Bachelor of Science in Biology: Cellular and Molecular Biology Option

The purpose of the Degree Roadmap is to serve as a guide for planning one's academic coursework required to complete a specific major semester by semester. Before enrolling, you can use the Degree Roadmap to get a feel for the courses you'll take in this major. After enrolling, refer to the University Catalog, Class Schedule and consult with your academic advisor each semester for advisement to specify which courses you will take to fulfill each graduation requirement and are progressing toward graduation in a timely manner as possible. The Degree Roadmap is subject to change and is NOT to be considered a replacement for advisement with an academic advisor. See University Catalog for information on the Graduate Writing Assessment Requirement (GWAR). *See reverse side for General Education (GE) course requirements. **A minimum of 120 units are required for completion of degree.

### Upper Division Transfer Requirements

- Complete a minimum 60 transferable semester (or 90 quarter) units with a 2.0 GPA (nonresidents require 2.4 GPA) and be in good standing at the last college or university attended. Within those 60 semester units, complete a minimum of 30 semester (or 45 quarter) units of General Education courses with a 2.0 GPA with a "C" grade or better, including Oral Communication, Written Communication (English Composition), Logic/Critical Thinking and Mathematics/Quantitative Reasoning.
- Complete and submit a CSU Application for Admission by the posted deadline through CSU Mentor at CSUMENTOR.EDU.
- Submit official transcripts from all colleges attended.
- Students applying to an impacted program may have to meet supplementary requirements.
- The following degree roadmap assumes you have junior standing (60 units) and have completed all lower division General Education Courses.
- Minimum of 120 units are required for completion of degree, 30 of which must be taken in residence at CSUDH.

<table>
<thead>
<tr>
<th>Semester</th>
<th>Course</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>First Semester</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BIO 124</td>
<td>Principles of Biology III</td>
<td>3</td>
</tr>
<tr>
<td>BIO 125</td>
<td>Principles of Biology Lab III</td>
<td>1</td>
</tr>
<tr>
<td>BIO 220</td>
<td>Molecular Biology</td>
<td>3</td>
</tr>
<tr>
<td>BIO 221</td>
<td>Molecular Biology Lab</td>
<td>1</td>
</tr>
<tr>
<td>CHE 310</td>
<td>Organic Chemistry I</td>
<td>4</td>
</tr>
<tr>
<td>CHE 311</td>
<td>Organic Chemistry Lab I</td>
<td>1</td>
</tr>
<tr>
<td>GWAR</td>
<td>ENG 350 or GWE</td>
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<tr>
<th>Semester</th>
<th>Course</th>
<th>Units</th>
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<tbody>
<tr>
<td><strong>Second Semester</strong></td>
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<td></td>
</tr>
<tr>
<td>BIO 320</td>
<td>Cell Biology</td>
<td>3</td>
</tr>
<tr>
<td>BIO 340</td>
<td>Genetics</td>
<td>3</td>
</tr>
<tr>
<td>BIO 342</td>
<td>Cell and Genetics Laboratory</td>
<td>1</td>
</tr>
<tr>
<td>CHE 312</td>
<td>Organic Chemistry II</td>
<td>3</td>
</tr>
<tr>
<td>CHE 313</td>
<td>Organic Chemistry Lab II</td>
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<table>
<thead>
<tr>
<th>Semester</th>
<th>Course</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Third Semester</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BIO 421</td>
<td>Advanced Molecular Biology</td>
<td>3</td>
</tr>
<tr>
<td>GE F3/G*</td>
<td>Studies in Social Sciences area/Cultural Pluralism area</td>
<td>3</td>
</tr>
<tr>
<td>Select</td>
<td>Select ONE course and lab: BIO 310/311, BIO 312/313, BIO 314/315, or BIO 324/325</td>
<td>4</td>
</tr>
<tr>
<td>Select</td>
<td>Select ONE additional upper division BIO or CHE course (minimum of 10 units required)</td>
<td>3-4</td>
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</table>

<table>
<thead>
<tr>
<th>Semester</th>
<th>Course</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fourth Semester</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BIO 490</td>
<td>Senior Project</td>
<td>3</td>
</tr>
<tr>
<td>Select</td>
<td>Select TWO additional upper division BIO or CHE courses (minimum of 10 units required)</td>
<td>6-10</td>
</tr>
<tr>
<td>GE F1*</td>
<td>Studies in the Humanities area</td>
<td>3</td>
</tr>
<tr>
<td>GE F2*</td>
<td>Studies in the Natural Sciences area</td>
<td>3</td>
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</tbody>
</table>

Total Units: 53-61**

**NOTE:** Upper division elective courses cannot double count for upper division GE courses.
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Learn More

• To learn more about the B.S. in Biology at CSUDH, call the Department of Biology at (310) 243-3381, visit NSM A-143, or visit NBS.CSUDH.EDU/Biology.
• For more information on applying to CSUDH, visit CSUDH.EDU/FutureStudents.
• Apply online at CSUMENTOR.EDU.
• Career information, visit CSUDH.EDU/CareerCenter.

Faculty

John Thomlinson, Department Chair
Ph.D., University of North Texas
Getachew Kidane, Associate Professor
Ph.D., University of California, Los Angeles
Katherine Bates, Assistant Professor
Ph.D., University of Utah
Thomas Landefeld, Professor
Ph.D., University of Wisconsin, Madison
John Carvalho, Assistant Professor
Ph.D., Washington University
Gus McCarthy, Professor
Ph.D., Texas A&M University
Hee-Kwang Choi, Associate Professor
Ph.D., Boston University
Terrence McGlynn, Associate Professor
Ph.D., University of Colorado
Helen Chun, Associate Professor
Ph.D., University of California, Los Angeles
Davood Soleymani, Professor
Ph.D., Iowa State University

Career Options

A student in the Biology Department will be prepared to pursue a variety of career opportunities, depending on the curricular program chosen. An undergraduate major may choose any of the options. The Cellular and Molecular Biology Option can fulfill the major entrance requirements for professional schools of medicine, dentistry, veterinary medicine, pharmacy, optometry, podiatry and medical technology, or prepare the student for further graduate study in biology. This option also prepares students for careers in teaching, research, government, academics or the biotechnology industry. Biology graduates from CSU Dominguez Hills have competed successfully for admission to professional and graduate schools in California and elsewhere.

*General Education (GE) Requirements

A. Basic Skills:
Courses must be passed with a grade of “C” or higher.
GE A1: ENG 110, ENG 111 (both required)
GE A2: PHI 120 or PSY 110
GE A3: THE 120
GE A4: CSC 101 or LIB 150 (optional category)

B. Area of the Natural Sciences and Quantitative Reasoning:
Select one course from each category below. Category 4 courses must be passed with a grade of “C” or higher.
GE B1: CHE 102, EAR 100, GEO 200, PHY 100
GE B2: ANT 101, BIO 102
GE B3: BIO 103, EAR 101, CHE 103
GE B4: MAT 105, 131, 153, 171, 191, 193

C. Area of the Humanities:
Select one course from each category below. In categories 2 and 3, select courses from different departments.
GE C1: HUM 200
GE C2: ART 100, ART 101, CHS 125, COM 130, DAN 130, MUS 101, MUS 110, THE 100, THE 160
GE C3: AFS 200, AFS 231, APP 101, CHS 100, CHS 205, ENG 230, FRE 220, HUM 212, PHI 101, PHI 102, SPA 151, SPA 221

D. Area of the Social Sciences:
Select one course from each category below. In categories 1 and 2, select courses from different departments.
GE D1: AFS 212, AFS 220, ANT 100, APP 212, CHS 212, PSY 101, SOC 101, SOC 102, WMS 250
GE D2: AFS 201, ANT 102, CHS 200, GEO 100, HIS 120, HIS 121, POL 100
GE D3: HIS 101
GE D4: POL 101

E. Objectives for Lifelong Learning and Self-Development:
Select one course from the following.
GE E: HEA 100, HSC 201, KIN 235, REC 100, UNV 101

F. Upper Division Integrative Studies:
Select one course from each category. Courses in this category are to be taken after 60 semester units and ALL lower division General Education courses have been completed.
GE F1: HUM 310, 312, 314
GE F2: SMT 310, 312, 314, 416
GE F3: SBS 318

G. Cultural Pluralism Requirement:
Within their General Education selections or within other requirements, all students must take one course which addresses cultural pluralism (i.e. the impact of the integration of cultures).

1 SBS 318 satisfies both F3 and G areas. Students will receive only three units credit, but will have met both requirements.

Last modified on September 30, 2011