

Course Abbreviation Key

ABI = Animal Biology
 ANG = Animal Genetics
 ANT = Anthropology
 APC = Anatomy, Physiol. & Cell Bio.
 ATM= Atmospheric Science
 ANS = Animal Science
 BIS = Biology
 BIT = Biotechnology
 CHA = Cell Biology and Human
 Anatomy (School of Medicine)
 CHE = Chemistry
 EME= Mechanical Engineering
 ENG= Engineering
 ENT = Entomology
 EPI = Epidemiology (Graduate Group)
 ESM= Enviro. Sci. and Management
 ESP = Enviro. Sci. and Policy
 ETX = Environmental Toxicology
 EVE = Evolution and Ecology
 FAP = Family and Community
 Medicine
 FPS = Fiber and Polymer Science
 FST = Food Science and Technology
 GDB = Global Disease Biology
 GEL = Geology
 HIS = History
 HYD = Hydrology
 IDI = Internal Med-Infectious Diseases
 MCB = Molecular and Cellular Biology
 MIC = Microbiology
 MMI = Medical Microbiology and
 Immunology
 NPB = Neurobiol., Physiol., & Behav.
 NUT = Nutrition
 PLB = Plant Biology
 PLP = Plant Pathology
 PLS = Plant Sciences
 PMI = Pathology, Microbiology, and
 Immunology (School of Vet. Med.)
 POL = Political Sciences
 PSC = Psychology
 SPH = Public Health (School of
 Medicine)
 SSC = Soil Science
 VEN = Viticulture and Enology
 WFC = Wildlife, Fish, & Conservation
 Biology

ETX Emphases

The ETX Emphases are designed to give you a chance to explore a chosen area of the major more thoroughly and give you a broader sense of the material covered in the core ETX courses. Upper division courses from both ETX and other departments on campus are recommended with these goals in mind.

ETX majors are required to choose 24-26 units of Restricted Elective courses in an Emphasis area. Each student meets with his/her faculty advisor to discuss these choices and obtain approval prior to taking the classes. Courses other than those listed below may be used with faculty advisor approval.

Six Pass/No Pass units may be used toward the Restricted Electives requirement including one or more of the following type courses: ETX 199 (special study in a lab), ETX 192 (internship), ETX 190 (seminar). Similar courses in other departments may also be approved by your faculty advisor.

Note: Each student must obtain the approval signature on his/her Restricted Elective Course list and turn it into the Advising Office (4111 Meyer Hall) by no later than the first quarter of his/her senior year.

Ecotoxicology & Environmental Chemistry

Courses in Biology, Environmental Science and Policy; Wildlife, Fish, Conservation Biology; Chemistry; Hydrology; and other areas are brought together in this emphasis to give a better understanding of how different environments function, how chemicals move through them, and what organisms those chemicals affect.

Aquatic Toxicology:

BIS 122/122P—Population Biology and Ecology—3 units (III) / 5 (III) - BML*
 ESP/GEL 116N—The Oceans— 3 (II) (even years)
 ESP 151/151L—Limnology—4 (III) / 3 (III)
 ESP 124—Marine and Coastal Field Ecology—3 (IV) - BML*
 ESP 155/155L—Wetland Ecology—4 (I) / 3 (I)
 ETX 120—Perspectives in Aquatic Toxicology—4 (II) (odd years)
 ETX 127—Enviro. Stress & Develop. in Marine Organisms—10 (IV) - BML*
 EVE 112/112L—Biology of Invertebrates—3 (II) / 2 (II) (even years)
 NPB 141/141P—Physiological Adaption of Marine Organisms—
 3 (III) / 5 (III) - BML*
 WFC 120—Biology and Conservation of Fishes—3 (I)
 WFC 121—Physiology of Fishes—4 (II)
 WFC 122—Population Dynamics and Estimation—4 (III)
 WFC 157—Coastal Ecosystems (even years)—4 (III)

Ecology:

ESM 120 — Global Environmental Interactions— 4 units (II)
 ESP 100**—General Ecology—4 (I, II)
 EVE 101**—Introduction to Ecology—4 (I, II, III)
 ETX 198-003—Evolution in Human-Altered Environments—3 (III)
 GEL 130—Non-Renewable Natural Resources—3 (III)
 PMI 127—Medical Bacteria and Fungi —5 (III)

* BML = Bodega Marine Laboratory

** either ESP 100 or EVE 101

Ecology (continued):

- WFC 122—Population Dynamics and Estimation—4 (III)
 WFC 151—Wildlife Ecology—4 (I)
 WFC 153—Wildlife Ecotoxicology—4 (not currently offered)
 WFC 154—Conservation Biology—4 (I)

Chemical Fate:

- ATM/ENG 149—Introduction to Air Pollution—4 units (I)
 ATM 160—Introduction to Atmospheric Chemistry—4 (II)
 CHE 100—Environmental Chemistry of Water (II) (alternate years)
 CHE 107 A/B—Physical Chemistry for the Life Sciences—3 (I) / 3 (II)
 CHE 115—Instrumental Analysis—4 (I, II)
 ESM 100—Principles of Hydrologic Science—4 (I)
 ESP/GEL 116N—Oceanography—3 (II)
 HYD 134—Aqueous Geochemistry—6 (III)
 HYD 141—Physical Hydrology—4 (I)
 HYD/ENG 144—Groundwater Hydrology—4 (I)
 HYD 146—Hydrogeology and Contaminant Transport—5 (II)
 MIC 104/104L—General Microbiology—4 (I) / 3 (I)
 MIC 105—Microbial Diversity—3 (II)
 SSC 100—Principles of Soil Science—5 (I)
 SSC 102—Environmental Soil Chemistry—3 (II)
 SSC 107—Soil Physics—5 (I)
 SSC 111—Soil Microbiology—4 (II)
 VEN 123—Analysis of Musts and Wines—2 (I)

Forensic Science and Regulatory Toxicology

Courses in Environmental Science and Policy, Physiology, Law, Psychology, and other areas are brought together in this emphasis to give a better look into the legal and regulatory side of toxicology with focus on environmental law, forensic science, and public health.

Environmental Policy and Management:

- ESP 160—The Policy Process—4 units (III)
 ESP 161—Environmental Law—4 (III)
 ESP 164—Ethical Issues in Environmental Policy—3 (III)
 ESP 179—Environmental Impact Assessment—4 (II)
 ETX 135—Health Risk Assessment of Toxicants—3 units (I)
 ETX 146—Exposure Assessment—3 (III) (alternate years)
 POL 150—Judicial Politics and Constitutional Interpretation—4 (I, II)
 PSC 153—Psychology and Law—4 (III) (alternate years)

Forensic Science:

- ANT 153—Human Biological Variation—5 units (I, II)
 CHA 101/101L—Human Gross Anatomy—4 (II) / 3 (II)
 CHE 104 — Forensic Applications of Analytical Chemistry — 3 (I)
 EME 161—Combustion and the Environment—4 (III)
 ENT 158—Forensic Entomology—3 (III)
 ETX 110—Toxic Tragedies—2 (II)
 FPS 161—Structure and Properties of Fibers—3 (I)
 FPS 161L—Textile Chemical Analysis Laboratory—1 (I)
 NPB 101/101L—Systemic Physiology— 5 (I, II, III) / 3 (I, II, III)
 NPB 168—Neurobiology of Addictive Drugs—4 (III)
 PLB 102—California Floristics—5 (III)
 PSC 153—Psychology and Law—4 (III)

Public Health:

- BIS 101 — Genes and Gene Expression — 4 units (I, II, III)
 ETX 140 — Genes and the Environment —3 (I) (alternate years)
 ETX 110—Toxic Tragedies—2 (II)
 FAP 195 — Health Care to Underserved Populations— 1 (II)
 GDB 101—Epidemiology — 4
 GDB 102 — Disease Intervention and Policy — 4
 HIS 109B— Environmental Change, Disease and Public Health—4 (I)
 IDI 141—Infectious Diseases in Humans—1 (I)
 MCB 162— Human Genetics and Genomics—3 (I)
 MMI 130—Medical Mycology—2 (II) (alternate years)
 MMI 188 — Human Immunology—3 (II)
 PMI 126/126L—Fundamentals of Immunology—3 (II) / 2 (II)
 PMI 127—Medical Bacteria and Fungi—5 (III)
 PMI 129Y 001— One Health Fundamentals (Human, Animals and Environment Interfaces)—3 (I)
 SPH 101—Perspectives in Community Health—3 (III)
 SPH 104—Globalization and Health: Evidence and Policies—3 (I)

Molecular and Biomedical Toxicology

Courses in Biology, Microbiology, Biotechnology, Nutrition, Food Science, Physiology, Biochemistry, and other areas are brought together in this emphasis to give a better foundation in the biological effects of toxicants, effects and behavior of pharmaceuticals, and medicine.

Biotechnology:

- ANG 111—Molecular Biology Laboratory Techniques (Animal Genetics)—4 units (I)
 BIS 102—Structure and Function of Biomolecules—3 (I, II, III)
 BIS 103—Bioenergetics and Metabolism—3 (I, II, III)
 BIS 104—Cell Biology—3 (I, II, III)
 BIT 160—Principles of Plant Biotechnology—3 (II)
 BIT 161A/B—Plant Genetics and Biotechnology Labs—6 (II) / 6 (III)
 BIT 171—Professionalism and Ethics in Genomics and Biotechnology—3 (I, II, III)
 NPB 101/101L—Systemic Physiology— 5 (I, II, III) / 3 (I, II, III)
 MCB 121—Advanced Molecular Biology 3 (I, II, III)
 MCB 126—Plant Biochemistry—3 (II)
 MIC 104/104L—General Microbiology—4 (I) / 3 (I)
 MIC 140/155L—Bacterial Physiology—3 / 4 (offered irregularly)
 MIC 150—Bacterial Genetics—3 (offered irregularly)
 MIC 162—General Virology—4 (II)
 PLP 140—Agricultural Biotechnology, Public Policy—4 (III)
 PLS 152—Plant Genetics —4 (I)
 PMI 128—Biology of Animal Viruses—3 (III)
 PMI 126/126 L—Fundamentals of Immunology—3 (II) / 2 (II)

Food Toxicology:

- ETX 128—Food Toxicology—3 units (III)
 FST 100 A/101 A—Food Chemistry—4 (I) / 2 (I)
 FST 100 B/101 B—Food Properties—4 (II) / 2 (II)
 FST 103—Physical and Chemical Methods for Food Analysis—4 (II)
 FST 104/104L—Food Microbiology—3 (II) / 4 (III)
 MIC 104/104L—General Microbiology—4 (I) / 3 (I)
 MMI 130—Medical Mycology—2 (II) (alternate years)
 NUT 111AV—Introduction to Nutrition and Metabolism—3 (III)
 NUT 111B—Recommendations and Standards for Human Nutrition—2 (III)
 NUT 112—Nutritional Assessment—3 (III)
 NUT 114—Developmental Nutrition—4 (II)
 PLB 111—Plant Physiology—3 (I)

Medicine:

CHA 101/101L—Human Gross Anatomy—4 units (II) / 3 units (II)
 BIS 101— Genes and Expression—4 (I, II, III)
 ETX 140 — Genes and the Environment —3 (I) (alternate years)
 IDI 141—Infectious Diseases in Humans—1 (I)
 MIC 104/104L—General Microbiology—4 (I) / 3 (I)
 NPB 100—Neurobiology—4 (I, II, III)
 NPB 101/101L—Systemic Physiology 5 (I, II, III) / 3 (I, II, III)
 NPB 102—Animal Behavior—3 (II, III)
 NPB 113—Cardiovascular, Respiratory, and Renal Physiology—4 (offered irregularly)
 NPB 114—Gastrointestinal Physiology—3 (I)
 NPB 121/121L—Physiology of Reproduction—4 (II) / 1 (II)
 NPB 140—Principles of Environmental Physiology—3 (II)
 NPB 168—Neurobiology of Addictive Drugs—4 (III)
 PMI 126/126L—Fundamentals of Immunology—3 (II) / 2 (II)
 PMI 127—Medical Bacteria and Fungi—5 (III)

Pharmacology:

BIS 103—Bioenergetics and Metabolism—3 units (I, II, III)
 BIS 104—Cell Biology—3 (I, II, III)
 CHA 101/101L—Human Gross Anatomy—4 (II) / 3 (II)
 CHE 130A/B Pharmaceutical Chemistry—3 (II) / 3 (III)
 EVE 112/112L—Biology of Invertebrates—3 (II) / 2 (II) (even years)
 IDI 141—Infectious Diseases in Humans—1 (I)
 MCB 120L—Biochemistry Laboratory—6 (I, II, III)
 MCB 121—Advanced Molecular Biology—3 (I, II, III)
 MCB 123—Behavior and Analysis of Enzyme and Receptor Systems—3 (I, III)
 MIC 104/104L—General Microbiology—4 (I) / 3 (I)
 NPB 101/101L—Systemic Physiology 5 (I, II, III) / 3 (I, II, III)
 NPB 160—Molecular and Cellular Neurobiology—3 (III)

Veterinary Medicine:

ABI 102*—Animal Biochemistry and Metabolism—5 units (I)
 ABI 103*—Animal Biology—5 (II)
 ANG 107—Genetics and Animal Breeding—5 (I)
 ANG 111—Molecular Biology Laboratory Techniques—4 (I)
 APC 100 —Comparative Vertebrate Organology—4 (II)
 MCB 150—Developmental Biology—4 (III)
 MMI 116—Parasitology for Wildlife Biologists—3 (III)
 NPB 101/101L—Systemic Physiology 5 (I, II, III) / 3 (I, II, III)
 NPB 121/121L—Physiology of Reproduction—4 (II) / 1 (II)
 NUT 123—Comparative Animal Nutrition—3 (III)
 PMI 126/126L—Fundamentals of Immunology—3 (II) / 2 (II)
 PMI 127—Medical Bacteria and Fungi—5 (III)
 WFC 153—Wildlife Ecotoxicology—4 (no longer offered)

*ABI 102 and ABI 103 are substitutes for BIS 102 and BIS 103, which are requirements for the ETX major. Talk to the major advisor if you have taken/plan to take ABI 102 or 103 instead.

Student Designed Emphases

Students can construct their own area of emphasis under the explicit direction of their faculty advisers.

This document is produced by the Department of Environmental Toxicology, Academic Advising Office:
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(Note: The number of units and the time classes are being offered are subject to change every quarter.)