LAN

Uncommonly Taught Languages

LAN 111, 112 Uncommonly Taught Language (Elementary) I, II
An introduction to a language not offered elsewhere in the University; speaking, comprehension, reading, and writing. Selected texts are read. Practice in the language laboratory supplements class work. May be repeated for different languages. This course is designed for students who have no prior knowledge of the language. A student who has had two or more years of the offered language in high school (or who has otherwise acquired an equivalent proficiency) may not take LAN 111 or LAN 112 in that language without written permission from the supervisor of the course.
Prerequisite to LAN 112: LAN 111
3 credits per course

LAN 211, 212 Uncommonly Taught Language (Intermediate) I, II
Continued study of a language not offered elsewhere in the University; advanced speaking, comprehension, reading, writing, and grammar. Selected texts are read. Practice in the language laboratory supplements class work. May be repeated for different languages. A student who has had four years of the offered language in high school (or who has otherwise acquired an equivalent proficiency) may not take LAN in that language without written permission from the supervisor of the course.
Prerequisite to LAN 211: LAN 112
without written permission from the supervisor of the course.
Prerequisite to LAN 212: LAN 211
2 credits per course

LAN 447 Directed Readings in Uncommonly Taught Languages
Intensive study of an uncommonly taught language arranged in consultation with a faculty member.
Prerequisite: Permission of instructor
1-6 credits

LAN 475, 476 Practica in Language Teaching I, II
Proficient speakers of selected languages have an opportunity to learn techniques of language teaching or linguistic analysis by assisting a master teacher in small tutorial sections. Students meet at least weekly with their faculty supervisors to discuss teaching strategies and problems encountered.
Prerequisites to LAN 475: LIN 101; fluency in the language being taught; U3 or U4 standing; permission of instructor.
Prerequisites to LAN 476: LAN 475; fluency in the language being taught; permission of instructor.
3 credits per course, S/U grading
LAT

Latin

LAT 111, 112 Elementary Latin I, II
Designed to prepare the beginning student to translate Latin that may be needed for use in undergraduate or graduate study. Focus of the course is on the fundamentals of grammar and techniques of translation. LAT 111 is designed for students who have no prior knowledge of the language. A student who has had two or more years of Latin in high school (or who has otherwise acquired an equivalent proficiency) may not take LAT 111 without written permission from the course supervisor.

Prerequisite to LAT 112: LAT 111

3 credits per course

LAT 251, 252 Readings in Latin Literature I, II
Readings in classical Latin literature of the Republic. The course includes a brief intensive review of grammar, Latin prose composition, and the sampling of a number of authors including Catullus, Cicero, Virgil, and Livy.

Prerequisite to LAT 251: LAT 112
Prerequisite to LAT 252: LAT 251

3 credits per course

LAT 353 Literature of the Roman Republic
Selected works of Cicero, Lucretius, and Catullus are translated and examined in their social and historical context. The reading of critical works in English may also be required.

Prerequisite: LAT 252

3 credits

LAT 354 Literature of the Roman Empire
Selected works of Virgil, Horace, Petronius, Tacitus, and Juvenal are translated and examined in their social and historical context. The reading of critical works in English is also required.

Prerequisite: LAT 252

3 credits

LAT 355 Early Medieval Latin
Translation and discussion of Christian and secular Latin literature from the 4th to the 12th century. The course includes an intense review of Latin grammar and an outline of the changes in the language that took place during early medieval times. Selections from the Vulgate and the writings of Jerome, Augustine, Bede, and others are translated and discussed.

Prerequisite: LAT 252

3 credits

LAT 356 Late Medieval Latin
Translation and discussion of Latin literature from the 12th to the 16th century. Authors include the Archpoet, Thomas Aquinas, Petrarch, Erasmus, and Thomas More.

Prerequisite: LAT 252

3 credits

LAT 447 Directed Readings in Latin
Intensive study of a particular author, period, or genre of Latin literature in the original under close faculty supervision. May be repeated.

Prerequisite: Permission of director of the classics minor

1-6 credits

LAT 475 Undergraduate Teaching Practicum
Work with a faculty member as an assistant in one of the faculty member’s regularly scheduled classes. The student is required to attend all the classes, do all the regularly assigned work, and meet with the faculty member at regularly scheduled times to discuss the intellectual and pedagogical matters relating to the course. The student will be available to students in the class who may need more explanations than class time allows.

Prerequisites: U3 or U4 standing; permission of instructor and department

3 credits, S/U grading
Living Learning Center in Community Service Learning

LCR 200-F The Nature of Community
The course examines the nature of human communities, their conceptualization, definition, and dynamics while providing an introduction to service learning strategies. Exploring issues such as organization and leadership, hierarchy and stratification, students examine the notion of community formation through processes of exchange and reciprocity, institutionalization, alienation and solidarity, marginalization, and empowerment.
3 credits

LCR 201 Methods for Social Action Research
An introduction to basic methods of community action research. Students develop a fundamental set of “fieldwork” skills, learning to apply their academic knowledge in the service of community-based initiatives for social change. Covering theoretical, methodological, ethical, and legal issues, students conduct a series of field assignments to master key concepts in research design, implementation, and analysis.
3 credits

LCR 487 Directed Research in Community Service Learning
Independent research projects under the supervision of a faculty member. May be repeated once.
Prerequisite: Permission of instructor and program director
0-6 credits

LCR 488 Internship in Community Service Learning
Student teams work in specific communities, applying their academic, intellectual, and technical skills to address community concerns. Working with local community members to develop effective plans for community action, students engage in service learning. May be repeated to a limit of 12 credits.
Prerequisites: LCR 200; LCR 201; permission of director of the minor
0-6 credits, S/U grading

LCR 490 Senior Seminar in Community Service Learning
A capstone seminar for the minor in Community Service Learning. The course is designed to bring together students completing the minor and relevant community members to reflect on the nature of the research projects carried out and their expected consequences. An independent project is developed with the faculty director.
Prerequisites: LCR 488; permission of director of the minor
3 credits
LDS

Leadership and Service

LDS 101 Introduction to Stony Brook
A course intended to integrate students into the Undergraduate College of Leadership and Service and into the University community by providing information about Stony Brook and a forum for discussion of values, intellectual and social development, and personal as well as institutional expectations. Not for credit in addition to ACH 101, GLS 101, HDV 101, ITS 101, SSO 101, SBU 101, LHD 101, and LSE 101.
1 credit, S/U grading

LDS 102 Undergraduate College Seminar: Leadership and Service
A seminar for all first-year students in the Undergraduate College of Leadership and Service. Seminar topics vary annually by section and cover a variety of subjects under the general scope of Leadership and Service.
Prerequisite: Admission to the LDS Undergraduate College
1 credit, ABC/U grading
LHD

Living Learning in Human Sexual and Gender Development

LHD 101 Human Development Seminar
An introduction to human sexual and gender development issues. The course focuses on topics relevant to the campus experience—e.g., male and female roles in the classroom, college students and the crisis of AIDS and sexually transmitted diseases, and sexual orientation. These issues are examined from an interdisciplinary perspective. Prerequisite: Permission of minor coordinator required for students who do not reside in Eisenhower College 1 credit

LHD 301 Human Sexual and Gender Development Issues
An examination of the human life cycle—infancy and childhood, youth and adolescence, mid-life and aging—with regard to gender and sexual self-concepts. Semester Supplements to this Bulletin contain description when course is offered. May be repeated as the topic changes. 1 credit

LHD 302 Colloquium in Human Sexual and Gender Development
Sexual and gender development issues such as sexual orientation, gender development in children, and the childbirth experience. Semester Supplements to this Bulletin contain description when course is offered. May be repeated once as the topic changes. 1 credit

LHD 305, 306 HIV Reduction in the Campus Context
First course of a two-semester sequence addressing issues of HIV transmission and risk reduction, including identifying opportunities to discuss risk and promote risk reduction, and supporting the process of behavior change. Examination of the history of the AIDS epidemic in the U.S. and around the world. Prerequisite to LHD 305: Permission of instructor Corequisite to LHD 305: LHD 307 Prerequisites to LHD 306: LHD 305 and 307; permission of instructor Corequisite to LHD 306: LHD 308 2 credits per course

LHD 307, 308 Laboratory in HIV Reduction in the Campus Context
A forum for discussion of the application of material learned in LHD 305 and 306. The course focuses on the development of skills necessary to accomplish education and behavior changes among the peers of course participants, and monitors individual progress toward that end. Prerequisite to LHD 307: Permission of instructor Corequisite to LHD 307: LHD 305 Prerequisites to LHD 308: LHD 305 and 307; permission of instructor Corequisite to LHD 308: LHD 306 1 credit per course, S/U grading

LHD 401 Advanced Seminar in Human Sexual and Gender Development
Consideration of human sexual and gender development issues through examination of primary source material. Semester Supplements to this Bulletin contain description when course is offered. May be repeated once as the topic changes. 1 credit

LHD 402 Parenting Children in the Next Generation
A sociological examination of the evolution of parenting in the post-World War II era. Topics covered include the sociology of childhood, the sociology of the family, parent and child development and parenting responsibilities, and parenting challenging children. Prerequisite: LHD 301 3 credits

LHD 475, 476 Undergraduate Teaching Practica I, II
Work with a faculty member as an assistant in one of the faculty member’s regularly scheduled classes. The student is required to attend all the classes, do all the regularly assigned work, and meet with the faculty member at regularly scheduled times to discuss the intellectual and pedagogical matters relating to the course. In LHD 476, students assume greater responsibility in such areas as leading discussions and analyzing results of tests that have already been graded. Students may not serve as teaching assistants in the same course twice. Prerequisites to LHD 475: LHD 487; U3 or U4 standing; permission of instructor and director of the minor Prerequisites to LHD 476: LHD 475; permission of instructor and director of the minor 3 credits per course, S/U grading

LHD 487 Independent Study in Human Sexual and Gender Development
The completion of an individual project by one student or a group of students on human sexual and gender development and the life course. Projects must include both library and field research, or a literary or artistic endeavor. May be repeated once. Prerequisites: LHD 101 or 301; LHD 302; permission of director of the minor 0-3 credits

LHD 488 Internship
Participation in public and private agencies and organizations. May be repeated up to a limit of 6 credits. Prerequisite: Permission of director of the minor or instructor 0-6 credits, S/U grading
LHW

Living Learning Center in Health and Wellness

LHW 102 Introductory Seminar to the Health Professions
An exploration of the scope of practice for selected health professions. The course includes seminars by invited speakers in the health professions. Students are required to actively investigate several similar professions to better understand similarities and differences. Professions explored include medicine, nursing, dentistry, physical therapy, occupational therapy, clinical laboratory sciences, respiratory care, and physician assistant. Not for credit in addition to HAS 190.
1 credit

LHW 301 Issues in Health and Wellness
An investigation of selected topics in health and wellness, chosen by the class as a whole. Students are required to actively investigate their chosen area and present their findings to the class. Topics are determined through class discussion, individual investigation, and mutual consent.
3 credits

LHW 488 Internship in Health and Wellness
An experience in health and/or wellness promotion, prevention, and/or education. Students learn about contemporary issues in health and wellness through hands-on work with faculty mentors and on- and off-campus health and wellness professionals. May be repeated up to a limit of 6 credits.
Prerequisites: LHW 301; permission of director of the minor
0-6 credits, S/U grading
LIA

Living Learning Center in Interdisciplinary Arts

LIA 101-D Introduction to the Interdisciplinary Arts
An exploration of the interdisciplinary and collaborative nature of the fine arts. The course traces the general development of the arts from their common practical origins in basic communication, ritual, and decoration to the present, and examines how these factors unify the arts in modern culture and society. Students develop in-class presentations using multiple art forms.
3 credits

LIA 102 Opportunities in the Arts
An introductory seminar concerning career opportunities in the arts. Students meet once a week for discussion, networking, establishing career strategies, career planning, and investigations of continued study. Guest lecturers discuss their area of expertise in relation to career opportunities for students entering the field.
1 credit

LIA 401 Senior Seminar
An intensive investigation of theatre theorists with particular emphasis on the application of theory to practice. This course is offered as both LIA 401 and THR 401.
Prerequisites: U4 standing; permission of instructor
3 credits

LIA 487 Independent Research in Interdisciplinary Arts
The completion of a group-generated or individual creative project under the supervision of an instructor. May be repeated to a limit of 6 credits.
Prerequisites: LIA 101; any 200-level art, dance, music, or theatre course; permission of instructor and director of the minor
0-6 credits

LIA 488 Internship in Arts Management
Study of the field of arts management, including public relations, scheduling, resource coordination, and community interaction. Practical work with management of the annual Shirley Strum Kenny Student Arts Festival.
Prerequisite: Permission of director of the minor
0-6 credits, S/U grading
LINGUISTICS

LIN 101-F Introduction to Linguistics
An introduction to the fundamental areas and concepts of modern linguistics. Sounds and their structure, word structure, and sentence structure are discussed. Other topics may include historical linguistics (how languages change over time), dialects, writing systems, language and the brain, and psycholinguistics (especially the question of how children acquire a language).
3 credits

LIN 200-K Language in the United States
Survey of the languages and language-related issues in the United States. Topics include Native American languages; immigrant languages; dialectal variations (e.g., Black English); the domains in which these languages were used and maintained; and official language movements. Particular attention is paid to the evolution of American English from colonial times to its present status; the use and impact of Spanish; language attitudes and policies including bilingual education; and official language movements. Advisory Prerequisite: Completion of D.E.C. categories I and J.
3 credits

LIN 201-F Phonetics
Introduction to the sounds used in human language. Topics include articulatory phonetics, phonetic transcription, the structure of English sounds, and sound patterns in languages of the world. The acoustic properties of sounds, speech perception, and speech technology are examined in the phonetics laboratory on computer analysis of speech.
4 credits

LIN 211-F Syntax
An introduction to generative grammar: the formal theory of sentence structure.
4 credits

LIN 250-K Languages and Cultures of Asian Americans
Study of language use and cultural accommodation in selected Asian American communities in relation to the changing roles of Asians in U.S. society from the early democracy to the present. Issues include linguistic and cultural diversity of Asian and Asian Americans; comparison of Asian and European immigration patterns; struggle for equality and acceptance; cultural factors in assimilation; patterns of language and dialect use and maintenance in various domains; role of language in ethnic identity; attitudes toward English and bilingualism; bilingualism as a problem and a resource. This course is offered as both AAS 250 and LIN 250. Prerequisite: Completion of D.E.C. category A.
3 credits

LIN 300 Writing in Linguistics
Majors in linguistics refine their skills in writing for the discipline by critiquing successive revisions of previously written work under the guidance of the undergraduate director. Prerequisites: Major in linguistics; U3 or U4 standing in 1 credit, S/U grading
1 credit

LIN 301 Phonology
An introduction to the sound systems of languages focusing on the mental representation of sound structure: how speakers use knowledge of their languages to assign meaning to different combinations of sounds. We will examine data from a number of languages to explore the differences and similarities among the sound patterns of different languages, and will consider the question of whether there are universal preferences for specific types of sounds and sound sequences. Prerequisite: LIN 201
3 credits

LIN 307-K Sociolinguistics
An examination of the interaction between language and society, focusing on diversity in American English as it relates to differences in gender, geography, social class, ethnicity, and national origin. Study of the development of dialects including African American Vernacular English, and pidgins and creoles such as Hawaiian Pidgin English and Chinook Trade Jargon, within the context of historical developments in the U.S. from colonial times to the present. Prerequisite: LIN 101 or 102. Advisory Prerequisite: Completion of D.E.C. categories I and J.
3 credits

LIN 330 Language Acquisition
Introduction to the field of language acquisition. Issues include cognitive processes, role of innate ability and environment, developmental stages, individual variation, universal tendencies, interaction of language and cognition, bilingualism, similarities and differences between first- and second-language acquisition, and language disorders. Prerequisites: LIN 201 and 211
4 credits

LIN 340 Historical Linguistics
The application of linguistic theory to the ways in which sound systems, word structure, and sentence structure change. Students learn how linguists establish that certain languages are related, and how they reconstruct prehistoric parent languages. Prerequisites: LIN 211 and 301
3 credits

LIN 344 Literacy Development
An introduction to the theories of literacy and language development of native English speakers and students who are English language learners in preschool through grade 12. Students acquire knowledge in the development of literacy skills among children of different developmental and ability levels and develop learning experiences that integrate literacy skills and assessment across all disciplines. Attention is given to children with special needs and the integration of technology in the development of literacy skills. Not for major credit. Prerequisite: Enrollment in a teacher education program
4 credits

LIN 345-J Writing Systems of the World
A survey of the major types of writing including (but not limited to) alphabetic, syllabic, and logographic systems; the invention of writing; changes in writing systems over time and the decipherment of ancient writing. Special attention is given to modern English spelling, including both its regular, systematic properties and the historical background of its irregularities. Prerequisite: LIN 101 or 201 or satisfaction of Skill 3 Elementary Foreign Language Competence
3 credits

LIN 346-F Language and Meaning
An exploration of semantics, the study of linguistic meaning. The course examines fundamental issues including the nature of meaning, its relation to word and sentence form (morphology and syntax), its relation to systems of mental representation (cognition), and the interaction between meaning and use (pragmatics). Recent research into the way that linguistic meaning is acquired and how it is deployed in speech and understanding is discussed. Prerequisite: LIN 101 or 211
3 credits

LIN 355-J Language and Life in a Selected Area of the World
Study of the languages of a selected country or region outside of Europe in relation to its society, culture, history, and politics. Topics include language family, social varieties, status and attitudes, language policies, and cultural patterns reflected in language use. Semester supplements to this Bulletin contain specific description when course is offered. May be repeated for credit as the topic changes. Advisory Prerequisite: LIN 101
3 credits

LIN 356-I Topics in Language and Life in Europe
Consideration of the language of a particular country or region in Europe and the relationship between language and the society, culture, history, and politics of the country or region. May be repeated as the language examined changes. Prerequisite: One LIN course or satisfaction of Entry Skill 3 foreign language proficiency
3 credits

LIN 375 TESOL Pedagogy: Theory and Practice
Introduction to language and literacy instruction, instructional approaches, and assessment models for the teaching of speaking, listening, reading, and writing. Students design standard-based lessons and evaluate resources and technologies. Prerequisites: Admission to the Linguistics Teacher Education Program; C or higher in one 200-level linguistics course; two years of a language other than English; minimum g.p.a. of 2.75. Corequisite: LIN 449
3 credits

LIN 378 Content-Based Language and Literacy Development
Introduction to language and literacy development across disciplines and to assessment, cooperative learning, and reflective practices. Students will develop standard-based interdisciplinary thematic units, integrate technologies, and explore collaborative practices. Prerequisite: LIN 375. Corequisite: LIN 450
3 credits

LIN 425, 426, 427 Special Topics in Linguistics
Seminars for advanced linguistics students. Semester supplements to this Bulletin contain specific description when course is offered. May be repeated for credit as the topic changes. Prerequisite: Varies with subject matter
3 credits per course

LIN 431 The Structure of an Uncommonly Taught Language
An investigation of the phonology and syntax of either a language or a family of languages. May be repeated if a different language is covered. Prerequisite: LIN 211. Pre or Corequisite: LIN 301
3 credits
LIN 447 Directed Readings in Linguistics
Qualified juniors and seniors in linguistics are offered an opportunity to do independent work on topics in linguistics under guidance of a faculty member. May be repeated.
Prerequisite: Permission of department
1-6 credits

LIN 449, 450 Field Experience, Grades N-12
Observation, inquiry, and practice in language and literacy development across disciplines for learners from linguistically and culturally diverse backgrounds. Students are placed in variety of educational settings in elementary and secondary schools for 50 hours of fieldwork. Satisfactory/Unsatisfactory grading.
Prerequisites: Admission to the Linguistics Teacher Education Program; C or higher in one 200-level linguistics course; two years of a language other than English; minimum GPA 2.75
Corequisite to LIN 449: LIN 375
Corequisite to LIN 450: LIN 378
1 credit per course, S/U grading

LIN 451 Supervised Student Teaching in English as a Second Language: Primary Grades N-6
Supervised practice teaching in English as a second language by arrangement with selected Boards of Cooperative Educational Services and primary, middle, and secondary schools. Applications must be filed in the academic year preceding that in which the student plans to take the course.
Prerequisites: Linguistics major; 3.00 g.p.a. in major; 2.75 g.p.a. overall; New York teacher certification examinations LAST and ELPA
Corequisite: LIN 452 and 454
6 credits, S/U grading

LIN 452 Supervised Student Teaching in English as a Second Language: Secondary Grades 7-12
Supervised practice teaching in English as a second language by arrangement with selected Boards of Cooperative Educational Services and middle and secondary schools. Applications must be filed in the academic year preceding that in which the student plans to take the course.
Prerequisites: Linguistics major; 3.00 g.p.a. in major; 2.75 g.p.a. overall; New York teacher certification examinations LAST and ELPA
Corequisite: LIN 451 and 454
6 credits, S/U grading

LIN 454 Managing Instruction, Assessment, and Resources
Examination of effective practices, assessments, and technologies for developing language and literacy across content areas in multi-level classrooms. Collaboration with colleagues, parents, and communities is explored.
Prerequisites: C or higher in LIN 378; New York teacher certification examinations LAST and ELPA
Corequisites: LIN 451 and 452
3 credits

LIN 454 Morphology and Word Formation
The internal structure of complex words. A variety of analytical methods is introduced, together with examples from English and many other languages.
Prerequisites: LIN 211 and 301
3 credits

LIN 475, 476 Undergraduate Teaching Practica I, II
Work with a faculty member as an assistant in one of the faculty member’s regularly scheduled classes. The student in required to attend all the classes, do all the regularly assigned work, and meet with the faculty member at regularly scheduled times to discuss the intellectual and pedagogical matters relating to the course. In LIN 476, students assume greater responsibility in such areas as leading discussions and analyzing results of tests that have already been graded. Students may not serve as teaching assistants in the same course twice. Not for major credit.
Prerequisites to LIN 475: Linguistics major; U3 or U4 standing; permission of instructor.
Prerequisites to LIN 476: LIN 475; permission of instructor
3 credits per course, S/U grading

LIN 487 Directed Research in Linguistics
Qualified advanced undergraduates in linguistics may carry out individual research projects under the direct supervision of a faculty member. May be repeated up to a limit of six credits.
Prerequisite: Permission of department
0-6 credits

LIN 488 Internship
Participation in local, state, and national public and private agencies and organizations. May be repeated up to a total of 12 credits.
Prerequisites: 15 credits in linguistics; permission of department
0-6 credits, S/U grading

LIN 495-496 Senior Honors Project in Linguistics
First course of a two-semester sequence for linguistics majors who are candidates for the degree with honors. The project involves independent readings or research and the writing of a thesis. Students enrolled in LIN 495 are obliged to complete LIN 496 the next semester. Students receive only one grade upon completion of the sequence.
Prerequisite: Admission to the Linguistics Honors Program
3 credits per course

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LRN 104-G The Person
The first course in a two-semester sequence providing a broad cross-disciplinary approach to study in the humanities and social sciences, while laying the foundation for future academic success by fostering critical and conceptual skills through collaborative research projects. Issues associated with human identity and human values are examined in the context of modern social, psychological, and humanistic thought on learning, perception, cognition, and the self, including representations of the person and the self in literature and the arts. Students are expected to attend several events outside the regularly scheduled class time.
Prerequisite: Enrollment in Freshman Learning Communities program
4 credits

LRN 105-F Ecology and Society
Second course of a two-semester sequence providing a broad cross-disciplinary approach to study in the humanities and social sciences, while laying the foundation for future academic success by fostering critical and conceptual skills through collaborative research projects. The course focuses on the variety of images of humanity's relationship with the natural environment and examines the implications of these images for human society. Students are expected to attend several events outside the regularly scheduled class time.
Prerequisite: Enrollment in Freshman Learning Communities program
4 credits

LRN 131-G Thinking About Science
First course of a two-semester sequence exploring the history and philosophy of science from a broad cross-disciplinary background, providing humanities and social sciences perspectives on the students' other courses while laying the foundation for future academic success by fostering critical and conceptual skills through collaborative research projects. The course considers questions about the nature and scope of scientific method, as well as the ethical and political issues that emerge when science is considered as a social institution. Students are expected to attend several events outside the regularly scheduled class time.
Prerequisite: Enrollment in Freshman Learning Communities program
4 credits

LRN 132-F Thinking About Biology
Second course of a two-semester sequence exploring the history and philosophy of science from a broad cross-disciplinary background, providing humanities and social sciences perspectives on the students' other courses while laying the foundation for future academic success by fostering critical and conceptual skills through collaborative research projects. The course focuses specifically on critical theoretical and social issues in the history and philosophy of biology. Students are expected to attend several events outside the regularly scheduled class time.
Prerequisite: Enrollment in Freshman Learning Communities program
4 credits

LRN 134 Contemporary Issues in Medicine and Biology
A one-credit seminar focusing on contemporary issues in medicine and biology. May be repeated for credit as the topic changes.
Corequisite: WRT 102
1 credit
LSE

Living Learning Center in Science and Engineering

LSE 201 Opportunities in Science and Engineering
A survey of the various science and engineering disciplines. Guest speakers describe their respective fields of research and study and the opportunities for students entering the field today. The interdisciplinary nature of science and technology is emphasized. The course includes research laboratory tours and demonstrations.
1 credit

LSE 310-H Current Issues in Science and Engineering
A study of the issues and events that confront scientists and engineers today. Student presentations and student-led discussions cover such topics as ethics, social responsibilities, the environmental impact of technology, and the economics of research and technology.
3 credits

LSE 320-H Future Trends in Science and Engineering
A study of forecasts for developments in science and engineering in the 21st century and their predicted effects on society. Predictions about science and engineering from the early 20th century and their accuracy today. Readings and student-led discussion on essays written by leading scientists and engineers concerning predictions in their fields during the next century. Includes several presentations made by science and engineering faculty on their current research, focusing on the long-term effects of their research on their discipline and on society. Several research papers by students will be required.
Prerequisites: U3 or U4 standing; one course in science or engineering
3 credits

LSE 475 Undergraduate Teaching Practicum
Students work with the instructor in an LSE course in leading discussion sections, helping students improve research skills, or assisting with the educational program presented as part of coursework. Students meet regularly with the supervising instructor.
Prerequisites: U3 or U4 standing; permission of instructor and director of the minor
3 credits, S/U grading

Accurate as of Fall 2005
MAE 301 Foundations of Secondary School Mathematics
A re-examination of elements of school mathematics, including topics in algebra, geometry, and elementary functions. Competence in basic secondary-level ideas and techniques are tested.
Prerequisites: MAT 200 and 211; admission to mathematics or applied mathematics secondary teacher education program
Corequisite: MAE 311
3 credits

MAE 302 Methods and Materials for Teaching Secondary School Mathematics
The goals of mathematics education, learning theories, mathematics curricula, lesson planning, evaluation and teaching strategies. Lesson plans are drawn up and presented to the group.
Prerequisites: MAE 301 and C or higher in MAE 311
Pre- or Corequisite: MAE 312
3 credits

MAE 311 Introduction to Methods of Teaching Secondary School Mathematics
Aspects of teaching mathematics on the secondary school level, including lesson designs based on the NCTM standards, cooperative learning, and technology in mathematics education. Students observe classes in middle school and high school settings.
Prerequisites: MAT 211; admission to mathematics or applied mathematics secondary teacher education program; department consent
Corequisite: MAE 301
3 credits

MAE 312 Micro-Teaching
Twice-weekly supervised classroom experience, tutoring, or working with small groups of students as a teacher’s aide.
Prerequisite: C or higher in MAE 311
Pre- or Corequisite: MAE 302
2 credits

MAE 330 Technology in Mathematics Education
Introduces students in the mathematics secondary teacher education program to techniques and requirements for effective use of technology in the mathematics classroom. Emphasis on projects. Use of graphing calculators and computer software such as Geometer’s Sketchpad.
Prerequisites: MAE 301 and 311
3 credits

MAE 447 Directed Readings in Mathematics Education
Tutorial studies in recent advances in mathematics education.
Pre- or Corequisite: MAE 312
1 credit

MAE 451 Supervised Teaching-Middle School Level Grades 7-9
Intensive supervised teaching in secondary schools. Students work in the school under the supervision of an experienced teacher.
Prerequisites: MAE 312; MAT 312, 319 and 360; AMS 310; permission of director of mathematics secondary teacher education program
Corequisites: MAE 451 and 454
6 credits, S/U grading

MAE 452 Supervised Teaching-High School Grades 10-12
Intensive supervised teaching in secondary schools. Students work in the school under the supervision of an experienced teacher.
Prerequisites: MAE 312; MAT 312, 319 and 360; AMS 310; permission of director of mathematics secondary teacher education program
Corequisites: MAE 451 and 454
6 credits, S/U grading

MAE 454 Student Teaching Seminar
Weekly discussions of teaching techniques and experiences, learning theory, curriculum content, and classroom problems.
Corequisites: MAE 451 and 452
3 credits
MAP

Mathematics Proficiency

MAP 101 Fundamentals of Arithmetic and Algebra
Arithmetic: fractions, decimals, and percent. Algebra: signed numbers, monomials, linear equations in one unknown, and word problems. This course is intended for students who have never studied algebra. Does not satisfy the entry skill in mathematics requirement or the D.E.C. category C requirement. Students who have otherwise satisfied D.E.C. category C may not register for this course. Overqualified students as determined by a placement test may be deregistered and directed to transfer to another course. Does not count toward graduation. A through C/Unsatisfactory grading only. The Pass/No Credit option may not be used.

MAP 103 Proficiency Algebra
An intensive review of high school algebra as preparation for calculus and other mathematics. Facility with exponents, basic graphing, solving linear and quadratic equations in one variable, solving linear systems in two variables, polynomials, factorization of algebraic expressions, binomial theorem, and inequalities. Algebraic manipulations, analytic geometry of lines. Does not count toward graduation. A through C/Unsatisfactory grading only. The Pass/No Credit option may not be used.

Prerequisite: Level 2 on the mathematics placement examination or MAP 101

3 credits
**MAR 305 Experimental Marine Biology**

Students design and conduct experiments in the laboratory and at local field sites, collect and analyze data, and use scientific literature to interpret and present results in papers and oral presentations.

**Prerequisites:** U3 or U4 standing; BIO 201

**Advisory Prerequisites:** CHE 131 or 141, AMS 110 or other statistics course; MAR 101 or 104 or 333

3 credits

**MAR 308 Principles of Instrumental Analysis**

The development of familiarity in the laboratory with the techniques and instrumentation used in environmental analytical chemistry, emphasizing determination of trace inorganic species. Primary emphasis on applications utilizing the absorption of emission of electromagnetic radiation. Topics include metal determinations in sediment and in river water using molecular ultraviolet-visible and atomic absorption spectrometry.

**Prerequisites:** CHE 132/134 or 142/144

3 credits

**MAR 315-H Conservation Biology and Marine Biodiversity**

The fundamental concepts of Conservation Biology, a new synthetic field that incorporates principles of ecology, biogeography, population genetics, systematics, evolutionary biology, environmental sciences, sociological, anthropological, and philosophical toward the conservation of biological diversity. Examples drawn from the marine environment emphasize how the application of conservation principles varies from terrestrial, aquatic, and marine realms.

**Prerequisite:** BIO 351 or 353

3 credits

**MAR 318 Engineering Geology and Coastal Processes**

Fundamental concepts of soil, sediment, and rock mechanics and the physics of surficial processes. Application is made to problems of geotechnical and coastal engineering. Topics include consolidation, loose boundary hydraulics, slope stability, underwater ground excavations and beach and tidal inlet stability, and channel sedimentation. This course is offered as both GEO 318 and MAR 318.

**Prerequisites:** GEO 102 or 101 and GEO 112; MAT 127 or 132 or 142 or AMS 161

3 credits

**MAR 320 Limnology**

The physical, chemical, and biological aspects of lakes and ponds. The morphology of lake basins, physics of water movement, water chemistry, and ecology of organisms are explored through lecture and laboratory instruction. The laboratory portion of the course includes field sampling to investigate temporal variation in water chemistry and plankton biology, and laboratory experiments to demonstrate important concepts.

**Prerequisites:** BIO 201; CHE 131 or 141

3 credits

**MAR 333-H Coastal Oceanography**

Aspects of physical, biological, chemical, and geological processes that characterize coastal marine environments. Topics include such natural phenomena as upwelling, particle transport, benthic/pelagic coupling, and barrier island processes, as well as the impacts of society on the Coastal Ocean.

**Prerequisites:** MAT 125 or 131 or 141 or AMS 151; completion of D.E.C. category E

3 credits

**MAR 334-E Remote Sensing of the Environment**

A study of the theory of remote sensing and its application in the fields of atmospheric science and oceanography. A discussion of the interaction of electromagnetic radiation with rough surfaces and the atmosphere is followed by a treatment of sensors and platforms. The remainder of the course is devoted to data processing techniques involved in remote sensing.

**Prerequisite:** One of the following: ENS/PHY 119, PHY 127, PHY 132/134, or PHY 142

3 credits

**MAR 336 Marine Pollution**

A review of the sources, transport, and fate of toxic and non-toxic contaminants in the ocean. The interactions of biological, chemical, and physical processes that control the cycling and toxicity of contaminants are considered. Contaminants include metals, oil, halogenated hydrocarbons, radioactive wastes, excess nutrients, plastics, and solid wastes.

**Prerequisites:** BIO 201, CHE 131 or 141; MAR 333

3 credits

**MAR 340-H Environmental Problems and Solutions**

A detailed examination of the scientific, social, and legal aspects of important environmental problems, including global climate change, the depletion of atmospheric ozone, acid rain, rain forests and the loss of biodiversity, and energy conservation, as well as case histories of problems such as the use of DDT, environmental carcinogens, and lead poisoning.

**Prerequisites:** U3 or U4 standing; one course in chemistry or biology

3 credits

**MAR 346 Marine Sedimentology**

A study of sedimentology in the marine environment, including an introduction to fluid mechanics, sediment transport theory, quantitative models of sedimentation, and dynamic stratigraphy.

**Prerequisites:** GEO 102 or 122; PHY 126 or 132/134 or 142

3 credits

**MAR 349 Introduction to Biological Oceanography**

An examination of the processes producing and maintaining the abundances, composition, and temporal variations of organisms in the ocean. The role of biological processes in global cycles and the food chain, beginning with microbes and progressing through fisheries, are also covered. Weekly three-hour laboratory or field sessions present methods used in observational and experimental studies.

**Prerequisites:** CHE 131, CHE 132, and BIO 201

4 credits

**MAR 350 Introduction to Ocean Physics**

An introduction to hydrodynamics, contemporary ideas on ocean circulation, and the application of acoustics and optics to ocean technologies.

**Prerequisites:** ENS/PHY 119 or PHY 121/123 or 125 or 131/133 or 141; MAT 127 or 132 or 142 or AMS 161

2 credits

**MAR 351 Introduction to Ocean Chemistry**

Chemical principles applied to the study of the oceans. How chemical tracers are used to determine the geological, physical, and biological characteristics of present and past oceans. Other topics include physical marine chemistry, nutrient and carbon cycling, organic geochemistry, isotopic geochemistry, sediment chemistry and diagenesis, air-sea exchange and controls on carbon dioxide, and estuarine geochemistry.

**Prerequisites:** CHE 132; MAR 101 or 104 or 333

3 credits
MAR 366 Plankton Ecology
An introduction to the biology of the plant and animal plankton present in the sea. Techniques of collection, enumeration, and identification of phytoplankton and zooplankton are described. Life histories are studied and factors that influence seasonal changes in species and biomass are examined.
Prerequisites: BIO 201 and 202
3 credits

MAR 370 Marine Mammals
The biology of the major groups of marine mammals, including cetaceans, pinnipeds, and sirenians. Topics include evolutionary history and adaptation, thermoregulation, locomotion and foraging, diving physiology and behavior, communication and sensory systems, social behavior, reproduction, energetics, distribution patterns, exploitation and conservation.
Prerequisites: BIO 201, BIO 203
3 Credits

MAR 371 The Biology and Conservation of Marine Birds and Sea Turtles
A survey of the basic biology of marine birds and sea turtles, with an emphasis on species endemic to the Northeast U.S. Topics covered include origins, taxonomy and systematics, anatomy, organ systems, reproduction, nutrition, migration, and conservation status. Weekly lectures will be supplemented with three field trips, of which the student must attend at least two.
Prerequisites: BIO 201, BIO 203
3 Credits

MAR 380 Ichthyology
The biology of fishes. This course focuses on the diversity of fishes and the physiological, anatomical, ecological, and behavioral adaptations that allow them to populate a wide range of niches and environments. Field and laboratory work provide students with practical experience in collecting, identifying, and studying fish.
Prerequisites: BIO 201, BIO 328 or 344 or 346
2 credits

MAR 385 Principles of Fishery Biology and Management
The theory, techniques, history, and practical problems of fishery management, with emphasis on Long Island fisheries. Three field trips outside regularly scheduled class meetings are required.
Prerequisites: BIO 201; MAT 125 or 131 or 141 or AMS 151
3 credits

MAR 392-H Waste Management Issues
Conventional and innovative approaches to waste reduction, recycling, and reuse. The environmental impacts of waste on the terrestrial and marine environment are introduced as are the complex social, political, and scientific issues of making sound policy decisions.
Prerequisites: GEO 101; CHE 131 or ENS/PHY 119
3 credits

MAR 394-H Environmental Toxicology and Public Health
Principles of toxicology are presented and problems associated with major classes of toxic chemicals to human and environmental health are examined. Case studies dealing with current waste management issues are also discussed. This course is offered as both BCP 394 and MAR 394.
Prerequisites: BIO 201; CHE 131 or 141
Advisory Prerequisite: CHE 321
3 credits

MAR 395 Topics in Marine Environmental Sciences
Semester supplements to this Bulletin contain specific description when course is offered. May be repeated for credit as the topic changes.
Prerequisite: One upper-division MAR course
3 credits

MAR 475 Undergraduate Teaching Practicum
A practicum in the techniques of teaching marine sciences courses. Each student assists a faculty member in a regularly scheduled class. The student may be required to attend all classes and meets with the faculty member at regularly scheduled times. Students may assist in laboratories, hold recitation or review sessions, propose questions for examinations, and review already graded assignments.
Prerequisites: U3 or U4 standing; permission of instructor and MSRC Undergraduate Programs Director
3 credits, S/U grading

MAR 487 Research in Marine Sciences
A student may conduct research for credit. May be repeated.
Prerequisite: Permission of instructor and MSRC Undergraduate Programs Director
0-6 credits

MAR 488 Internship
Participation in research at off-campus laboratories or in the activities of public and private agencies and organizations. May be repeated up to a limit of 12 credits.
Prerequisites: MAR 333; permission of instructor and MSRC Programs Director
0-6 credits, S/U grading
**MAT Mathematics**

**MAT 118-C Mathematical Thinking**
Development of quantitative thinking and problem solving abilities through a selection of mathematical topics: logic and reasoning; numbers, functions, and modeling; combinatorics and probability; growth and change. Other topics may include geometry, statistics, game theory, and graph theory. Through their engagement in problem solving, students develop an appreciation of the intellectual scope of mathematics and its connections with other disciplines.

**Prerequisite:** MAP 103 or level 2+ or higher on the mathematics placement examination

**MAT 130 Functions**
Inverse functions, exponential and logarithmic functions, radian measure of angles and trigonometric functions. Open to prospective students in engineering, physical sciences, and mathematics who need to bridge the gap between MAT 122 and 125 or MAT 131 or AMS 151. May not be taken for credit in addition to MAT 123.

**Advisory Prerequisite:** C or higher in MAT 122

**MAT 131-C Calculus I**
The differential and integral calculus, emphasizing conceptual understanding, computations, and applications, for students who have the necessary background from 12th-year high school mathematics. Differentiation of elementary algebraic, trigonometric, exponential, and logarithmic functions; graphing; modeling and maximization; the Riemann integral; and the fundamental theorem. May not be taken for credit in addition to MAT 125 or 141 or AMS 151.

**Prerequisite:** B or higher in MAT 122; or level 3 on the mathematics placement examination

**MAT 132-C Calculus II**
A continuation of MAT 131, covering symbolic and numeric methods of integration; area under a curve; volume; applications such as work and probability; improper integrals and the Hospital's rule; complex numbers; sequences; series; Taylor series; differential equations; and modeling. May not be taken for credit in addition to MAT 126 or 127 or 142 or AMS 161.

**Prerequisite:** C or higher in MAT 131 or AMS 151 or level 4 on the mathematics placement examination before taking either course.

**MAT 200 Logic, Language and Proof**
A basic course in the logic of mathematics, the construction of proofs, and the writing of proofs. The mathematical content is primarily set theory, combinatorics, and Euclidean geometry. There is consider- able focus on writing.

**Prerequisites:** C or higher in MAT 203 or 205 or AMS 261, and in MAT 211 or AMS 210; or A- or higher in MAT 125 or 131 or AMS 151; or B- or higher average in MAT 125/126/127 or MAT 131/132 or MAT 141/142 or AMS 151/161; or permission of instructor

**MAT 203-C Calculus III with Applications**
Vector algebra in two and three dimensions, multivariate differential and integral calculus, optimization, vector calculus including the theorems of Green, Gauss, and Stokes. Applications to economics, engineering, and all sciences, with emphasis on numerical and graphical solutions; use of graphing calculators or computers. May not be taken for credit in addition to AMS 261 or MAT 205.

**Prerequisite:** C or higher in MAT 127 or 132 or 142 or AMS 161 or level 9 on the mathematics placement examination

**MAT 205 Calculus III**
Vector algebra, multivariate differential and integral calculus, divergence and curl, line and surface inte- grals, theorems of Green, Gauss, and Stokes. More theoretical than MAT 203 with applications to the physical sciences. Not for credit in addition to AMS 261 or MAT 203.

**Prerequisite:** C or higher in MAT 127 or 132 or 142 or AMS 161 or level 9 on the mathematics placement examination

**MAT 211 Introduction to Linear Algebra**
Introduction to the theory of linear algebra with some applications; vectors, vector spaces, bases and dimen- sion, applications to geometry, linear transformations and rank, eigenvalues and eigenvectors, determinants and inner products. May not be taken for credit in addition to AMS 210.

**Prerequisite:** MAT 203 or 205 or AMS 261, or B- or higher in MAT 127 or 132 or 142 or AMS 151

**MAT 260 Problem Solving in Mathematics**
Students actively solve challenging problems in plane geometry, basic number theory, and calculus, and write precise arguments. Relevant preparation for problem-solving is provided in the course.

**Prerequisite:** MAT 203 or 205 or AMS 261, or B- or higher in MAT 127 or 132 or 142 or AMS 151

**MAT 303 Calculus IV with Applications**
Homogeneous and inhomogeneous linear differential equations; systems of linear differential equations; series solutions; Laplace transforms; introduction to wave, heat, and Laplace equations; Fourier series. Applications to economics, engineering, and all sci- ences with emphasis on numerical and graphical solu- tions; use of computers. May not be taken for credit in addition to AMS 161 or MAT 305.

**Prerequisite:** C or higher in MAT 127 or 132 or 142 or AMS 161 or level 9 on the mathematics placement examination
MAT 305 Calculus IV
Linear versus nonlinear equations and their numerical solutions, existence and uniqueness, Duhamel’s principle for linear equations, series solutions, systems, Introduction to wave, heat, and Laplace equations; Fourier series; comparison of separation of variables with integral formulas. More theoretical than MAT 303. Applications to the physical sciences. May not be taken for credit in addition to MAT 303 or AMS 361. 
Prerequisite: C or higher in MAT 127 or 132 or 142 or AMS 301 or level 9 on the mathematics placement examination.
3 credits

MAT 310 Linear Algebra
Finite dimensional vector spaces, linear maps, dual spaces, bilinear functions, inner products. Additional topics such as canonical forms, multilinear algebra, numerical linear algebra.
Prerequisite: C or higher in MAT 211 or 305 or AMS 210; C or higher in MAT 200 or permission of instructor.
3 credits

MAT 311 Number Theory
Congruences, quadratic residues, quadratic forms, continued fractions, Diophantine equations, number theoretic functions, and properties of prime numbers.
Prerequisite: C or higher in MAT 312 or 313 or 318; C or higher in MAT 200 or permission of instructor.
2 credits

MAT 312 Applied Algebra
Topics in algebra: groups, informal set theory, relations, homomorphisms. Applications: error correcting codes, Burnside’s theorem, computational complexity, Chinese remainder theorem. This course is offered as both AMS 351 and MAT 312.
Prerequisite: C or higher in AMS 210 or MAT 211
Advisory Prerequisite: MAT 200 or CSE 113
3 credits

MAT 313 Abstract Algebra
Groups and rings together with their homomorphisms and quotient structures. Unique factorization, polynomials, and fields.
Prerequisite: C or higher in MAT 310 or 312 or 318; C or higher in MAT 200 or permission of instructor.
3 credits

MAT 316 Invitation to Modern Mathematics
Mathematical reasoning and the process of mathematical research. The power and range of modern mathematics are discussed in detail through a few key theorems in algebra, analysis, geometry, and topology together with some applications.
Prerequisites: MAT 211 or AMS 210; MAT 205 or 305 or AMS 210; MAT 200 or permission of instructor.
3 credits

MAT 318 Classical Algebra
Re-examines algebra from an historical perspective: the Hindu-Arabic number system; mathematics in ancient Egypt and China; the Greek contribution (unique factorization, Euclidean division algorithm, polynomials); unsolvability of the three great problems (trisecting the angle, squaring the circle, solving quintics); modern perspectives.
Prerequisites: C or higher in the following: MAT 125 or 131 or 141 or AMS 151; MAT 211 or AMS 210; MAT 200 or permission of instructor.
Advisory Prerequisite: MAT 125 or 131
3 credits

MAT 319 Foundations of Analysis
A careful study of the theory underlying topics in one-variable calculus, with an emphasis on those topics arising in high school calculus. The real number system. Limits of functions and sequences. Differentiations, integration, and the fundamental theorem. Infinite series.
Prerequisites: C or higher in MAT 200 or permission of instructor; C or higher in one of the following: MAT 203, 205, 211, AMS 261, or A or higher in MAT 127, 132, 142, or AMS 161
3 credits

MAT 320 Introduction to Analysis
Prerequisites: C or higher in MAT 200 or permission of instructor; C or higher in one of the following: MAT 203, 205, 211, AMS 261, or A or higher in MAT 127, 132, 142, or AMS 161
3 credits

MAT 321 Analysis in Several Dimensions
Prerequisites: C or higher in MAT 203, 205, or AMS 261; C or higher in MAT 211 or AMS 210; B or higher in MAT 320
Advisory Prerequisite: MAT 310
3 credits

MAT 322 Analysis on Manifolds
Prerequisites: C or higher in MAT 203 or 205 or AMS 261, B or higher in MAT 320
5 credits

MAT 324 Real Analysis
Metric spaces, including compactness, connectedness, completeness, and continuity. Differentiation, integration, and the fundamental theorem of calculus.
Prerequisites: MAT 211 or 215 or AMS 210; MAT 200 or permission of instructor.
3 credits

MAT 326-H History of Mathematics
A survey of the history of mathematics from the beginnings through the 19th century, with special attention to primary sources and to the interactions between culture and mathematics. Emphasis on top- ics germane to the high school curriculum. Mesopotamian, Egyptian, and Greek mathematics; non-European mathematics; early Renaissance mathematics; the birth and flowering of calculus; the beginnings of probability theory; and the origin of non-Euclidean geometrics and the modern concept of number.
Prerequisites: MAT 200 or AMS 301
3 credits

MAT 331 Computer-Assisted Mathematical Problem Solving
Exploration of the use of the computer as a tool to gain insight into complex mathematical problems through a project-oriented approach. Students learn both the relevant mathematical concepts and ways that the computer can be used (and sometimes misused) to understand them. The particular problems may vary by semester; past topics have included cryptography, fractals and recursion, modeling the flight of a glider, curve fitting, the Brachistochrone, and computer graphics. No previous experience with computers is required.
Prerequisite: C or higher in MAT 203 or 205.
3 credits

MAT 332 Group Theory
The local and global geometry of surfaces: geodesics, parallel transport, curvature, isometries, the Gauss map, the Gauss-Bonnet theorem.
Prerequisite: C or higher in the following: MAT 205 or 203 or AMS 261; MAT 211 or AMS 210; MAT 200 or permission of instructor.
3 credits

MAT 342 Applied Complex Analysis
Functions of a complex variable, calculus of residues including evaluation of real integrals, power and Laurent series, conformal mappings and applications, Laplace and Cauchy-Riemann equations, the Dirichlet and Neumann problems, and the Laplace and Hilbert transforms and their applications to ordinary and partial differential equations.
Prerequisites: C or higher in the following: MAT 205 or 203 or AMS 261; MAT 203 or 305 or AMS 361
Advisory Prerequisite: MAT 331
3 credits

MAT 344 Topology and Geometry
A broadly based introduction to topology and geometry, the mathematical theories of shape, form, and rigid structure. Topics include intuitive knot theory, lattices and tilings, non-Euclidean geometry, smooth curves and surfaces in Euclidean 3-space, open sets and continuity, combinatorial and algebraic invariants of spaces, higher dimensional spaces.
Prerequisites: MAT 203 or 205 or AMS 261
Advisory Prerequisite: MAT 319 or 320
3 credits

MAT 354 Logic
A survey of the logical foundations of mathematics: development of propositional calculus and quantification theory, the notions of a proof and of a model, the completeness theorem, Gödel’s incompleteness theorem. This course is offered as both CSE 371 and MAT 371.
Prerequisite: MAT 200 or CSE 213
3 credits
MAT 373 Analysis of Algorithms
Mathematical analysis of a variety of computer algorithms including searching, sorting, matrix multiplication, fast Fourier transform, and graph algorithms. Time and space complexity. Upper-bound, lower-bound, and average-case analysis. Introduction to NP completeness. Some machine computation is required for the implementation and comparison of algorithms. This course is offered as AMS 373, CSE 373, and MAT 373.
Prerequisites: MAT 211 or AMS 210; CSE 214
3 credits

MAT 401 Seminar in Mathematics
Discussions of a specific area of interest in mathematics. The work of each semester covers a different area of mathematics. May be repeated as topic changes. Prerequisites will be announced with the topic each time the course is offered.
Prerequisites: U3 or U4 standing; additional prerequisites announced with topic
3 credits

MAT 402 Seminar in Mathematics
Discussions of a specific area of interest in mathematics. The work of each semester covers a different area of mathematics. May be repeated as topic changes. Prerequisites will be announced with the topic each time the course is offered.
Prerequisites: U3 or U4 standing; additional prerequisites announced with topic
3 credits

MAT 475 Undergraduate Teaching Practicum
Each student assists in teaching a lower-division mathematics course or works in the Mathematics Learning Center. The student's work is regularly supervised by a faculty member. In addition, a weekly seminar is conducted. Responsibilities may include preparation of materials for student use and discussions, helping students with problems, and involvement in "alternative" teaching projects. Intended for upper-division students who have excelled in the calculus sequence. May not be used for major credit.
Prerequisite: Permission of the director of undergraduate studies
3 credits, S/U grading

MAT 487 Independent Study in Special Topics
A reading course for juniors and seniors. The topics may be chosen by the student with the approval of a supervising member of the faculty, who also takes responsibility for evaluation. A topic that is covered in a course regularly offered by the department is not appropriate for independent study. May be repeated.
Prerequisite: Permission of the director of undergraduate studies
0-6 credits

MAT 495 Honors Thesis
The student and a supervising faculty member together choose a topic in mathematics, and the student writes a substantial paper expounding the topic in a new way.
Prerequisite: Permission of the director of undergraduate studies
3 credits
MEC 100 Introduction to Mechanical Engineering
Introduction to the engineering experience in general and mechanical engineering in particular through lectures by faculty and invited speakers from industry, field trips, films and laboratory demonstrations. Lectures cover creative thinking and problem-solving, design team work, computer utilization, engineering ethics and legal issues, use of libraries and other sources of information, career opportunities in mechanical engineering and related fields, emerging technologies and the cross-disciplinary nature of engineering.
3 credits

MEC 101 Engineering Computing and Problem Solving I
Computer integrated introduction to engineering design and analysis. The mechanical engineering profession, engineering ethics, and engineering impact on society. Engineering equations, graphs, dimensional analysis, curve fitting, optimization in engineering design. Introduction to vectors and engineering statics, failure, and materials selection. Use of spreadsheets and MATLAB.
2 credits

MEC 102 Engineering Computing and Problem Solving II
Introduction to programming with MATLAB. Control structures, arrays and matrix operations, functions, object-oriented programming, interfacing MATLAB with other languages. Projects include applications in solid mechanics, fluid mechanics, thermodynamics and heat transfer, control theory, and basic design concepts. Emphasizes the interpretation of previous analysis in terms of generating results, making quantitative comparisons, and assessing changes that optimize or otherwise maximize the usefulness of the result.
Prerequisite: MEC 101
3 credits

MEC 104-E Practical Science of Things
A practical introduction to the science and engineering of objects and phenomena in everyday life. The basic principles that underlie the operation common to modern devices such as roller coasters, balloons, vacuum cleaners, airplanes, bicycles, thermostats, air conditioners, automobiles, and GPS systems are developed by investigating how they work. Issues of design, safety, and environmental impact are also discussed.
Prerequisite: Satisfaction of entry skill in mathematics requirement (Skill I) or satisfactory completion of D,E,C
3 credits

MEC 105-E Everyday Science
A practical introduction to the science and engineering of objects and phenomena in everyday life. The basic principles that underlie the operation common to modern devices such as xerographic copiers, tape recorders, computers, microwaves, lasers, CDs, plastics, nuclear weapons, and magnetic resonance imaging (MRI) are developed by investigating how they work. Issues of design, safety, and environmental impact are also discussed.
Prerequisite: Satisfaction of entry skill in mathematics requirement (Skill I) or satisfactory completion of D,E,C
3 credits

MEC 111 Computer Science for Engineers
An introduction to computer science and the use of the computer for solving scientific and engineering-related problems. Students gain experience using the FORTRAN programming language. Primarily for engineering students not planning to take advanced computer science courses. May not be taken simultaneously with CSE 110. Students who have a C or higher in CSE 114 may not take MEC 111.
Prerequisites: AMS 151 or MAT 125 or 131 or 141; PHY 125 or 131/133 or 141
3 credits

MEC 112 Practical C/C++ for Scientists and Engineers
Introduces computer sciences and the use of the computer for solving scientific and engineering problems using the C/C++ programming language. Students gain experience using graphical interface (GUI) and object-oriented programming concepts. Primarily for engineering students who are not planning to take advanced computer science courses. Students who have earned a C or higher in CSE 114 may not take MEC 112.
Prerequisites: AMS 151 or MAT 125, 131 or 141; PHY 125, 131/133 or 141
3 credits

MEC 160-E Introductory Nuclear Science and Technology
Introduces the basic concepts of nuclear science. Topics include: basic atomic structure; isotopes; mass-energy equivalence; binding energy; decay of radionuclides; nuclear reactions; fission and fusion; the interaction of radiation with matter; and biological effects of radiation. Discusses nuclear science concepts in the context of relevant applications such as nuclear medicine and imaging, nuclear power, radioactive waste, food irradiation, and weapons. Not intended for science majors.
Prerequisite: MAT 125 or level 4 on the mathematics placement examination
3 credits

MEC 200 Technical Communication in Mechanical Engineering I
Introduction to technical writing and oral communication with topics chosen from mechanical engineering. Includes technical memo and report writing and an introduction to researching sources of information. Emphasizes the development of oral presentation skills.
Prerequisites: MEC major; U2 standing
1 credit, S/U grading

MEC 202 Engineering Drawing and CAD I
Introduces methods used to communicate design ideas through the techniques of freehand technical sketching and computer-aided design software. Includes the principles of engineering drawing and sketching for mechanical design and the application of computer-aided design software in developing engineering drawings and mechanical designs. Prerequisite: MEC major or permission of department
1 credit

MEC 203 Engineering Drawing and CAD II
Application of computer graphics and solids modeling to design and representation of 3D objects, their assembly and tolerance analysis. Includes hands-on experience in the use of CAD software packages for solids modeling.
Prerequisite: MEC 202
2 credits

MEC 260 Engineering Statics
Prerequisite: PHY 131/133 or 141 or 125
Corequisite: AMS 261 or MAT 203
2 credits

MEC 262 Engineering Dynamics
Prerequisite: MEC 260
3 credits

MEC 280-H Pollution and Human Health
An examination of major environmental pollution problems such electromagnetic radiation, ozone layer depletion, and global warming, with a specific focus on the resulting effects on human health. Assessment of health risks in relation to the formulation of environmental and workplace regulations is also considered.
Prerequisite: One D,E,C. category E course
3 credits

MEC 290-H Nuclear Technology: History, Society, Medicine, and the Environment
Introduces the history and applications of nuclear technology in our society and addresses the social and environmental implications and issues. Topics include radiation types and sources; biological effects, standards, and radiation protection; fission, breeding, and fusion; nuclear waste; weapons. Discusses current applications including power, food irradiation, medical applications, isotope dating, and advanced applications such as space power and propulsion, accelerators, and antiprotons.
Prerequisite: One D,E,C. category E course
3 credits

MEC 300 Technical Communication in Mechanical Engineering II
Aims to ensure proficiency in the types of communication necessary for success in the engineering profession. Provides students with the ability to apply their knowledge of correct written and spoken English to the diverse modes of communication encountered and used by engineers in the professional workplace.
Prerequisites: WRT 102; MEC major; U3 or U4; MEC 200
1 credit, S/U grading

MEC 301 Thermodynamics
Variables that describe the thermodynamic state of a system or control volume, including absolute temperature, internal energy, enthalpy, and entropy are introduced, and basic principles governing the transformations of energy, especially heat and work, are developed. Underlying principles are used to analyze and solve problems related to thermodynamic systems and to determine the changes in properties of the systems and surroundings implied by changes in inputs, configuration, or constraints.
Prerequisites: AMS 261 or MAT 203; PHY 125 or 131/133 or 141
3 credits

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