### Biological Sciences, B.S.

The Biological Sciences major presents a unified, in-depth study of modern biology. The Biological Sciences Core is a five-quarter series of courses ranging from ecology and evolutionary biology, to genetics, biochemistry, and molecular biology. Important laboratory techniques and methodology are presented in upper-division laboratories. Advanced elective courses provide an opportunity to continue to diversify students' exposure to the biological sciences or to gain a much more in-depth study of a particular area of the biological sciences.

NOTE: Biological Sciences majors who successfully complete all change of major requirements may elect to apply to one of the following: Biochemistry and Molecular Biology, Developmental and Cell Biology, Exercise Sciences, Genetics, Human Biology, Microbiology and Immunology, or Neurobiology. Students may apply directly to the Biology/Education major or the Ecology and Evolutionary Biology major when they apply for admission to UCI. Contact the Biological Sciences Student Affairs Office for more information.

In the event that the number of students who elect Biological Sciences as a major exceeds the number of positions available, applicants may be subject to screening beyond minimum University of California admissions requirements.

**Freshmen:** Preference will be given to those who rank the highest using the selection criteria as stated in the Undergraduate Admissions section (http://catalogue.uci.edu/informationforprospectivestudents/undergraduateadmissions/) of this Catalogue.

**Transfer students:** Junior-level applicants with the highest grades overall and who satisfactorily complete course prerequisites will be given preference for admission. All applicants must complete one year of general chemistry with laboratory with grades of C or better; one year of organic chemistry with laboratory with grades of C or better; one year of biology courses equivalent to BIO SCI 93, BIO SCI 94 at UCI with a grade of C or better in each course; and have a cumulative GPA of 3.0 or higher.

No student may enter as a double major, but Biological Sciences students interested in other areas may apply to become double majors after the first quarter, if the second school or program approves. A strong academic performance in the second area is requisite for acceptance as a double major.

**All students must meet the University Requirements** (http://catalogue.uci.edu/informationforadmittedstudents/requirementsforabachelorsdegree/).

**All students must meet the School Requirements** (http://catalogue.uci.edu/charliedunlopschoolofbiologicalsciences/#schoolrequirementstext).

### Major Requirements

<table>
<thead>
<tr>
<th>A. Required Major Courses:</th>
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</thead>
<tbody>
<tr>
<td>Select three of the following:</td>
</tr>
<tr>
<td>BIO SCI D103</td>
</tr>
<tr>
<td>BIO SCI D104</td>
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<tr>
<td>BIO SCI D105</td>
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<tr>
<td>BIO SCI E106</td>
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<tr>
<td>BIO SCI E109</td>
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<tr>
<td>BIO SCI N110</td>
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<tr>
<th>B. Upper-Division Laboratories:</th>
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<tbody>
<tr>
<td>Select two of the following:</td>
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<tr>
<td>BIO SCI D111L</td>
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<tr>
<td>BIO SCI E106L</td>
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<tr>
<td>BIO SCI E112L</td>
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<tr>
<td>BIO SCI E115L</td>
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<tr>
<td>BIO SCI E131L</td>
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<tr>
<td>BIO SCI E140L</td>
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<td>BIO SCI E160L</td>
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<td>BIO SCI E166L</td>
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<td>BIO SCI E179L</td>
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<td>BIO SCI E186L</td>
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<tr>
<td>BIO SCI M114L</td>
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<td>BIO SCI M116L</td>
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<tr>
<td>BIO SCI M118L</td>
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<tr>
<td>BIO SCI M121L</td>
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<tr>
<td>BIO SCI N113L</td>
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</table>
Biological Sciences, B.S.

<table>
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<tr>
<th>BIO SCI N123L</th>
<th>Human Neuroimaging Lab</th>
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One laboratory can be satisfied with completion of Excellence in Research in the Biological Sciences.

C. Upper-Division Biology Electives:

Select four upper-division, four-unit courses from the following:

<table>
<thead>
<tr>
<th>CHEM 132A</th>
<th>Chemical Thermodynamics, Kinetics, and Dynamics</th>
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<tbody>
<tr>
<td>CHEM 132B</td>
<td>Quantum Principles, Spectroscopy, and Bonding</td>
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<tr>
<td>CHEM 132C</td>
<td>Molecular Structure and Elementary Statistical Mechanics</td>
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<tr>
<td>PHRMSCI 170A</td>
<td>Molecular Pharmacology I</td>
</tr>
<tr>
<td>PHRMSCI 170B</td>
<td>Molecular Pharmacology II</td>
</tr>
<tr>
<td>PHRMSCI 171</td>
<td>Physical Biochemistry</td>
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<tr>
<td>PHRMSCI 173</td>
<td>Pharmacotherapy</td>
</tr>
<tr>
<td>PHRMSCI 174</td>
<td>Biopharmaceutics and Nanomedicine</td>
</tr>
<tr>
<td>PHRMSCI 177</td>
<td>Medicinal Chemistry</td>
</tr>
</tbody>
</table>

Psychology/Biological Sciences double majors may use PSYCH 112A-PSYCH 112C to partially satisfy the Upper-Division Biology Elective Requirement.

NOTE: Double majors within the School of Biological Sciences or with Public Health Sciences, Biomedical Engineering: Premedical, Nursing Science, or Pharmaceutical Sciences are not permitted.

1 BIO SCI D103, BIO SCI D104, BIO SCI D105, BIO SCI E106, BIO SCI E109, BIO SCI N110 may not be used to satisfy more than one requirement.

Concentration in Biological Sciences Education

The optional concentration in Biological Sciences Education requires seven courses:

| BIO SCI 14 | California Teach 1: Introduction to Science and Mathematics Teaching |
| BIO SCI 101 | California Teach 2: Middle School Science and Mathematics Teaching |
| EARTHSS 1 | Introduction to Earth System Science |
| EARTHSS 7 | Physical Geology |
| PHYSICS 20A | Introduction to Astronomy |
| PHYSICS 20B | Cosmology: Humanity’s Place in the Universe |

Select one of the following:

| EDUC 108 | Adolescent Development and Education |
| EDUC 124 | Multicultural Education in K-12 Schools |
| EDUC 128 | Exceptional Learners |
| EDUC 131 | Educational Technology |
| EDUC 173 | Cognition and Learning in Educational Settings |

The requirements for a general Biological Sciences B.S. degree for students in this concentration will be reduced by one upper-division laboratory course (major requirement B) and two upper-division biology electives (major requirement C). Students pursuing other majors within the School of Biological Sciences will need specific departmental approval for the reduction of degree requirements when completing this concentration.

Planning a Program of Study

Since biological sciences courses are built upon a base of the physical sciences, it is very important for students to take their required physical sciences early, particularly general and organic chemistry. Students who have not completed high school chemistry are well advised to complete a preparatory chemistry course before entering UCI. The academic program shown below is only a suggested program. Students should consult the Biological Sciences Student Affairs Office for individual academic planning.

Freshmen will normally take HUMAN 1A and HUMAN 1AS or other general education courses, CHEM 1A, BIO SCI 93, BIO SCI 93L, and a freshman seminar (BIO SCI 2A) during the fall quarter. Students will then continue with BIO SCI 94, BIO SCI 94L, complete their general chemistry requirement, and continue with Humanities or lower-division writing during the remaining winter and spring quarters.

Sophomores begin organic chemistry (CHEM 51A) and continue the Biological Sciences Core with BIO SCI 97, BIO SCI 98, BIO SCI 99. Sophomores often begin taking courses in other disciplines to meet the UCI general education requirement and fulfill their mathematics requirement if they have not done so as freshmen.
During their junior year, most majors continue with the Biological Sciences electives and take physics. Students who intend to double major in Chemistry will be required to take PHYSICS 7C-PHYSICS 7D-PHYSICS 7E in place of PHYSICS 3A-PHYSICS 3B-PHYSICS 3C. Juniors may complete their general education requirements and usually start their research and their upper-division biology laboratory courses.

Finally, during their senior year, students continue their research and complete their remaining major requirements.

Students in the Biological Sciences major are required to make progress toward their degree, and their progress will be monitored. If normal academic progress toward the degree in Biological Sciences is not being met, students will be subject to academic notice.

### Sample Program — Biological Sciences

<table>
<thead>
<tr>
<th>Freshman</th>
<th>Winter</th>
<th>Spring</th>
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<tbody>
<tr>
<td>BIO SCI 93</td>
<td>BIO SCI 94</td>
<td>CHEMS 1C-1LC</td>
</tr>
<tr>
<td>BIO SCI 93L</td>
<td>BIO SCI 94L</td>
<td>STATS 7 or 8 (or Math 5A or General Education)</td>
</tr>
<tr>
<td>CHEM 1A</td>
<td>CHEM 1B</td>
<td>Lower-Division Writing¹</td>
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<tr>
<td>BIO SCI 2A</td>
<td>Lower-Division Writing¹</td>
<td>General Education</td>
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<tr>
<td>General Education</td>
<td>General Education</td>
<td>Reduced Division Writing¹</td>
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<thead>
<tr>
<th>Sophomore</th>
<th>Winter</th>
<th>Spring</th>
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<tbody>
<tr>
<td>BIO SCI 97</td>
<td>BIO SCI 98</td>
<td>CHEM SCI 99</td>
</tr>
<tr>
<td>CHEM 51A</td>
<td>CHEM 51B-51LB</td>
<td>CHEM 51C-51LC</td>
</tr>
<tr>
<td>CHEM 1LD</td>
<td>MATH 5B (or General Education)</td>
<td>General Education</td>
</tr>
<tr>
<td>MATH 5A or 5B</td>
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<thead>
<tr>
<th>Junior</th>
<th>Winter</th>
<th>Spring</th>
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</thead>
<tbody>
<tr>
<td>Required Major course</td>
<td>Required Major course</td>
<td>Required Major course</td>
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<tr>
<td>PHYSICS 3A</td>
<td>PHYSICS 3B-3LB</td>
<td>PHYSICS 3C-3LC</td>
</tr>
<tr>
<td>Elective/Research</td>
<td>Elective/Research</td>
<td>Bio. Sci. elective</td>
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<tr>
<td>BIO SCI 100</td>
<td>Elective/Research</td>
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<th>Senior</th>
<th>Winter</th>
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<tbody>
<tr>
<td>Elective</td>
<td>Research</td>
<td>Research</td>
</tr>
<tr>
<td>Electives</td>
<td></td>
<td>Electives</td>
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¹ Students have the option of taking HUMAN 1AS, HUMAN 1BS, HUMAN 1CS or WRITING 40, WRITING 50, WRITING 60 in order to fulfill the lower-division writing requirement.

- Biological Sciences, M.S.
- Biological Sciences, Minor
- Biological Sciences, Ph.D.
- Biology/Education, B.S.
- Biotechnology Management, M.S.
- Exercise Sciences, B.S.
- Human Biology, B.S.