

## 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](http://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.

First Semester		
Course		Units
BIO 124	Principles of Biology III	3
BIO 125	Principles of Biology Lab III	1
BIO 220	Molecular Biology	3
BIO 221	Molecular Biology Lab	1
CHE 310	Organic Chemistry I	4
CHE 311	Organic Chemistry Lab I	1
GWAR	ENG 350 or GWE	0-3

Second Semester		
Course		Units
BIO 320	Cell Biology	3
BIO 340	Genetics	3
BIO 342	Cell and Genetics Laboratory	1
CHE 312	Organic Chemistry II	3
CHE 313	Organic Chemistry Lab II	2

Third Semester		
Course		Units
BIO 421	Advanced Molecular Biology	3
GE F3/G*	Studies in Social Sciences area/Cultural Pluralism area	3
Select	Select ONE course and lab: BIO 310/311, BIO 312/313, BIO 314/315, or BIO 324/325	4
Select	Select ONE additional upper division BIO or CHE course (minimum of 10 units required)	3-4

Fourth Semester		
Course		Units
BIO 490	Senior Project	3
Select	Select TWO additional upper division BIO or CHE courses (minimum of 10 units required)	6-10
GE F1*	Studies in the Humanities area	3
GE F2*	Studies in the Natural Sciences area	3

**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](http://NBS.CSUDH.EDU/Biology).
- For more information on applying to CSUDH, visit [CSUDH.EDU/FutureStudents](http://CSUDH.EDU/FutureStudents).
- Apply online at [CSUMENTOR.EDU](http://CSUMENTOR.EDU).
- Career information, visit [CSUDH.EDU/CareerCenter](http://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<sup>1</sup>

#### 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).  
 GE G: ANT 312, 336, 337, 338, 339, 340, 342, 389, CHS 300, HIS 305, MUS 401, PHI 383, SBS 318, SOC 322, SOC 331, SOC 383

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