



Transfer/Career Options
BIOLOGICAL SCIENCES
2010-2011

Biology is concerned with living matter in all its forms, responses, and interactions. It deals with the study of anything which has been or is alive: microbes, all plants, and all animals, including humans. What do biologists do?

There are several career paths you can follow as a biologist, including: Administrator • Biotechnologist • Botanist • Cell Biologist • Consultant • Dentist • Ecologist • Entomologist • Environmentalist • Genetic Engineer • Physiologist • Geneticist • Health Scientist • Lab Assistant • Marine Biologist • Medical Doctor • Medical Technologist • Pharmacologist • Physical Therapist • Population Biologist • Researcher • Teacher • Space Biologist • Technical Sales • Technical Writer • Toxicologist • Veterinarian • Zoologist

It is important to note that many careers mentioned are not open to students with bachelor's degrees and that advanced degrees or professional school studies are often required.

New directions in biological careers: There are many careers for biologists who want to combine their scientific training with interests in other fields. Here are some examples:

- **Biotechnology:** Biologists apply scientific principles to develop and enhance products, tools, and technological advances in fields such as agriculture, food science, and medicine. **Note: Skyline College offers an Associate of Science degree in Biotechnology.**
- **Forensic Science:** Forensic biologists work with police departments and other law enforcement agencies using scientific methods to discover and process evidence that can be used to solve crimes.
- **Politics and Policy:** Science advisors work with lawmakers to create new legislation on topics such as biomedical research and environmental protection. Their input is essential, ensuring that decisions are based upon solid science.
- **Business and Industry:** Biologists work with drug companies and providers of scientific products and services to research and test new products. They also work in sales, marketing, and public relations positions.
- **Economics:** Trained professionals work with the government and other organizations to study and address the economic impacts of biological issues, such as species extinctions, forest protection, and environmental pollution.
- **Mathematics:** Biologists in fields such as bioinformatics and computational biology apply mathematical techniques to solve biological problems, such as modeling ecosystem processes and gene sequencing.
- **Science Writing and Communication:** Journalists and writers with a science background inform the general public about relevant and emerging biological issues.
- **Art:** All the illustrations in your biology textbook, as well as in newspaper and magazine science articles, were created by talented artists with a thorough understanding of biology.

PLEASE NOTE: Information included within this handout was taken directly from the articulation agreements for each major and college found at www.assist.org. Given the limitations of space, not all information found on the respective agreements was included in this handout. *Students are encouraged to review the articulation agreements on ASSIST.*

TRANSFER CENTER, ROOM 2227

2010-2011 BIOLOGICAL SCIENCE CHART

UC BERKELEY

In general, GPA and the following are the primary selection criteria for admission for all biology majors in the College of Letters and Science (L&S).

(1) By the end of spring term preceding fall enrollment at UCB, students must complete either IGETC or the L&S Requirements in Reading & Composition, Quantitative Reasoning, and Foreign Language.

(2) Complete as many lower division major requirements as illustrated above.

For more information: <http://ib.berkeley.edu/student/undergrad/major/index.php>

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|---|----------------------|--|---------------------------------|---|--|
| Integrative Biology | BIOL 215+230 | CHEM 210 CHEM 234+237 CHEM 235+238 | MATH 241 OR MATH 251 | PHYS 210+211+220+221 OR PHYS 250+260 | See AP information for this major on ASSIST. |
| Molecular and Cell Biology | BIOL 215+230 | CHEM 210+220 CHEM 234+237 CHEM 235+238 | MATH 251+252 | PHYS 210+211+220+221 OR PHYS 250+260 (Not required for admissions, but strongly recommended). | |
| Molecular Environmental Biology | BIOL 215+230 | CHEM 210 CHEM 234+237 CHEM 235+238 | MATH 241+242 OR MATH 251+252 | PHYS 210+211+220+221 OR PHYS 250+260 | ENGL 100 OR 105 ENGL 110 |
| Plus one UC-transferable course in social and behavioral sciences and one UC transferable course in humanities. See AP information for this major on ASSIST. | | | | | |
| Molecular Toxicology | BIOL 230 BIOL 260 | CHEM 210 CHEM 234+237 CHEM 235+238 | MATH 241 OR 251 | PHYS 210+211 OR PHYS 250 | ENGL 100 OR 105 ENGL 110 |
| Students should complete at least 6-7 semester units selected from fields such as literature, history, foreign language, anthropology, psychology, sociology, philosophy, economics, political science, etc. IGETC certification will satisfy this requirement. | | | | | |

UC DAVIS

Special Advising Notes:

(1) Admission to all majors in the College of the Biological Sciences (Biochemistry and Molecular Biology; Biological sciences; Cell Biology; Evolution; Ecology & Biodiversity; Exercise Biology; Genetics; Microbiology; Neurobiology; Physiology & Behavior; and Plant Biology) is selective.

(2) Transfer students must complete MATH 241+242 OR MATH 251+252, CHEM 210+220 AND BIOL 215 OR 230 with a GPA of at least 2.5 for each of the three groups of courses. Courses must be taken for a letter grade, with no grade less than "C".

(3) A minimum of one course equivalent to a UCD Biological Sciences course must be completed with a "B" grade or higher for admission. If two courses are completed or the entire series are completed, a group GPA of 2.5 is required.

(4) It is strongly recommended that students complete CHEM 234+237+235+238 with a GPA of at least 2.50 for the group. Courses should be taken for a letter grade, with no grade less than "C".

(5) To be a competitive applicant, student must have a minimum transfer overall GPA of 2.8 or higher.

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| Biological Science | BIOL 215+230 | CHEM 210+220 CHEM 234+237 CHEM 235+238 | MATH 200 Recommended courses: MATH 241+242 OR MATH 251+252 | PHYS 210+211+220+221 |
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UC IRVINE

Junior-level applicants with the highest grades overall and who have satisfactorily completed course prerequisites will be given preference for admission. All applicants must complete one year of general chemistry with lab with grades of B or better, complete BIOL 215+230 with a C or better in each course and have a cumulative GPA of 3.0 or higher. Transfer students are advised to complete as many articulated biology and lower-division degree requirements as possible prior to transfer.

Biochemistry and Molecular Biology major: Open only to upper division Biological Sciences majors who meet specified course and grade requirements as listed at www.changeofmajor.uci.edu. **The requirements can only be completed at UC Irvine after transfer.** Transfer students interested in this major should apply as Biological Science majors. For information, contact the School of Biological Sciences at (949) 824-5318 or www.bio.uci.edu.

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| Biochemistry and Molecular Biology Biological Sciences, B.S. | BIOL 215+230 | CHEM 210+220 CHEM 234+237 CHEM 235+238 | MATH 251+252 OR MATH 253 OR MATH 200 OR MATH 270 | PHYS 210+211+220+221 OR PHYS 250+260 |
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UC LOS ANGELES

The Biology, A.B. and Neuroscience, B.S. are highly selective majors. At minimum, students should complete BIOL 215+230, CHEM 210+220, MATH 251+252, CHEM 234+235+237. For more information regarding this major, visit www.eeb.ucla.edu/undergraduate.php and www.admissions.ucla.edu.

*The Computational and Systems Biology, B.S. requires one introductory course in computer science or computer programming.

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|---|--------------|--|--------------|---|-------------------|
| Biology Neuroscience Computational and Systems Biology | BIOL 215+230 | CHEM 210+220 CHEM 234+237 CHEM 235 | MATH 251+252 | PHYS 210+211+220+221 OR PHYS 250+260+270 | Computer Science* |
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UC MERCED

The Biological Sciences offers five emphasis tracks: Molecular and Cell Biology; Ecology and Evolutionary Biology; Human Biology; Developmental Biology; and Microbiology and Immunology.

Students are advised to complete, at minimum, a year of General Chemistry, one semester of Calculus, and one semester of Calculus-based Physics prior to transfer. All courses must be completed with a letter grade of "C" or better. For the most up-to-date information about transferring to UC Merced and Transfer Admission Guarantees, please go to: <http://transfers.ucmerced.edu>.

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| Biological Sciences | BIOL 215+230 | CHEM 210+220 CHEM 234+237 | ● MATH 251+252 ● BUS 123 OR MATH 200 OR PSYC 171 | PHYS 250 +260 OR PHYS 210+211+220+221 |
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UC RIVERSIDE

In addition to meeting published UC admission criteria (see www.biology.ucr.edu) students must complete community college courses comparable to at least three of the following year-long sequence in order to meet selection criteria into this major: CHEM 210+220 (mandatory), BIO 215+230, MATH 251+252, PHYS 210+211+220+221 OR PHYS 250+260+270, and CHEM 234+237+235+238. This major requires a GPA of at least 2.70 in all UC transferable course work. IGETC is not accepted for majors housed in the College of Natural and Agricultural Sciences. Use instead the College of Natural and Agricultural Sciences breadth pattern as outlined in ASSIST titled "GE/Breadth: College of Natural and Agricultural Sciences".

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| Biological Sciences, B.S. | BIOL 215+230 | CHEM 210+220 CHEM 234+237+235+238 | MATH 251+252 | PHYS 210+211+220+221 OR PHYS 250+260+270 | See notes below. |
| | For the Biological Science, B.S. major, students need to choose one of nine upper division tracks of specialized course work: Bioinformatics and Genomics; Biology; Cell, Molecular and Developmental Biology; Conservation Biology; Environmental Toxicology; Evolution and Ecology; Medical Biology, Microbiology; and Plant Biology. For the Bioinformatics and Genomics Track, complete also: COMP 190; COMP 250 OR COMP 252; MATH 253 For the Conservation Biology Track, complete also: COMP 190 OR COMP 250 OR COMP 252. The other 6 tracks do not have additional lower division course requirements. | | | | |
| Biology, B.A. and B.S. | BIOL 215+230 | CHEM 210+220 CHEM 234+237+235+238 | MATH 251+252 | PHYS 210+211+220+221 OR PHYS 250+260+270 | |
| | Students pursuing a B.A. degree in Biology will also need to complete the equivalent of 4th quarter proficiency (generally third semester) in a language other than English, as part of the breadth requirements for this degree. | | | | |

UC SAN DIEGO

All biology majors offered by UCSD's Division of Biological Sciences are impacted.

All courses required and used for the biology majors must be passed with a grade of C- or better.

For more information, visit <http://biology.ucsd.edu/undergrad/enrollmentmanagement.html> and www.biology.ucsd.edu.

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| Biology: Specialization in Bioinformation | BIOL 215+230 | CHEM 210+220 CHEM 234+235 | MATH 251+252+253 MATH 270 | PHYS 250+260+270 | COMP 284 |
| Biology: Biochemistry and Cell Biology Biology: Human Biology Biology: Microbiology Biology: Physiology and Neuroscience | | BIOL 230 | CHEM 210+220 CHEM 234+237 CHEM 235+238 | MATH 241+242+200 OR MATH 251+252+253 | PHYS 250+260+270 |
| Biology: Biology, Behavior, and Evolution Biology: Gen Biology | | BIOL 215+230 | CHEM 210+220 CHEM 234+235 | MATH 241+242+200 OR MATH 251+252+253 | PHYS 250+260+270 |
| Biology: Molecular Biology | | BIOL 230 | CHEM 210+220 CHEM 234+237 CHEM 235+238 | MATH 251+252+253 | PHYS 250+260+270 |

UC SANTA BARBARA

Admission Selection Criteria for both majors: Completion of BIOL 215+230 and CHEM 210+220 with labs. No individual grade less than "C". A CUM GPA of 2.7 or better in these required courses.

Pre-major Information: Students are admitted initially to the pre-major. Admission into the full major is contingent upon achievement of a GPA of 2.00 or better in pertinent courses completed at the UC.

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| Biological Sciences, B.A. & B.S. | BIOL 215+230 | CHEM 210+220 CHEM 234+237 CHEM 235+238 | BUS 123 OR MATH 200 OR MATH 270+275 MATH 241+242 OR MATH 251+252 | PHYS 210+211+220+221 |
| Molecular Biology | BIOL 215+230 | CHEM 210+220 CHEM 234+237 CHEM 235+238 | MATH 251+252 MATH 270+275 | PHYS 210+211+220+221 |

UC SANTA CRUZ

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| All of the biological science major programs require a strong foundation in the physical sciences and mathematics. It is very important for transfer students to complete prerequisite courses before transfer, especially general chemistry, introductory biology, calculus, organic chemistry, and if possible, physics. For further information consult the website at: http:// www.biology.ucsc.edu . | | | | |
| Biology, B.A. Bioeducation Concentration | BIOL 215+230 | CHEM 210+220 CHEM 234+237 CHEM 235+238 | MATH 251+252+253 | PHYS 210+211+220+221 OR PHYS 250+270 |
| Biology, B.S. | BIOL 215+230 | CHEM 210+220 CHEM 234+237 CHEM 235+238 | MATH 251+252+253 | PHYS 210+211+220+221 OR PHYS 250+260+270 |

| SAN FRANCISCO STATE UNIVERSITY | | | | |
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| Please see the SFSU Bulletin for additional requirements and upper division courses or visit http://www.sfsu.edu or direct questions to artic@sfsu.edu . | | | | |
| Biology: Botany Concentration Biology: Ecology Concentration Biology: Marine Biology & Limnology Concentration Biology: Zoology Concentration | BIOL 215+230 | CHEM 210+220 | MATH 251+252 | PHYS 210+220 |
| Biology: Cell & Molecular Concentration Biology: Microbiology Concentration | BIOL 215+230 | CHEM 210+220 | MATH 251 Plus one course from the following: MATH 200 OR BUS 123 OR MATH 252 OR MATH 253 | PHYS 210+220 |
| Biology: Physiology Concentration | BIOL 215+230 | CHEM 210+220 | MATH 251 Plus one course from the following: MATH 200 OR BUS 123 OR MATH 252 | PHYS 210+220 OR PHYS 250+260 |
| Biology: General | BIOL 215+230 | CHEM 210+220 | MATH 200 OR BUS 123 OR MATH 251 | PHYS 210+220 |

| SAN JOSE STATE UNIVERSITY | | | | |
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| All students must satisfy the following prerequisite: ENGL 110 OR 165 OR PHIL 109. May receive full or partial certification for lower division general education. At least two different Physical Education activities. | | | | |
| Biological Sciences BioScience: Preparation for Teaching | None listed | CHEM 210+220 | Recommended but not required for Biological Science, B.A.: GEOL 210 Required for BioScience Teach: GEOL 210 | PHYS 210+220 |
| Biological Science: Conservation & Organismal Biology Concentration BioScience: Marine Biology | None listed | CHEM 210+220 | | PHYS 210+220 |
| BioScience: Microbiology BioScience: Molecular Biology BioScience: Physiology | None listed | CHEM 210+220 | MATH 251 | PHYS 210+220 |

| CAL POLY SAN LUIS OBISPO | | | | |
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| Students preparing to transfer to Cal Poly SLO should refer to the Transfer Selection criteria located on the web @ http://www.ess.calpoly.edu/_admiss/undergrad/prospective_transfer.html/ | | | | |
| Biological Sciences, B.S. | BIOL 215+230 BIOL 240 | Select one concentration: General Biology Concentration: BIOL 240 Molecular and Cellular Biology Concentration: CHEM 235+238 | Support courses: BUS 123 OR MATH 200 CHEM 210+220; CHEM 234+237 MATH 241 OR 251; MATH 242 OR 251 PHYS 210+220 | |

REQUIREMENTS SUBJECT TO CHANGE BY TRANSFER INSTITUTIONS. See a counselor for further information.