Minor Change to an Undergraduate Program

Program Name: Bachelor of Science in Microbiology

Complete only if applicable

Program named above is:

☐ Option within ________________________________
(degree program name)

☐ Advising Pattern within ________________________________
(option name)

within ________________________________
(degree program name)

☐ Minor

☐ Certificate

☐ Changes being made affect a subject matter preparation or credential program.

Brief rationale for change:
Currently students are required to take calculus as either MATH 120 at 4 units or MATH 109 at 4 units. We propose allowing students a choice between 4 units of calculus as described and 4 units of statistics as MATH 105 at 3 units and MATH 130 at 1 unit. A statistics math choice will better support some biological career paths.

Does the proposed change enhance or support the Diversity Action Plan (see definition & Task 3.1)? ___
If yes, please explain.

Required Signatures

The Department of Biological Sciences has reviewed and approves this program change

Chair, Department Curriculum Committee

Department Chair

The College of Natural Science has reviewed and approves this program change

Chair, College Curriculum Committee

College Dean

Send signature page with proposal attached to Curriculum Services at Undergraduate Education, zip 680 Curriculum Technical Review Completed

Date

SEP 07 2017

RECEIVED
Course Requirements for the Major: 78 units

Completion of the following courses, or their approved transfer equivalents, is required of all candidates for this degree. Additional required courses, depending upon the selected option are outlined following the major core program requirements.

Major Core Program: 56 units

Lower-Division Requirements: 40 units

**10 courses required:**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
<th>Type</th>
<th>Designation</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 109</td>
<td>The Biological University Experience</td>
<td>1.0</td>
<td>FS</td>
<td></td>
</tr>
<tr>
<td>BIOL 151</td>
<td>Principles of Cellular and Molecular Biology</td>
<td>4.0</td>
<td>FS</td>
<td>GE</td>
</tr>
<tr>
<td>BIOL 152</td>
<td>Principles of Ecological, Evolutionary, and Organismal Biology</td>
<td>4.0</td>
<td>SP</td>
<td>GE</td>
</tr>
<tr>
<td>BIOL 153</td>
<td>Principles of Physiology and Development</td>
<td>4.0</td>
<td>FA</td>
<td>GE</td>
</tr>
<tr>
<td>CHEM 111</td>
<td>General Chemistry</td>
<td>4.0</td>
<td>FS</td>
<td>GE</td>
</tr>
<tr>
<td>CHEM 112</td>
<td>General Chemistry</td>
<td>4.0</td>
<td>FS</td>
<td></td>
</tr>
<tr>
<td>CHEM 270</td>
<td>Organic Chemistry</td>
<td>4.0</td>
<td>FS</td>
<td></td>
</tr>
</tbody>
</table>

**Prerequisites:**
- BIOL 151 or concurrent enrollment for BIOL 152.
- BIOL 151 or faculty permission; recommend CHEM 112 or concurrent enrollment recommended.
- Completion of ELM requirement; second-year high school algebra; one year high school chemistry. (One year of high school physics and one year of high school mathematics past Algebra II are recommended.)
- CHEM 111 with a grade of C- or better.
- CHEM 112 or concurrent enrollment recommended.

**OR** (the following course may be substituted for the above)

<table>
<thead>
<tr>
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<th>Units</th>
<th>Type</th>
<th>Designation</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENVL 105</td>
<td>Environmental Literacy</td>
<td>3.0</td>
<td>FS</td>
<td>GE</td>
</tr>
<tr>
<td>MATH 109</td>
<td>Survey of Calculus</td>
<td>4.0</td>
<td>FS</td>
<td>GE</td>
</tr>
</tbody>
</table>

**Prerequisites:**
- Completion of ELM requirement; MATH 118, MATH 119 (or High School equivalents).
PHYS 202A  General Physics  4.0  FS  GE
Prerequisites: High school physics or faculty permission. High school trigonometry and second-year high school algebra or equivalent (MATH 051 and MATH 118 at CSU, Chico).

PHYS 202B  General Physics  4.0  FS
Prerequisites: PHYS 202A with a grade of C- or higher.

4 units selected from:

MATH 105  Statistics  3.0  FS  GE
Prerequisites: Completion of ELM requirement.

MATH 130  Introduction to Reproducible Data Analysis using R and Markdown  1.0  FS

OR (the following course may be substituted for the above)

MATH 109  Survey of Calculus  4.0  FS  GE
Prerequisites: Completion of ELM requirement; MATH 118, MATH 119 (or High School equivalents).

OR (the following course may be substituted for the above)

MATH 120  Analytic Geometry and Calculus  4.0  FS  GE
Prerequisites: Completion of ELM requirement; both MATH 118 and MATH 119 (or high school equivalent); a score that meets department guidelines on a department administered calculus readiness exam.

NOTE: Math 105/130 are recommended for most students. Students who need calculus may take MATH 109 for a one-semester survey, or MATH 120 as the first semester of a 2-semester comprehensive sequence (MATH 120/121).
# California State University, Chico

## MAJOR ACADEMIC PLAN (MAP)

### Major:
**The Bachelor of Science in Microbiology**  
**Option:** Microbiology (General Microbiology)  
**Pattern:**

<table>
<thead>
<tr>
<th>Semester</th>
<th>Courses</th>
</tr>
</thead>
</table>
| **First Semester** | BIOL 109  
CHEM 111 (GE BI) *[C-]*  
BIOL 151 (GE Area B2)  
GE Area A *[C-]*  
GE Area A *[C-]* |
| **Total Units:** | 15 |
| **Second Semester** | BIOL 152 (SP)  
CHEM 112 *[C-]*  
MATH 109 (GE A4) *[C-]*  
GE Area A *[C-]*  
GE Area A *[C-]* |
| **Total Units:** | 15 |
| **Third Semester** | BIOL 153 (FA)  
CHEM 270 *[C-]*  
PHYS 202A (GE BI) *[C-]*  
GE Area C |
| **Total Units:** | 15 |
| **Fourth Semester** | BIOL 371 (WP) *[C-]*  
CHEM 370  
CHEM 370L  
PHYS 202B  
GE Area C |
| **Total Units:** | 15 |
| **Fifth Semester** | BIOL 360  
CHEM 451  
CHEM 453L  
GE Area D  
HIST 130 or POLS 155 |
| **Total Units:** | 14 |
| **Sixth Semester** | BIOL 412 (Odd SP)  
ENVL 105 or ENVL 105I (GE Area E)  
GE Area D  
HIST 130 or POLS 155  
Elective |
| **Total Units:** | 16 |
| **Seventh Semester** | BIOL 402 (FA)  
BIOL 466 or BIOL 470 or BIOL 472 or BIOL 476  
CHEM 320 or MATH 315  
GE UD Pathway |
| **Total Units:** | 14-16 |
| **Eighth Semester** | BIOL 399 *[400]*  
BIOL 466 or BIOL 470 or BIOL 472 or BIOL 476  
GE UD Pathway  
Elective  
Elective |
| **Total Units:** | 15-16 |

### Degree Units: 120  
**Major Units:** 78  
**Elective Units:** 9

### Comments
- *[400] OR any 400 level biology (BIOL) course. Consult with your major advisor.
- *[C-] C- or Better is required.

### Notes
- Transfer Students: Review your Degree Progress Report (DPR) in your Student Center, meet with your Major Department Advisor for major coursework, and meet with an Academic Advisor in SSC 220 to review General Education (including Writing Intensive "WI" and Capstone "C") and Graduation requirements.
- It is recommended that you meet with your major advisor early in your academic career and every semester.
- Consider meeting the United States Diversity and Global Cultures requirements within GE courses.
- Complete a minimum of 4 Writing Intensive (WI) courses—one will be met by your Written Communication Course and one by your Capstone Course; select 2 additional WI courses.
- Select a GE Capstone Course in your Upper-Division Pathway, or substitute an approved Major Capstone course from the GE Capstone Requirement.
- Apply to graduate one year before anticipated graduation date.

**Consult the 2015-2016 University Catalog for official degree program**

**Fully Online:** 05/30/2015