MAE 301 and C or higher in MAE 311
MAE 302
BIO 201 and 202; CHE 132 or 142
AMS 110 or other statistics
MAE 312
MAE 302
MAR 101 or 104 or 333; PHY
MAT 211; admission to mathematics or
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CHE 132/134 or 142/144
MAE 312
U3 or U4 standing; BIO 101
MAE 451 and 452
MAE 451 and 454
MAE 312; MAT 312, 319 and 360; AMS
permission of director of mathematics teacher education program
3 credits
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.
3 credits
MAP 103 Probability 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.
3 credits
MAR 101-E Long Island Sound: Science and Use
An introduction to one of the region’s most important coastal marine environments—Long Island Sound. The course traces the origin and development of the Sound, presents an overview of the natural physical, biological, chemical, and geological processes that characterize it; explores its importance to society and assesses how society’s uses of the Sound have affected it; evaluates attempts to manage it; and looks at the future of the Sound.
3 credits
MAR 104-E Oceanography
An examination of the World Ocean and the processes that control its major features and the life that inhabits it. Suitable for non-science majors.
3 credits
MAR 301 Environmental Microbiology
Microbiological mediation of natural processes in the marine, freshwater, soil, and groundwater habitats, as well as microbial potential for remediation of pollutants and public health issues. The course includes a survey of taxonomic and metabolic diversity, elementary cell biology, nutrition, environmental controls on physiology and adaptations, biogeochemical cycles, and modern methods of sampling and analysis. Not for credit in addition to BIO 357.
Prerequisites: BIO 202; CHE 131 or 141
3 credits
MAR 302 Marine Microbiology and Microbial Ecology
Introduction to the evolution, diversity, and importance of the microbial flora of the sea. Lectures highlight the physiological distinctions and ecological functions of each of the major microbial groups (viruses, bacteria, fungi, protozoans, algae). Particular emphasis is placed on the role of these microorganisms in many of the elemental (geochemical) cycles of the oceans. Aspects of the microbiota as agents of environmental pollution or detoxification are also discussed.
Prerequisites: BIO 201 and 202; CHE 132 or 142
Advisory Prerequisite: MAR 301
3 credits
MAR 303 Long Island Marine Habitats
The study of six representative marine environments around Long Island. Students visit the sites on weekly field trips, measuring environmental parameters and identifying common plants and animals. Using qualitative and quantitative methods in the field and in two weekly laboratory sessions, the class determines major factors that control the biological community in each habitat.
Prerequisites: U3 or U4 standing; BIO 201
Advisory Prerequisites: AMS 110 or other statistics course; MAR 101 or 333
3 credits
MAR 304-E Waves, Tides, and Beaches
A survey of wave and tides, including both a description of the phenomena and the basic theory of waves and sediment transport. This background forms the basis for a description of shore processes including beaches, shoreface dynamics, and coastal erosion. Areas of current research are also discussed.
Prerequisites: MAT 127 or 132 or 142 or AMS 161
Advisory Prerequisites: MAR 101 or 104 or 333; PHY 122/124 or 126 or 132/134 or 142
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, sociology, anthropology, and philosophy 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