

**Bachelor of Science in Biology: Microbiology 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). *A minimum of 120 units are required for completion of degree. \*See reverse side for General Education (GE) course requirements.*

Course	Unit
<b>SEMESTER 1</b>	
GE Area A1 Composition I	3
CHE 110	5
MAT 131	3
GE Area A3 Oral Communication	3

Course	Unit
<b>SEMESTER 3</b>	
BIO 122	3
BIO 123	1
GE Area A2 Critical Thinking	3
MAT 171 or MAT 191	4
GE Area C or D	3
GE Area C or D	3

Course	Unit
<b>SEMESTER 5</b>	
PHY 120 or PHY 130	4
CHE 310 or CHE 300	4
CHE 311 or CHE 301	1
GE Area C or D	3
BIO 324	3
BIO 325	1

Course	Unit
<b>SEMESTER 7</b>	
BIO 320	3
BIO 426	3
BIO 436	1
BIO 340	3
GE Area F1 UD Humanities	3
Major Electives	3

Course	Unit
<b>SEMESTER 2</b>	
GE Area A1 Composition II	3
BIO 120	3
BIO 121	1
CHE 112	5
GE Area E Whole Person	3

Course	Unit
<b>SEMESTER 4</b>	
GE Area C or D	3
BIO 124	3
BIO 125	1
BIO 220	3
BIO 221	1
GE Area C or D	3
GE Area C or D	3

Course	Unit
<b>SEMESTER 6</b>	
PHY 122 or PHY 132	4
CHE 312 or CHE 302	3
CHE 313 or CHE 303	2
GWAR Requirement	3
GE Humanities 200	3

Course	Unit
<b>SEMESTER 8</b>	
BIO 490	3
BIO 425	2
BIO 435	2
Major Electives	3
GE Area F3 UD Social Science & Cultural Pluralism	3
Major Electives	3

**Total Units: 120**

**Learn More**

- To learn more about the Bachelor of Science in Biology: Microbiology Option at CSUDH, call the Department of Biology at (310) 243-3381, visit NSM A-143, or visit [CSUDH.EDU/cnbs/dept/](http://CSUDH.EDU/cnbs/dept/).
- For more information on applying to CSUDH, visit [CSUDH.EDU/Future-Students](http://CSUDH.EDU/Future-Students).
- Apply online at **CAL STATE APPLY** website at [CALSTATE.EDU/Apply](http://CALSTATE.EDU/Apply).
- Career information, visit [CSUDH.EDU/Career-Center](http://CSUDH.EDU/Career-Center).

## Bachelor of Science in Biology: Microbiology Option

### Faculty

Helen Chun, Department Chair; H.K. Choi, Helen Chun, Karin Kram, Thomas Landefeld, Terrence McGlynn, Davood Soleymani, Kathryn Theiss, John Thomlinson, Fang Wang

### Career Options

The Microbiology Option provides training in microbiology, medical microbiology, immunology and related courses (virology, mycology and parasitology) for students interested in a career in applied biology, biomedical research or allied fields. Students may prepare for a career in teaching science at the secondary level (junior high or high school) by completing an approved "Subject Matter Preparation Program." Completion of such a program is the first step in meeting the state requirements for a teaching credential. Interested students should consult the departmentally designated advisor for current information.

### \*General Education (GE) Requirements

#### A. Basic Skills:

Courses must be passed with a grade of "C" or higher.

GE A1: ENG 110 or (ENG 108 and ENG 109), and ENG 111

GE A2: MAT 271, PHI 120 or PSY 110

GE A3: THE 120

GE A4: CSC 101 or LIB 150 (Library Skills 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 (concurrent enrollment in BIO 102 or prior life science course recommended), EAR 101 (concurrent enrollment EAR 100 or prior earth science course recommended), CHE 103

Students majoring or minoring in one of the natural sciences may substitute more advanced science courses. These students should see a faculty advisor.

GE B4: MAT 105, 131, 132, 151, 153, 171, 191, 193

#### C. Area of the Humanities:

Select one course from each category below. Select an additional course from either category. A student may not take all 3 courses in this area from a single academic department.

GE C2: AFS 205, ART 100, 101, CHS 125, COM 130, DAN 130, MUS 101, 110, 201, 250, THE 100, 160

GE C3: AFS 200, 231, APP 101, CHS 100, 205, ENG 230, FRE 220, HUM 200, 212, PHI 101, 102, SPA 151, 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, 220, ANT 100, APP 212, CHS 212, ECO 210, 211, LBS 205, LAW 240, PSY 101, SOC 101, 102, WMS 250

GE D2: AFS 201, ANT 102, CHS 200, GEO 100, HIS 120, 121, LBR 200, MGT 200, POL 100

GE D3: HIS 101

GE D4: POL 101

(Note: Students who satisfy the category 3 and 4 requirements by non-credit exams will need to complete 9 units in area D.

Select three courses in categories 1 and 2 from 3 different departments.)

#### E. Objectives for Lifelong Learning and Self-Development:

Select one course from the following.

GE E: BUS 100, CIS 275, FIN 200, HEA 100, 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: APP 315, CHS 340, 345, HIS 376, HUM 310, 312, 314, IDS 312, MUS 345, 486, THE 315, 317, 319

GE F2: BIO 340, CSC 301, SMT 310, 312, 314, 416

GE F3: ANT 334, 371, APP 311, 327, CHS 323, 330, 335, GEO 318, HEA 468, HIS 340, 348, 354, 380, IDS 318, SBS 318

GE F4: Students may select a course from this category to satisfy one of the upper division General Education requirements (Humanities, Social Sciences or Natural Sciences and Technology) which it meets, enrolling in the section listed for that requirement in a given term. An Integrative Studies course may be used to satisfy either of the area requirements for which it is listed, but only one area requirement may be satisfied by each Integrative Studies F4 course.

#### 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, 334, 336, 337, 338, 339, 340, 342, 371, 389, APP 311, 327, CHS 323, 330, 335, GEO 318, HEA 468, HIS 305, 340, 348, 354, 376, 380, IDS 318, MUS 401, PHI 383, SBS 318, SOC 322, 331, 383

(Note: ANT 334, 371, APP 311, 327, CHS 323, 330, 335, GEO 318, HEA 468, HIS 340, 348, 354, 380, IDS 318 or SBS 318, will satisfy both the Integrative Studies in Social Science and the Cultural Pluralism Requirement. Students will receive only three units, but will have met both requirements.)

*Last modified: 2016-2017*