

# Basic Sciences Program (Interdepartmental)

*Administrative Committee for Basic Sciences:  
Professor Cormack (Chair)*

## Degrees Offered: B.S. in Basic Sciences

The degree Bachelor of Science in Basic Sciences is intended for the student who desires a Bachelor of Science degree but wishes more latitude in the selection of courses than is available otherwise. It is well adapted to the needs of a student who may wish to complete preparation for secondary school teaching in science or mathematics. For this purpose, however, proper selection of courses is necessary, and the advice of the Department of Education should be sought.

To qualify for the degree Bachelor of Science in Basic Sciences, a student must satisfy the general requirements for the Bachelor of Science degree (page 54).

- Of the minimum 130 credit hours required for this degree, at least 65 must be in science and mathematics. These can include biology, chemistry, computer science, earth and environmental science, mathematics, engineering courses (numbered above 200), physics, and psychology.
- At least 30 of these credit hours must be in courses numbered 201 or above. In order that a reasonable depth of study is attained in at least two fields, the 30 credit hours must include at least nine credit hours in each of two fields.
- The foreign language requirement is six credit hours in a single language.
- Of the total credit hours required, at least 42 must be in courses numbered 300 or above.

# Biology

*Professors Kieft (Chair of the Department), Rogelj  
Associate Professors Kirk, Reiss  
Assistant Professors Naik, Shors  
Adjunct Faculty: Bhasker, Boston, Gonzales, Markwell, Strong  
Emeritus Faculty: Smoake*

## Degrees Offered: B.S. in Biology, Biology with Environmental Science Option, and Biology with Medical Technology Option; M.S. in Biology and M.S. in Biochemistry

The mission of the Biology Department is to provide students with a relevant education for biomedical and biotechnological careers, to lead in molecular biological research, and to serve the university and the scientific community. The Biology program prepares undergraduate students for graduate education in the medically allied professions and in the specialized fields of the biological sciences. (Students who are interested in pre-medical, pre-dental, and pre-veterinary science programs should see page 125) A wide variety of career opportunities is currently available for those individuals possessing advanced knowledge and skills, particularly in the areas of biochemistry, molecular biology, microbiology, ecology, genetics, endocrinology, and immunology. Market demand in these areas will likely remain strong for the foreseeable future.

Undergraduate majors typically have diverse career goals and objectives. To accommodate these differences, the undergraduate program is very flexible; only a minimal number of technical core courses is required. Through the selection of appropriate technical electives, each student customizes their education based on personal academic needs and career objectives.

The main approach in the classroom is to stress the highly quantitative and analytical nature of modern biological inquiry, which utilizes sophisticated biochemical and biophysical techniques to answer fundamental questions about living organisms. Undergraduates are encouraged to undertake research through various directed study and special topics offerings and are often employed as technicians in the research laboratories of the faculty.

## Program Educational Objectives:

Our graduates will be able to use basic principles of science to analyze, to explain, and to apply biological information and concepts.

Our graduates will be able to design and implement biological research and report findings orally and in writing.

## Undergraduate Program

### Bachelor of Science in Biology

*Minimum credit hours required—130*

*In addition to the General Degree Requirements (page 54), the following courses are required:*

- BIOL 111 (3), 111L (1), 112 (3), 112L (1), 311 (3), 311L (1), 331 (3), 333 (3) & 333L (1) or 341 (3) & 341L, and BIOL 471 (1)
- At least 6 additional credit hours from:  
BIOL 341 (3) & 341L (1) or 333(3) & 333L (1), 351 (3), 352 (3), 353L (2), 354L (2), 355 (2), 355L (1), 356 (2), 356L (1), 431 (3), 437 (3)
- At least 6 additional credit hours from:  
BIOL 343 (3), 343L (1), 344 (3), 344L (1), 446 (3), 447 (3), 447L (1)
- Additional Biology (12). CHEM 441 and 442 (Biochemistry I and II) may be applied to biology electives.
- CHEM 333 (3); plus 6 additional hours of the following: CHEM 311 (3–4), 331 (3–4), 333L (1), 334 (3), 334L (1), 441 (3–4)
- Computer Science or Mathematics: CS 111 (4) or MATH 283 (3)
- Electives to complete 130 hours