either semester. Three credits. Prerequisite: PORT 138, which may be taken concurrently, or consent of instructor.
Intensive review of Portuguese grammar. Introduction to commercial terminology. Designed to meet the needs of students desiring to use Portuguese as a tool for industry or commerce.

275. Portuguese for Students With a Background in Other Romance Languages
Either semester. Three credits. Prerequisite: Consent of instructor. Knowledge of another Romance language at an advanced level is required.
Intensive study of the Portuguese language in all its aspects – reading, writing, speaking and oral understanding.

276. Portuguese for Reading Knowledge
Either semester. One credit. Consent of instructor. Basic Portuguese grammar and intensive practice in reading prose and poetry, in preparation for the Ph.D. reading examination.

290. Portuguese Seminar
Either semester. Credits and hours by arrangement. Prerequisite: Consent of instructor. With a change in content, may be repeated for credit.
A study of selected writers and problems in the literature of the Portuguese-speaking world.

293. Foreign Study
Either or both semesters. Credits and hours by arrangement. May be repeated for credit. Consent of Department Head required, normally to be granted prior to the student's departure. May count toward the major with consent of the advisor.
Special topics taken in a foreign study program.

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

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

299. Independent Study
Either or both semesters. Credits and hours by arrangement. Open only with consent of instructor. With a change in content, may be repeated for credit.

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. Special topics taken in a foreign study program.

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

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

299. Independent Study
Either semester. Credits and hours by arrangement. Open only with consent of instructor. May be repeated for credit.

241. The Russian Cultural Heritage

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. Special topics taken in a foreign study program.

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

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

299. Independent Study
Either semester. Credits and hours by arrangement. Open only with consent of instructor. May be repeated for credit.

Spanish (SPAN)

Consult the Modern and Classical Languages Departmental listing in this Catalog for requirements for Majors in Spanish.

181-182. Elementary Spanish I and II
Both semesters. Four credits each semester. Four class periods and one 1-hour laboratory practice. Not open for credit to students who have had three or more years of Spanish in high school, except with Departmental consent.

Development of ability to communicate in Spanish, orally and in writing, to satisfy basic survival needs within a cultural setting.

183-184. Intermediate Spanish I and II
Both semesters. Four credits each semester. Four class periods including one 1-hour lecture on Spanish and Spanish-American culture and social issues, and one hour of laboratory practice. Prerequisite: SPAN 182 or two years of Spanish in high school.

Further development of understanding, speaking, reading, and writing skills within a cultural setting. Readings to enhance cultural awareness of the Spanish-speaking world.

185-186. Spanish for Reading Knowledge
Both semesters. Three credits each semester. Open only to seniors and graduate students. Not open for credit to undergraduates who have had SPAN 181-182. May not be used to meet the undergraduate foreign language requirement or as a prerequisite for other Spanish courses.

Basic Spanish grammar and intensive practice in reading expository prose in a variety of subjects, for use as a research tool and in preparation for the Ph.D. reading examination.

187. Major Works of Hispanic Literature in Translation
Either semester. Three credits. Knowledge of Spanish is not required.
A study of major works selected from the best of Spanish and Spanish-American literature.

190. Language, Culture, and Health in Spanish-Speaking Societies
Four credits. Semester and hours by arrangement. Prerequisite: Two years of high school Spanish or equiva-
193. Foreign Study
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.

200. Spanish Civilization to the Modern Period
Either semester. Three credits. Recommended preparation: SPAN 278 or consent of instructor.

An interdisciplinary course analyzing the politics, social structures, and cultural life of Spain from its beginnings to the start of the nineteenth century.

201. Ibero-American Civilization and Culture
Either semester. Three credits. Recommended preparation: SPAN 278 or consent of instructor.

History of the major social, intellectual, and artistic trends of Spanish-speaking America.

202. Studies in Spanish-American Literature

Readings and discussions of specific aspects of Spanish-American literature. May be repeated for credit once with a change of topic. Consult department for particulars each year.

204. Language and Culture of U.S. Hispanics
Either semester. Three credits. Prerequisite: SPAN 184 or consent of instructor. Offered at the Hartford Campus.

Comparison of linguistic, historical and cultural backgrounds of various Hispanic groups in the U.S. through fiction, non-fiction, films, music, and guest speakers.

205. Contemporary Spanish America
Either semester. Three credits. Recommended preparation: SPAN 278 or consent of instructor.

An interdisciplinary course concerned with present-day cultural, social, and political structures of Spanish America. Revolutionary and counter-revolutionary ideas in contemporary society and the struggle for social, political and economic stability.

206. Contemporary Spain
Either semester. Three credits. Recommended preparation: SPAN 278 or consent of instructor.

An interdisciplinary course analyzing the politics, social structures and cultural life in Spain today. Spain in relation to Western Europe and the community of nations.

207. Women’s Studies in Spanish
Either semester. Three credits. Recommended preparation: SPAN 278 or consent of instructor.


208. Issues in Hispanic Thought
Either semester. Three credits. Recommended preparation: SPAN 278 or consent of instructor. With a change in topic, may be repeated for credit.

Selection for study of a major world issue debated in the Iberian Peninsula or in Ibero-America by great thinkers. A history of the issue, taking into account international cultural contexts.

209. Film and Literature
Either semester. Three credits. One three-hour class period. Recommended preparation: SPAN 278 or consent of instructor.

Films from the Spanish or Portuguese-speaking worlds are viewed and literature examined to show how literature is transformed into cinema.

210. Spanish for Social Workers
Either semester. Two credits. Two class periods. Open only to graduate students in the School of Social Work. Offered at the Hartford Campus.

Development of conversational skills within the cultural perspective of Hispanics in the U.S. Emphasis on intake interpreting techniques using vocabulary and structures relevant to human services contexts.

214. Topics in Hispanic Cultures
Either semester. Three credits. required preparation: five semesters of college Spanish. May be repeated for credit with a change in topic.

Selected topics. Cross-disciplinary approach to the study of Peninsular and Hispanic American cultures: the colonial heritage in Latin America; intellectual traditions and national identities; cultural production under military regimes; and experience of exiles; among possible topics.

220. Introduction to Literary Study
Either semester. Three credits. Recommended preparation: SPAN 278 or consent of instructor.

Introduction to literary analysis through a variety of critical approaches: readings in poetry, drama, and prose fiction with explanation of terms useful to the study of literature.

223. Old Spanish Language and Literature
Either semester. Three credits. Prerequisite: SPAN 281. Linguistic and literary analysis of Medieval and Renaissance Spanish texts.

224. Studies in Spanish Golden Age Literature
Either semester. Three credits. Recommended preparation: SPAN 200. May be repeated for credit once with a change in topic. Consult department for particulars each year.

Readings and discussions of specific aspects of Golden Age literature.

225. Studies in Spanish Literature of the Eighteenth and Nineteenth Centuries
Either semester. Three credits. Recommended preparation: SPAN 200. May be repeated for credit once with a change in topic. Consult department for particulars each year.

Readings and discussions of specific aspects of the literature of the period.

226. Studies in Spanish Literature of the Twentieth Century
Either semester. Three credits. Recommended preparation: SPAN 200. May be repeated for credit once with a change in topic. Consult department for particulars each year.

Readings and discussions of specific aspects of the literature of the period.

270. Business Spanish
Either semester. Three credits. Prerequisite: SPAN 184 or consent of instructor.

Introduction to commercial terminology in Spanish. Designed to meet the needs of students desiring to use Spanish as a tool for industry or commerce.

278. Intermediate Spanish Composition
Either semester. Three credits. Prerequisite: SPAN 184 or three or more years of Spanish in high school.

This course provides a thorough review of grammar and methodical practice in composition leading to command of practical idioms and vocabulary.

279. Spanish Conversation: Cultural Topics
Either semester. Three credits. Recommended preparation: SPAN 278 or consent of instructor.

In-depth development of speaking skills through cultural readings, group discussions and oral presentations on selected topics concerning the Spanish-speaking world.

280. Composition and Reading for Speakers of Spanish
Either semester. Three credits. Prerequisite: Consent of instructor.

Grammar, written composition, and readings for speakers of Spanish with little or no formal training. Emphasis is on Puerto Rican literature.

281. Great Works of Spanish Literature from its Origins to the Golden Age
Either semester. Three credits. Recommended preparation: SPAN 278 or consent of instructor.

The study of selected poems, plays, fables and novels reflecting the development of Spanish society from feudalism to world empire.

282. Literature of Crisis in Modern Spain
Either semester. Three credits. Recommended preparation: SPAN 278 or consent of instructor.

The study of selected poems, plays, short fiction, and novels reflecting the clash between tradition and progress in nineteenth- and twentieth-century Spain.

289. Variable Topics
Either semester. Three credits. May be repeated for credit. Prerequisites, required preparation, and recommended preparation vary.

290. Spanish Phonetics
Either semester. Three credits. Prerequisite: Consent of instructor.

Emphasis is on Puerto Rican literature.

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.

294. Literature of Puerto Rico and the Spanish Caribbean
Either semester. Three credits. Recommended preparation: SPAN 278 or consent of instructor.

Readings and discussions of major authors and works of the Spanish Caribbean with special emphasis on Puerto Rico.
109. Marching Band
First semester. One credit. Three laboratory periods. Open only with consent of instructor. May be repeated for credit.
Mills
Repetory, rehearsal techniques, preparation and presentation of marching band shows.

110. Band
Either semester. One credit each semester. Three laboratory periods. Open only with consent of instructor. May be repeated for credit.
Wind Ensemble, Symphony Band, Concert Band. Mills, Renshaw
Repetory, rehearsal technique, preparation and presentation of concerts.

111. Chorus
Either semester. One credit each semester. Three laboratory periods. Open only with consent of instructor. May be repeated for credit.
Concert Choir, Chamber Singers, University Chorale. Bagley
Choral repertoire from all periods, concentration on vocal and choral techniques as related to musical styles, preparation and presentation of concerts.

112. Orchestra
Either semester. One credit each semester. Three laboratory periods. Open only with consent of instructor. May be repeated for credit.
Standard symphonic repertoire, technique of orchestral routine, preparation and presentation of concerts.

113. Chamber Ensemble
Semester by arrangement. One credit each semester. Three laboratory periods. Open only with consent of instructor. May be repeated for credit.
As a requirement for credit, the student must participate in MUSI 110, 111, or 112.
Chamber music for various combinations of voices, string, woodwind, brass, percussion and keyboard instruments. Preparation and presentation of concerts.

114. Voices of Freedom Gospel Choir
Either semester. One credit. One 2-hour laboratory period. Open only with consent of instructor. May be repeated for credit.
Preparation and presentation of concerts. Gospel and spiritual music of the Black experience.

115. Jazz Ensemble
Either semester. One credit. Two laboratory periods. Open only with consent of instructor. May be repeated for credit.
Jazz repertoire, rehearsal techniques, preparation and presentation of concerts.

116. Small Ensemble
Either semester. One credit. Two laboratory periods. Open only with consent of instructor. May be repeated for credit.
As a requirement for credit, the student must participate in MUSI 110, 111, or 112.
Small ensemble music under the direction of a conductor. Preparation and presentation of concerts.

117. Women’s Choir
Either semester. One credit. Two 1 1/2 hour laboratory periods. Open only with consent of instructor. May be repeated for credit.
Choral repertoire from all styles, concentration on vocal and choral techniques as related to musical styles, preparation and presentation of concerts.

118. Collegium Musicum
(Formerly offered as Music 220.) Either semester. One credit per semester. One lecture period, two laboratory periods. Open only with consent of instructor. May be repeated for credit. Bellingham
Performance practices, iconography, notation, instrumentation in vocal and instrumental music before 1700. Preparation and participation in historically authentic performance.

119. Opera Workshop
(Formerly offered as Music 221.) Either semester. One credit each semester. Three laboratory periods. Open only with consent of instructor. May be repeated for credit.
Performance practices. Preparation and participation in scenes from operatic repertoire.

121. Secondary Applied Music
Either semester. One credit each semester. May be repeated for credit. Ensemble required with conditions stated under MUSI 122. Open only with consent of instructor and department head.
Fees for this course are at the same rate as described for MUSI 122.
Basic performance techniques. Elementary and intermediate repertoire. Primarily for students majoring in another applied area.

122. Applied Music
Bn (Bassoon), Co (Cello), Ct (Clarinet), Em (Euphonium), F (Flute), Fn (French Horn), Gr (Guitar), Hp (Harp), Oe (Oboe), On (Organ), P (Percussion), Pno (Piano), S (Saxophone), Sn (String Bass), Tb (Trombone), Tt (Trumpet), Tuba (Tuba), Vl (Viola), Vn (Vio- lin), V (Voice).
Either or both semesters. One to 3 credits each semester. May be repeated for credit. Participation in an appropriate ensemble, MUSI 110, 111, or 112, is required each semester for students registered in MUSI 122 unless exception is made by the department head.
Open to qualified students. Before registering for the course, students must obtain an audition with the department and obtain the consent of the department head. Open only with consent of instructor.
A fee of $70 for one half-hour lesson per week or $135 for a one-hour lesson per week per semester is charged all students receiving private instrumental or vocal instruction.

123. Class Instruction in Piano
Either or both semesters. One credit each semester. Two class periods and required practice. May be repeated for credit. Open only with consent of instructor. Clark

124. Applied Accompanying
One credit per semester. One class period per week by arrangement. Open only with consent of instructor. This course is intended for students whose area of empha- sis is keyboard. An audition is required for all other students.
Performance class in accompanying skills.

125. Applied Music Techniques
Bs (Brass), P (Percussion), S (String), V (Voice), Wd (Woodwind).
Either semester. One credit. Two laboratory periods. May be repeated for credit. Open only with consent of instructor.
Performance and teaching techniques.

126. Introduction to Diction for Singers
First semester. One credit. Two one-hour laboratory periods. Prerequisite: concurrent registration in applied voice study under MUSI 122, 222, or 323. McClain
An introduction to the International Phonetic Association (IPA) symbols with special application to the study of English diction for singers.

127. Italian Diction for Singers
Second semester. One credit. Two one-hour laboratory periods. Prerequisite: MUSI 126 and concurrent reg- istration in applied voice study under MUSI 122, 222, or 323.
A continuing study of the IPA symbols with their special application to the study of Italian diction for singers.

128. German Diction for Singers
First semester. One credit. Two one-hour laboratory periods. Prerequisite: MUSI 126 and concurrent registration in applied voice study under MUSI 122, 222, or 323. McClain
A continuing study of the IPA symbols with their special application to the study of German diction for singers.

129. French Diction for Singers
Second semester. One credit. Two one-hour laboratory periods. Prerequisite: MUSI 126 and concurrent registration in applied voice study under MUSI 122, 222, or 323.
A continuing study of the IPA symbols with their special application to the study of French diction for singers.

135. Honors Harmony I
First semester. Four credits. Three class periods and two 1-hour laboratory periods. Prerequisite: Open only with consent of instructor. Kaminsky
Writing and analysis of tonal harmony; study of harmony in relation to melody and counterpoint. Elementary score reading: sight-singing; melodic and harmonic dictation; introduction to counterpoint; model composition and elements of form.

136. Honors Harmony II
Second semester. Four credits. Three class periods and two 1-hour laboratory periods. Prerequisite: MUSI 135. Kaminsky
Continuation of Honors Harmony I.

138. Introduction to Improvisation
Either semester. One credit. One laboratory period. Open only with consent of instructor. May be repeated once for credit.
Basic jazz theory and the elements of improvisation.

145. Harmony I
First semester. Four credits. Three class periods and two 1-hour laboratory periods. Open only with consent of instructor. Not open for credit to students who have passed MUSI 135, Kaminsky
Writing and analysis of tonal harmony; relation to melody and counterpoint. Elementary scorereading: sight-singing; melodic harmonic dictation, and keyboard application.

146. Harmony II
Second semester. Four credits. Three class periods and two 1-hour laboratory periods. Prerequisite: MUSI 145. Not open for credit to students who have passed MUSI 135, Kaminsky
Continuation of MUSI 145.

153. Fundamentals of Music I
Either semester. Three credits. Laszloffy, Maker
Basic skills in note reading, rhythm, meter, pitch symbols, scales, key-signatures, intervals, and triads. No previous training is required.

154. Fundamentals of Music II
Second semester. Three credits. Prerequisite: MUSI 153 or consent of instructor. Laszloffy
Traditional harmonic principles, four-part writing, sight singing and melodic dictation.

155. Introduction to Ear Training
Second semester. Three credits.
Music reading, sight-singing, and dictation.

190. Non-Western Music
Either semester. Three credits. Intended primarily for students who are not music majors. Not open for credit to students who have passed MUSI 292W.
Folk, popular, and classical musics of selected non-Western cultures, with an emphasis on the distinctive characteristics of each culture.

191. Music Appreciation
Either semester. Three credits. No previous training is required. Not appropriate for students who have previously passed MUSI 193 or 194. Not intended for students with previous musical experience. Laszloffy
An approach toward intelligent listening, illustrated by recordings.

193. Introduction to Music History I
First semester. Three credits. Not intended for music majors.
Music history in relation to other arts from the early Christian era to J.S. Bach (1750). Some background in music fundamentals or performance is highly recommended.

194. Introduction to Music History II
Music history in relation to other arts from the mid 18th Century to the present. Some background in music fundamentals or performance is highly recommended.

201. Practicum in Music
Either or both semesters. Credits and hours by arrangement. Open only with consent of instructor. May be repeated for credit.

210W. Music, History, and Ideas
Either semester. Three credits. Open only with consent of instructor.
Relationships of musical styles to cultural and intellectual backgrounds.

211. The Composer and the Composer's World
Either semester. Three credits. Prerequisite: MUSI 286 or consent of instructor. May be repeated for credit with a change in content.
Selected works in relation to the musical institutions, musical style, social, intellectual and political milieu, and biography of composer(s).

211W. The Composer and the Composer's World
First semester. Three credits. Required preparation: MUSI 222 and consent of instructor.

212. Music of the Church
First semester. Three credits. Prerequisite: MUSI 286 or consent of instructor.
Plainsong, mass, motet, cantata, oratorio, and other forms of church music.

212W. Music of the Church
Second semester. Three credits. Prerequisite: MUSI 222 or consent of instructor.

213. Music of the Theater
Second semester. Three credits. Prerequisite: MUSI 286 or consent of instructor.
Opera, ballet, and other types of music for the theater.

213W. Music of the Theater
First semester. Three credits. Prerequisite: MUSI 286 or consent of instructor.

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

Concerto, symphony, symphonic poem, and other forms of music for orchestral ensembles.

214W. Orchestral Music
Second semester. Three credits. Prerequisite: MUSI 286 or consent of instructor.

215. Chamber Music
Second semester. Three credits. Prerequisite: MUSI 286 or consent of instructor.
String quartet, trio sonata, and other forms of music for various small ensembles.

215W. Chamber Music
Second semester. Three credits. Prerequisite: MUSI 286 or consent of instructor.

216. Solo Literature
Second semester. Three credits. Prerequisite: MUSI 286 or consent of instructor.
Keyboard music, the art song, and other types of music for instrumental or vocal soloists.

217. A History of Jazz
Either semester. Three credits. Prerequisite: MUSI 146.

222. Applied Music, Advanced Course
Either or both semesters. Credits and hours by arrangement. Ensemble required with conditions stated under MUSI 122. Prerequisite: Advanced standing in performance as recommended by a faculty jury, recommendation by an instructor in this department, and consent of the Department Head. May be repeated for credit.
A continuation of MUSI 122 for students with proven ability. Fees for this course are at the same rate as described for MUSI 122.

225. Vocal Literature I
First semester. Two credits. Two class periods. Required preparation: MUSI 222 and consent of instructor.

226. Vocal Literature II
Second semester. Two credits. Two class periods. Required preparation: MUSI 222 and consent of instructor.

227. Vocal Literature III
First semester. Two credits. Two class periods. Required preparation: MUSI 222 and consent of instructor.

228. Vocal Literature IV
Second semester. Two credits. Two class periods. Required preparation: MUSI 222 and consent of instructor.

229. Instrumental Pedagogy and Literature
Either semester. One or two credits. One or two instrumental hours per week. Required preparation: MUSI 222 (upperclass level). May be repeated for credit to a maximum of four semesters. Open only with consent of instructor.

232. Conducting I
Either semester. Two credits. Prerequisite: MUSI 146. Renshaw
Physical aspects of conducting, reading of full and condensed scores.

233. Conducting II: Choral
Either semester. Two credits. Prerequisite: MUSI 232. Bagley, Junda, Vasil

234. Conducting II: Instrumental
Either semester. Two credits. Prerequisite: MUSI 232. Renshaw
Renshaw
235. **Honors Harmony III**
First semester. Four credits. Three class periods and two 1-hour laboratory periods. Prerequisite: MUSI 136. Open to sophomores.

Continuation of Honors Harmony II, including writing and analysis of chromatic harmony; formal analysis.

236. **Honors Harmony IV**
Second semester. Four credits. Three class periods and two 1-hour laboratory periods. Prerequisite: MUSI 235. Open to sophomores. **Bass**

Continuation of Honors Harmony II, including writing and analysis of chromatic harmony; formal analysis.

238. **Jazz Improvisation and Performance**
Either semester. One credit. One laboratory period. Prerequisite: MUSI 138 or consent of instructor. May be repeated for credit.

Advanced jazz theory, styles, and ensemble techniques.

239. **Jazz Arranging I**
First semester. Two credits. Two class periods. Prerequisite: MUSI 146 or equivalent and consent of instructor.

Arranging and composition of chamber jazz ensembles and big band.

240. **Jazz Arranging II**
Second semester. Two credits. Two class periods. Prerequisite: MUSI 239 and consent of instructor.

Continuation of MUSI 239.

241. **Jazz Theory and Performance**
Either semester. Two credits. Two class periods. Prerequisite: MUSI 146 and consent of instructor. Open to sophomores.

Performance, improvisation, arranging, and ensemble techniques.

245. **Harmony III**
First semester. Four credits. Three class periods and two 1-hour laboratory periods. Prerequisite: MUSI 146. Open to sophomores. Not open for students who have passed MUSI 235. **Bass**

246. **Harmony IV**
Second semester. Four credits. Three class periods and two 1-hour laboratory periods. Prerequisite: MUSI 245. Open to sophomores. Not open for credit to students who have passed MUSI 236. **Bass**

Continuation of Harmony III.

250. **Introduction to Electronic Composition**
Either semester. Three credits. Prerequisite: MUSI 264 or consent of instructor.

Composition by synthesizer and computer.

251. **Composition I**
First semester. Three credits. Prerequisite: MUSI 246 or consent of instructor.

Creative writing in the smaller forms. Extensive analysis and discussion.

252. **Composition II**
Second semester. Two credits. Prerequisite: MUSI 251 and consent of instructor.

253. **Composition III**
Either or both semesters. Two credits. Hours by arrangement. May be repeated for credit. Prerequisite: MUSI 252 and consent of instructor.

Individual instruction in musical composition.

257. **Form and Analysis I**
Either semester. Three credits. Prerequisite: MUSI 246. Not open for credit to students who have passed MUSI 236 with a grade of “B” or better.

Musical structure and expression; melodic, harmonic, rhythmic and contrapuntal relationships; style analysis.

257W. **Form and Analysis I**
Either semester. Three credits. Prerequisite: MUSI 257.

Continuation of MUSI 257. Emphasis on the larger works of the 19th-century and 20th-century styles.

258W. **Form and Analysis II**
Either semester. Three credits. Prerequisite: MUSI 257.

Primarily for the non-music major preparing to teach in the elementary school. Elementary music materials, organization of learning experiences, and teaching methods.

261Q. **Acoustics and the Perception of Music**
Either semester. Three credits. Prerequisite: Pass Q-Course Readiness Test or MATH 101.

Science of Music, using basic quantitative techniques.

262. **Elementary Descriptive Acoustics**
Either semester. Three credits.

Nature of sound as it applies to music.

263. **Psychology of Music**
Second semester. Three credits. Prerequisite: PSYC 132.

Traditional approaches to music perception, learning and development.

264. **Electronic Music Techniques**
Either semester. Three credits. Open only with consent of instructor.

Theory and application of standard electronic music systems and techniques of sound synthesis.

265. **Music Communications**
First semester. Three credits. Prerequisite: MUSI 262 and 263.

Communication between performer and listener in music.

266. **Musical Tests and Measurements**
Either semester. Three credits. Prerequisite: MUSI 246 (Harmony IV) or equivalent and consent of instructor. **Miller**

Significant aspects of musical evaluation, with emphasis on the uses and limitations of standardized music tests of achievement and aptitude and problems of musical performance evaluation.

267C. **Microcomputers in Music Education**
Either semester. Two credits. Two laboratory/discussion periods. Open only with consent of instructor. **Miller**

Uses of micro-computers in the school music program.

273. **Seminar in Music Education**
Either semester. One or two credits. One or two class periods. Open only with consent of instructor. With a change of content, may be repeated for credit. **Janda, Miller, Vasil**

Theories and procedures for the organization of musical instruction.

275. **Orchestrating I**
Second semester. Three credits. Prerequisite: MUSI 245 and consent of instructor. **Maker**

Range, tone quality, and characteristics of the various orchestral and band instruments. Elementary scoring problems.

276. **Orchestration II**
First semester. Three credits. Prerequisite: MUSI 275. **Maker**

Scoring problems, score reading, and study of scores in the standard literature.

277. **Counterpoint I**
Either semester. Three credits. Prerequisite: MUSI 246. **Somer**

Two- and three-voiced textures in the principal 16th-century styles: Josquin, Lassus, Palestrina.

278. **Counterpoint II**
Either semester. Three credits. Prerequisite: MUSI 277. **Somer**

279Q. **Twentieth Century Theory and Analysis**
Either semester. Three credits. Prerequisite: MUSI 246 and MUSI 257. With consent of instructor, MUSI 257 may be taken concurrently. **Bass**

Analytical techniques appropriate to selected styles of twentieth century music. Problems in twentieth century counterpoint and composition.

281. **Vocal Pedagogy**
Either semester. Two credits. Two class periods. Prerequisite: MUSI 222 and consent of instructor. **Pyle, Vasil**

Vocabulary, methodology and practical application of pedagogical techniques.

283. **Marching Band Techniques**
First semester. Two credits. Two class periods. Open only with consent of instructor. **Mills**

Scoring for the outdoor band, administration, marching and maneuvering.

285. **Music History and Literature 1700-1830**

Leading composers, genres, elements of style, form and harmony, musical institutions and aesthetics in the High Baroque, Pre-classic, and Classic periods.

286. **Music History and Literature 1830 to Present**

The romantic period and the Twentieth Century.

287. **Music History and Literature Before 1700**
First semester. Three credits. Required preparation: MUSI 146. Open to sophomores.

Medieval, Renaissance, to High Baroque periods. Score study, development of notation, and relation to other artistic traditions.

290. **Theory Review**
First semester. Three credits.

An overview of traditional undergraduate theory. Intended for graduate students in Music.

292W. **Music in World Cultures**
Either semester. Three credits. Not open for credit to students who have passed MUSI 190. Required preparation: MUSI 286 and consent of instructor.

Comparison of musical concepts, styles, and performance practice in the social context of various cultures.

295. **Music of the Twentieth Century**

297. **Senior Recital**
Three credits. Required preparation: MUSI 287.

Required of all Bachelor of Music performance majors. No credit.

† Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).
298. Special Topics
Either semester. Credits and hours by arrangement. Open only with consent of instructor. May be repeated for credit. Classroom course in a special topic as announced in advance for each semester.

299. Independent Study
Either semester. Credits and hours by arrangement. Open only with consent of head of department. May be repeated for credit.

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Natural Resources Management and Engineering (NRME)

Department Head: Professor David B. Schroeder
Department Office: Room 308, W.B. Young Building

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

100. Environmental Science
First semester. Three credits. Two class periods and one 3-hour laboratory period. Emphasis: Neumann
An introduction to basic concepts and understanding of Natural Resources Systems and the effects of society on the environment.

110. Introduction to Natural Resources
First semester. One credit. Open only to lower division students or by consent.
An introduction to the field of renewable resources. Field trips required.

130. Environmental Conservation
Second semester. Three credits. Barclay
Overview of conservation policy development from colonial period to present and development of the environmental movement in the U.S. Discussion of the context and complexity of some contemporary environmental policy issues.

204. Wetlands Biology and Conservation
Second semester, alternate years (even). Three credits. Three class periods and one weekend field trip. Recommended preparation: BIOL 107 and 108 or consent of instructor. Clausen
Principal wetland habitats of North America are surveyed, and the relationship of wildlife associations to biological and physical features of wetlands is reviewed. Emphasis is placed on issues relating to wetlands conservation and management.

205. Stream Ecology
Second semester. Three credits. Prerequisite: Biology: EEB 244.
A broad overview of stream ecology will be presented. Emphasis will be placed on the biota and the application of ecosystem and community ecology to running water habitats. Human influences on stream systems will also be discussed.

208. Introduction to Aquaculture
Either semester. Three credits. Two class periods, one 2-hour laboratory. Prerequisite: BIOL 107 or 108 or consent of instructor. Staff
Basic principles and practice of environmentally compatible aquaculture. Emphasis on commercial aquaculture production including concepts and principles of various re-circulation systems, species, and culture techniques. Application of biotechnology will also be covered.

210. Air Pollution
Second semester. Three credits. Prerequisite: NRME 241 or consent of instructor. Miller
The meteorology, effects and controls of air pollution.

211. Watershed Hydrology
Second semester, alternate years (even). Three credits. Recommended preparation: MATH 112 or higher, NRME 242 or ENGR 150, or consent of instructor. Open to sophomores. Warner
Fundamental hydrologic processes, water balances, precipitation analyses, infiltration, soil water, evapotranspiration, open channel flow, discharge measurements, and analysis, flow frequencies, ground water-surface water interactions, runoff processes and prediction. Problem oriented course requiring use of computer spreadsheets.

214. Dendrology
First semester. Three credits. Two class periods and one 3-hour laboratory period. Prerequisite: BIOL 108 or 110. Open to sophomores. Schroeder
The taxonomy, silvics, and distribution of trees and shrubs of the United States with emphasis upon Northeastern species. Field trips will be required.

216. Forest and Shade Tree Pathology
Second semester. Three credits. One class period, one discussion period, and one 2-hour laboratory period. Prerequisite: BIOL 108 or 110. Schroeder
A discussion of the nature, causes and control of forest and shade tree diseases and wood decay.

217. North American Wildlife
First semester. Three credits. Prerequisite: BIOL 107. Open to sophomores. Barclay
An introduction to wildlife conservation programs and resource values. The distribution, life history and status of those birds and mammals whose populations man is attempting to preserve, reestablish, or to control are examined.

220. Forest Recreation
Second semester. Three credits. Introduction to the principles of land management for recreational purposes.

222P. Wildlife Management
Second semester. Three credits. Prerequisite: NRME 217 or consent of instructor. Recommended preparation: Prior course work in ecology. Must be taken with another P course in NRME to equal one W course.
Barclay, Ortega
Brief review of wildlife conservation and ecological principles; management of wetlands, farmlands, rangelands, and forest lands for wildlife; programs dealing with exotic, urban, nongame, and endangered wildlife; contemporary economic, administrative, and policy aspects of management.

233. Wildlife Management Techniques
First semester, alternate years. Two credits. One 4-hour laboratory period. Prerequisite: NRME 232. Open only with consent of instructor. One or more field trips will be required. Barclay
Collection and reporting of biological data upon which wildlife conservation decisions are based.

235P. Principles of Fishery Management
Second semester. Four credits. Three class periods and one 2-hour laboratory period. Prerequisite: EEB 200 and one course in statistics, or consent of instructor. Must be taken with another P course in NRME to equal one W course. Neumann
Principles and practices of fisheries management with applications to biota, habitat, and human users to produce desirable fish populations and communities. Selected topics include harvest regulations, fish population dynamics, stocking concepts, age and growth, and habitat management.

237. Introductory Remote Sensing
First semester. Three credits. Two class periods and one 2-hour laboratory period. Open to only CANR students and GEOG major or with consent of instructor. Civco
The principles of the interpretation of remote sensing imagery acquired from aircraft and satellite platforms will be studied. Various applications of remote sensing will be discussed.

238V. Advanced Remote Sensing
Second semester. Three credits. Two class periods and one 2-hour laboratory period. Prerequisite: NRME 237. Open only with consent of instructor. Civco
The principles of quantitative remote sensing, image processing and pattern recognition will be studied. Computer-assisted data analysis techniques will be used.

239P. Natural Resources Planning and Management
Second semester. Three credits. Recommended preparation: EEB 244. Must be taken with another P course in NRME to equal one W course. Clausen
Concepts and methods of planning for the allocation, management and utilization of terrestrial and aquatic ecosystems. Techniques and methods of managerial decision making. Written technical reports required.

240. Environmental Law
First semester. Three credits.
An overview of environmental law including the common law principles of nuisance, negligence, and trespass. Students will become acquainted with legal research techniques; emphasis will be on federal, state, and municipal programs addressing air, clean water, hazardous waste, inland wetlands, coastal zone management, and prime agricultural farm land and aquifer protection.

241. Meteorology
First semester. Three credits. Yang
A survey course in meteorology at the introductory level covering weather and climate processes.

242. Natural Resources Measurements
First semester. Four credits. Two class periods and two 2-hour laboratories. Open to sophomores. Miller
Principles and instrumentation used in the measurement of environmental conditions and processes, with emphasis on the interactions of biological organisms and populations with their environment.

243. Analyses of Natural Resource Systems
Second semester. Three credits. Two class periods and one 2-hour laboratory. Prerequisite: NRME 242 and a course in statistics. Yang
Fundamentals of applied statistics, sampling design, and integrated data analysis for natural resource and environmental systems. Applications include estimating animal and plant populations, sampling and experimental design, and model parameterization.

246. Water Quality Management
First semester, alternate years (odd). Three credits. Recommended preparation: NRME 211 or NRME 260P or consent of instructor. Clausen
An introduction to all aspects of water quality problems relating to the many beneficial uses of water, including the physical, chemical, and biological properties.

247P. Public Lands Wildlife Management
Second semester. Three credits. Recommended preparation: NRME 217, 232P, EEB 244. Open only with consent of instructor. Must be taken with another P
250. Surveying Practice
First semester. Three credits. One class period and two 2-hour laboratory periods. Students should have experience or training in mechanical drawing and trigonometry preceding this course. Students who have passed AGEG 220 may not receive credit for NRME 250.

A course in elementary field surveying practices including the use of tape, level and transit in problems of horizontal and vertical land measurements and topographic description.

251C. Computer Utilization in Agriculture and Natural Resources
Second semester. Three credits. Two class periods and one two-hour laboratory. Students who have passed AGEG 201 may not receive credit for NRME 251C.

Instruction in the utilization of microcomputer technology in a variety of natural resources management and engineering applications, such as forest mensuration, water runoff and soil erosion estimation, land use planning, ecological modeling, and general problems from commercial agriculture. Skills will be developed in the use of popular programming languages, such as BASIC and FORTRAN, and commercial packages, including spreadsheets, data base managers, computer graphics and application-specific software.

252. Geographic Information Science for Natural Resources Management
Second semester. Four credits. Three class periods and one two-hour laboratory. Required preparation: NRME 242, MATH 112. Recommended preparation: PHYS 121. Open only to natural resource majors or with consent of instructor. Meyer

Introduction to geodetic and cartographic principles and computerized creation of accurate maps. Particular emphasis is given to mapping topography and natural areas. Topics include: horizontal and vertical geodetic datums, the geoid, map projections, coordinate systems, global positioning systems (GPS), GIS data modeling with regional database management systems, and digital terrain models.

256. Natural Resources Modeling
First semester. Three credits. Required preparation: MATH 112 or higher. Open only to natural resource majors except by consent. Warner, Clausen

Applications of conservation of mass, energy and momentum in modeling natural resource systems. Defining systems; determining flows and storages; interactions and feedback mechanisms within systems. Problem oriented course including computer solutions using spreadsheets or modeling programs.

260P. Soil and Water Management and Engineering
Second semester, alternate years (odd). Three credits. Two class periods and one 3-hour laboratory. Required preparation: NRME 211 or CE 265, or consent of instructor. Must be taken with another P course in NRME to equal one W course. Warner

 Floodplain management, erosion and erosion control, reservoir management, storm water control, watershed management, and on-site sewage treatment systems. Written technical and laboratory reports, use of spreadsheets and field work required, some field trips.

262. Energy Conversion in Agriculture
Second semester. Four credits. Three class periods and one 2-hour discussion period. Prerequisite: ME 238. Students who have passed AGEG 262 may not receive credit for NRME 262.

Analysis of biological and physical energy conversion systems employed in agriculture including photosynthetic, internal combustion, electrical, wind and solar.

271. Environmental Meteorology

Applied meteorology in environmental science and engineering. Solar energy, winds and air pollution, atmospheric-hydrologic interactions, agricultural and forest meteorology, and biometeorology.

280P. Forest Management
Second semester, alternate years (odd). Four credits. Two class periods and one 4-hour laboratory period. Prerequisite: NRME 214. (Not open for credit to students who have passed AGEG 230 and NRME 231.) Must be taken with another P course in NRME to equal one W course. Broderick, Schneid

An introduction to forest mensuration, ecology, silviculture, and multiple-use management. Field trips required.

285. Forest Ecology
First semester alternate years (even). Three credits. Two class periods and one 3-hour laboratory. Prerequisite: NRME 214 or consent of instructor.

Forest stand dynamics and ecosystem function including tree response to local and regional site factors individually and community interactions with other species, and the role of forest stands in ecosystem function (e.g., habitat diversity, interactions among ecosystems, nutrient cycling). Laboratory will be outside or in computer lab.

287. Field Study Internship
Either semester or summer. One to six credits. Hours by arrangement. Open only to Upper Division students with consent of advisor and department head. This course may be repeated provided that the sum total of credits earned does not exceed six.

This course is designed to acquaint students through actual work experience with research and management activities not available on campus. Students will work with professionals in an area of concentration. Student evaluation will be based upon the recommendation of the field supervisor and a detailed written report submitted by the student.

295. Seminar
Second semester. One credit. May be repeated for credit. Open only with consent of 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. Credits and hours by arrangement. May be repeated for credit. Open only with consent of instructor.
Clinical application of theory from nursing and related disciplines to individuals, families and community groups in a variety of community health settings. Focus is on nursing care applied throughout the wellness illness continuum in collaboration with other members of the health care team.

249. Psychiatric-Mental Health Nursing Practice

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

253. Professional Nursing Practice: Leadership, Management and Financial Issues
Second semester. Two credits.

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

292. Health Perspectives on Alcohol and Other Drug Abuse
Either semester. Three credits. Open to non-nursing majors.

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

292W. Health Perspectives on Alcohol and Other Drug Abuse

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

299. Independent Study
Either semester. Credits and hours by arrangement. Open only with consent of instructor. Primarily for qualified students who wish to extend their knowledge by investigating special problems in nursing. With a change in content, this course may be repeated for credit.

Nutritional Sciences (NSUC)

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

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

160. The Science of Food
(Also offered as ANSC 160.) Second semester. Three credits. Faustman, Zhao

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