

For students declaring their major after August 15, 2005

Biology Curriculum

The major consists of 36 credits in Biology which must include, BIOL 210 (Intro. To Ecology), BIOL 211 (Cellular Biology), BIOL 341 (General Genetics), and BIOL 451 (Senior Seminar). Certain courses offered by the Department will not count towards the minimum 36 credit hours; these courses are: BIOL 203 (Science in Perspective), BIOL 204 (Nutrition), BIOL 250 (Bioethics), and BIOL 499 (Internship).

Students planning to major in Biology should take Biological Concepts I and II (BIOL 121 & 122), and General Chemistry I & II (CHEM 111 & 112) in the first year. Both courses are prerequisites to BIOL 210 (Introduction to Ecology) and BIOL 211 (Cellular Biology) and most other upper-level biology courses.

During the second year the required courses of BIOL 210 (Fall or Spring Semester), BIOL 211 (Fall Semester only), and BIOL 341 (Spring Semester only) should be taken.

All majors are required to have one field experience and one plant biology course. Courses that meet these requirements are:

<u>Field Experience Courses</u>		<u>Plant Biology Courses</u>
BIOL 231 Botany		
BIOL 311 Plant Ecology	BIOL 424 Tropical Ecology	BIOL 231 Botany
BIOL 321 Invertebrate Zoology	BIOL 425 Vertebrate Zoology	BIOL 311 Plant Ecology
BIOL 322 Animal Ecology	BIOL 426 Biology of Fishes	BIOL 312 Plant Physiology
BIOL 323 Entomology	BIOL 427 Ornithology	

The topics for BIOL 451 (Senior Seminar) change as each professor offers sections in an area of his/her interest. Multiple sections of BIOL 451 are offered each semester. This course is taken in the Senior year.

It is strongly recommended that students take additional chemistry, physics, statistics, computer science, geology, and/or mathematics courses to broaden their background and enhance their understanding of Biology. These disciplines provide tools to help unravel the mysteries of life and should be considered integral to a well-constructed program of study. A variety of other courses, such as those which provide a different perspective of biology [PHIL 244 (Philosophy of Science), and BIOL 250 (Bioethics)], and those which help develop skills useful to a scientist, such as writing and speaking, should also be included.

A number of General Education requirements (see catalog description) can be fulfilled with courses which will strengthen the Biology Major's program of study. For example, MATH 121 & 122 (Calculus I & II), MATH 200 (Introduction to Statistics), CPSC 110 (Introduction to Computer Science), and CPSC 220 & 230 (Computer Science I & II) all satisfy *Goal 2* of the General Education Curriculum. BIOL 121 & 122 (Biological Concepts I & II) will, of course, satisfy *Goal 3*.

The *Environmental Awareness* requirement of the General Education Curriculum may be met by completion of BIOL 122 (Biological Concepts II), BIOL 210 (Introduction to Ecology), or BIOL 250 (Bioethics). BIOL 451 (Seminar) will meet the *Speaking Intensive* requirement, and several courses will help fulfill the *Writing Intensive* requirement, including BIOL 211 (Cellular Biology), BIOL 250 (Bioethics), BIOL 311 (Plant Ecology), BIOL 312 (Plant Physiology), BIOL 322 (Animal Ecology), BIOL 351 (Laboratory Techniques), BIOL 363 (Environmental Physiology), BIOL 364 (Animal Physiology), BIOL 385 (Human Physiology), BIOL 391 (Immunology), BIOL 411 Animal Behavior, and BIOL 432 (Virology).

Preparatory Programs

Students interested in pre-medical, pre-dental, or pre-veterinary programs, or other allied health fields should plan a program which will fulfill the entrance requirements of the professional schools to which they wish to apply. The appropriate pre-professional advisor should be consulted about these programs.

The Department of Education should be consulted about specific requirements for teacher certification.

Individual Study

The courses listed in the catalog provide a diverse offering to the prospective biology major. In addition, there are a variety of opportunities for earning credit for academic pursuits outside of structured class work. BIOL 481 (Readings in the Biological Sciences) and BIOL 491 (Special Problems in Biology) offer the opportunity to pursue studies beyond the scope of listed courses, or in some cases, in a different subject area altogether. BIOL 499 (Internship), allows a student to receive elective credit for supervised off-campus work. These courses are taken under the direction of a qualified staff member and require the permission of the Department before registration. A suitable format for requesting the approval of the Department for these courses may be obtained from the Chair. Faculty areas of interest for individual study courses are as follows:

- Dr. D. Baker: identifying neuroendocrine pathways mediating growth patterns, development, and life history decisions in animals;
- Dr. R. Barra: biology of cancer, effects of chemotherapy and immunotherapy on cell proliferation;
- Dr. A. Dolby: behavioral and physiological ecology; conservation biology of birds;
- Dr. S. Fuller: plant ecology, physiology, phytoplankton studies.;
- Dr. S. Gallik: cellular response to external mechanical stress, regulation of intracellular tension development;
- Dr. T. M. Grana: regulation of cell-cell adhesion during epithelial morphogenesis; genome-wide screening for proteins involved in cell-cell adhesion;
- Dr. A. Griffith: plant ecology, conservation biology of plants, biodiversity issues;
- Dr. J. Killian: entomology, parasitology, invertebrate zoology, pheromone technology, mating disruption in integrated pest management programs for tree fruits, insect and spider behavior;
- Mr. M. Killian: development of laboratory exercises for the undergraduate general biology laboratory;
- Dr. L. Lewis: microbiology, mechanisms of pathogenicity, microbial physiology and ecology;
- Dr. K. Loesser: disease mechanisms in the cardiovascular system, role of white blood cells in heart disease;
- Dr. D. O'Dell: developmental mechanisms in the nervous system, development of neural control of reproduction in honey bees;
- Dr. A. Tomba: interests include parasite-host and predator-prey interactions in stream communities;
- Dr. W. Wieland: natural history, systematics and evolution of fishes and other lower vertebrates;
- Dr. D. Zies: studies on molecular mechanisms involved in the transformation of normal cells to cancer cells.