The biology program emphasizes the relationship between structure and function of living systems and the concept that biological processes can be studied at different levels of organization. The program provides a balanced blend of mathematics, chemistry, physics and traditional and modern biology including the advanced topics essential to students continuing their studies at the university. Life is explored at the molecular, cellular, organismal and ecological levels.

**ASSOCIATE IN SCIENCE DEGREE**

The Associate in Science Degree can be obtained by completing the 44-46 unit major, the general education requirements, and electives for a total of 64-66 units. All courses in the major must be completed with a grade of C or better or a P if the course is taken on a pass-no pass basis.

**REQUIRED COURSES**

<table>
<thead>
<tr>
<th>Course</th>
<th>Units</th>
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<tbody>
<tr>
<td>BIO 001 — Organismal Biology</td>
<td>5</td>
</tr>
<tr>
<td>BIO 002 — Cell and Molecular Biology</td>
<td>5</td>
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<tr>
<td>CHEM 001 &amp; 002 — General Chemistry (5 &amp; 5 units)</td>
<td>10</td>
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<tr>
<td>CHEM 003 &amp; 004 — Organic Chemistry (5 &amp; 5 units)</td>
<td>10</td>
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<tr>
<td>MATH 030 &amp; 031 — Analytic Geometry and Calculus (3 &amp; 3 units)</td>
<td>6</td>
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<td>OR</td>
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<tr>
<td>MATH 020 &amp; 021 — Analytic Geometry &amp; Calc. (4 &amp; 4 units)</td>
<td>6-8</td>
</tr>
<tr>
<td>PHYS 002 &amp; 004 — General Physics (Non-Calculus) (4 &amp; 4 units)</td>
<td>6-8</td>
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<td>OR</td>
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<tr>
<td>PHYS 006 &amp; 007 — Physics for Science/Engineering (4 &amp; 4 units)</td>
<td>8</td>
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</tbody>
</table>

**BIO 001**

Principles of Organismal Biology  
*Prerequisite: MATH 104. Course Advisory: Eligibility for ENGL 001.* This course for biology majors covers evolution, ecology, and the diversity of life. The laboratory component includes invertebrate and vertebrate dissection and several weekend and all day field trips. *Three hours lecture, six hours lab.*

**BIO 002**

Principles of Cell and Molecular Biology  
*Prerequisite: CHEM 001. Course Advisory: Eligibility for ENGL 001.* An introduction to basic concepts of cell and molecular biology that includes Mendelian and molecular genetics. Laboratory work includes performing current procedures in molecular biology with accurate reporting in scientific style. *Three hours lecture, six hours lab.*

**BIO 004**

Human Anatomy  
*Course Advisories: BIO 016; SCC minimum English and Math standards.* A study of the structure of the human body involving histology, gross dissection and prepared human materials. (Formerly BIO 006.) *Three hours lecture, six hours lab.*

**BIO 005**

Introductory Physiology  
*Prerequisite: A grade of “C” or better in BIO 006 and CHEM 001, or CHEM 010. Course Advisory: SCC minimum English and Math standards.* A physiology course that studies normal mechanisms and homeostatic relationships of most systems of the body from the molecular to the gross levels. The laboratory relates microstructure to function; utilizes a variety of instruments and techniques for measuring body parameters; and establishes the rationale for determining functional status. *Three hours lecture, six hours lab.*

**BIO 012**

Environmental Science  
*Course Advisories: Eligibility for ENGL 001 and SCC minimum math standard.* Examines the basic concepts of biology (especially ecology), chemistry, and physics to study: 1) human population growth; 2) short and long-term use of resources (such as soil, food, land, renewable and non-renewable energy, water, and air); and 3) the production of pollution and other wastes. *Three hours lecture.*
BIO 012L 1 Unit

Environmental Science Laboratory
Prerequisite: BIO 012 (may be taken concurrently) Course Advisories: Eligibility for ENGL 001 and SCC minimum math standard. A course that uses laboratory and mandatory field trip techniques to examine the ecological roles of organisms, resource use, and pollution/waste. Three hours lab.

BIO 014 4 Units
Principles of Microbiology
Prerequisite: A grade of “C” or better in CHEM 001, CHEM 010 or CHEM 051. The study of the morphology, physiology, genetics, taxonomy, and ecology of microorganisms. The course also includes principles of immunology, the control of microbes, and their relationship to disease. Laboratory exercises cover aseptic techniques, identification, staining, and microbial growth among others. Three hours lecture, three hours lab.

BIO 015 4 Units
Introduction to Biology
Prerequisite: None. NOTE: Not open for credit to students who have completed BIO 001 or 002. Course Advisories: Eligibility for ENGL 001; SCC minimum math standard. A non-majors biology course that introduces basic concepts of living organisms including aspects of biological chemistry, cell structure and function, physiology, genetics, evolution, and ecology. Students must successfully complete both the lecture AND lab portions of the course. Three hours lecture, three hours lab weekly, including field trips.

BIO 016 3 Units
Introduction to Human Biology
Prerequisite: None. NOTE: Not open for credit to students who have completed BIO 001, 002, 005, 010 or 015. Course Advisories: SCC minimum English and Math standards. An introduction to general biology with emphasis on the human model. Topics include cell structure and function, human evolution, anatomy and physiology, genetics, and the human impact on the environment. This is a course for non-majors. Three hours lecture.

BIO 018 3 Units
Biology of Sex
Course Advisories: SCC minimum English and Math standards. Our biological bases of sex and sexuality will be discussed and compared with other organisms. Essay and objective exams as well as written assignments will be used for student evaluations; the final exam will be comprehensive. Three hours lecture.

BIO 019 4 Units
Marine Biology
Course Advisories: Eligibility for ENGL 001 and SCC minimum math standard. A non-majors course that studies the diversity and natural history of life in the marine environment with an emphasis on the adaptations of organisms to their environment. Lecture and laboratory exams, written reports and several field trip activities are required to fulfill the course requirements. Some field trips may involve a fee. Three hours lecture, three hours lab.

BIO 047 0.5-3.0 Units
Independent Study
Prerequisite: A grade of “C” or better in 12 units of credit, including 4 units from within the discipline. Course Advisories: Eligibility for ENGL 001; statistics may be useful for data analysis. Designed for students who intend to major in biological sciences or pre-professional programs. May be repeated to a maximum of 3 units, including initial enrollment. One and one-half to nine hours weekly by arrangement.

BIO 049H 1-3 Units
Biology Honors
Prerequisites: Eligibility for Honors Program; BIO 001, BIO 002, BIO 005, BIO 014, or BIO 015 (any of these courses may be taken concurrently). Requires approval of a faculty member sponsor and the Dean of the Math-Science Division. Course Advisory: Eligibility for ENGL 001. Requires students to complete an independent student project under the supervision of a member of the faculty. The project may be a laboratory or field study or a library study that leads to a thesis. In all cases, the final written product should show integration and synthesis of ideas. Three to nine hours weekly by arrangement.

BIO 099 0.5-2.0 Units
Biology Honors: Dissection
Prerequisites: Completion of 24 units of college credit with a minimum GPA of 3.3; a minimum of 5 units in the discipline with a grade of “B” or better; an ability to work independently; permission of the Division Dean based on instructor availability. An independent study project designed to increase understanding of human anatomy through detailed dissection and other projects assigned by the supervising instructor. The student will be evaluated through oral examination and evaluation of dissections. May be repeated to a maximum of 6 units, including initial enrollment. One and one-half to six hours weekly by arrangement.

BIO 160 2.0 Units
Pre-Nursing Review
Prerequisites: CONDITION OF ENROLLMENT: Current acceptance or on the waiting list of an RN Program. This course focuses on science and mathematics topics that are critical to success for students entering an RN program. This course provides a review of select anatomy, physiology, chemistry, nutrition, microbiology, and mathematics topics for students entering nursing school. This course is especially designed for students that have had an extended time period between finishing their pre-nursing requirements and entering nursing school. (Same as MATH 160) Pass / No Pass Class. Eight hours lecture. (4 week course).

Special Topics
These courses, numbered 048, 098, or 148 depending upon their transferability, are courses of contemporary interest centered on changing knowledge and important issues in the field. Announcements of Special Topics courses appear in the Schedule of Classes.