

**B.S. in BIOLOGICAL SCIENCES (AY 2024-2025)**  
**CONCENTRATION IN MICROBIOLOGY & BIOMEDICAL LAB SCIENCES (75 units)**

**CORE REQUIREMENTS (39 units)**

<b>LOWER DIVISION BIOLOGY</b>	<b>UNITS</b>	<b>OFFERED</b>	<b>PREREQUISITES</b>
BIOL 140A Principles of Cell & Molecular Biology	5	Fall & Spring	N/A
BIOL 140B Principles of Organismal Biology	5	Fall & Spring	BIOL 140A*
<i>subtotal</i>	<b>10</b>		
<b>LOWER DIVISION PHYSICAL SCIENCE &amp; MATH</b>	<b>UNITS</b>	<b>OFFERED</b>	<b>PREREQUISITES</b>
CHEM 111 & 111L 112 <i>General Chemistry I (lec &amp; lab)</i>	5	Fall & Spring	MATH 120(25) or 130
CHEM 112 & 112L <i>General Chemistry II (lec &amp; lab)</i>	5	Fall & Spring	CHEM 111* & 111L*
MATH 130 Calculus I	4	Fall & Spring	MATH 120 or MATH 125
PHYS 125 <i>Principles of Physics I</i>	4	Fall & Spring	MATH 120 or MATH 125
PHYS 126 <i>Principles of Physics II</i>	4	Fall & Spring	PHYS 125
<i>subtotal</i>	<b>22</b>		
<b>UPPER DIVISION BIOLOGY</b>	<b>UNITS</b>	<b>OFFERED</b>	<b>PREREQUISITES</b>
BIOL 310 <i>Genetic Analysis I</i>	4	Fall & Spring	BIOL 140B*
BIOL 320 <i>Evolutionary Biology</i>	3	Fall & Spring	BIOL 310*
<i>subtotal</i>	<b>7</b>		

**CONCENTRATION REQUIREMENTS (36 units)**

<b>UPPER DIVISION BIOLOGY</b>	<b>UNITS</b>	<b>OFFERED</b>	<b>PREREQUISITES</b>
BIOL 330 <i>General Microbiology</i>	5	Fall	BIOL 140B*
BIOL 430 <i>Microbial Physiology &amp; Metabolism</i>	3	Spring	BIOL 330* [CHEM 340* or 441*]
<i>subtotal</i>	<b>8</b>		
<b>UPPER DIVISION PHYSICAL SCIENCE</b>	<b>UNITS</b>	<b>OFFERED</b>	<b>PREREQUISITES</b>
CHEM 331, 332 <i>Organic Chemistry I &amp; II</i>	10	Fall & Spring	CHEM 112*
CHEM 340 <i>Survey of Biochemistry</i>	3	Fall & Spring	CHEM 230* or 332*
<i>subtotal</i>	<b>13</b>		

†**Note:** Depending on their professional objective, students may opt to take **CHEM 441 & 442 (Biochemistry I & II)** instead of CHEM 340. In that case, CHEM 441 would count as the 3 units here and CHEM 442 as an elective below.

<b>ELECTIVES (Select 15 units from the list below)</b>	<b>UNITS</b>	<b>OFFERED</b>	<b>PREREQUISITES</b>
BIOL 350 <i>Ecology</i>	4	Fall & Spring	BIOL 140B*, STATS 303,
BIOL 431 <i>Medical Microbiology</i> †	5	Spring	BIOL 330*
BIOL 432 <i>Microbe-Host Interactions</i>	3	Fall	BIOL 140B*
BIOL 433 <i>Microbial Ecology</i>	3	Spring	BIOL 330*
BIOL 434 <i>Molecular Microbiology</i>	3	Spring	BIOL 330*
BIOL 440 <i>Molecular Virology</i> †	3	Fall	BIOL 310*
BIOL 441 <i>Parasitology</i> †	3	Fall	BIOL 310*
BIOL 443 <i>Hematology</i> †	4	Fall & Spring	BIOL 140B, CHEM 112
BIOL 445 <i>Immunology</i> †	3	Fall & Spring	BIOL 310*, CHEM 230* or 332*
BIOL 447 <i>Zoonoses &amp; Emerging Infect. Diseases</i>	3	Intermittently	BIOL 330
BIOL 454 <i>Biology of Fungi</i> †	3	Fall (every other yr)	BIOL 140B*
BIOL 468 <i>Molecular Ecology</i>	4	Intermittently	BIOL 310*
CHEM 220 <i>Quantitative Analysis</i> †	4	Fall & Spring	CHEM 112*
STAT 303 <i>Statistical Methods in Biology</i>	3	Fall & Spring	completion of GE Area B4
<i>subtotal</i>	<b>15</b>		

**Note:** BIOL 490 *Independent Study*, BIOL 493 *Directed Research in Biology*, BIOL 498 *Internship* or a combination of 2 or more of these courses may be used for a maximum of 3 total units of elective credit.

\* Must pass this prerequisite course with a C- or better to move onto the next course.

\*\*Capstone course for the Microbiology and Biomedical Sciences concentration

†Recommended for students interested in applying for CLS programs

- **Freshman/Sophomore Micro Concentration & GE Advisor:** Ms. Joanna Cady-Aguilar ([joanna.cadyaguilar@csueastbay.edu](mailto:joanna.cadyaguilar@csueastbay.edu))
- **Junior/Senior Micro Concentration & GE Advisors:** Mr. Avel Perez or Dr. Kelley Gove ([cscistudentcenter@csueastbay.edu](mailto:cscistudentcenter@csueastbay.edu))
- **Micro Concentration Career & Course Sub Advisor:** Dr. Carol Lauzon ([carol.lauzon@csueastbay.edu](mailto:carol.lauzon@csueastbay.edu))

**DEGREE:** B.S. in Biological Sciences (AY 2024-25)

**CONCENTRATION:** Microbiology and Biomedical Lab Sciences

**Graduation Semester:** \_\_\_\_\_

**Name (Last, First):** \_\_\_\_\_

**Net ID:** \_\_\_\_\_

**CORE REQUIREMENTS**

Course	Grade	Semester & Year	Units	College/University Where Equivalent Course Was Taken	Equivalent Course Number	TES Verification
CHEM 111	.....	.....	5	.....	.....	.....
CHEM 111L	.....	.....	2	.....	.....	.....
CHEM 112	.....	.....	5	.....	.....	.....
CHEM 112L	.....	.....	2	.....	.....	.....
PHYS 125	.....	.....	4	.....	.....	.....
PHYS 126	.....	.....	4	.....	.....	.....
MATH 130	.....	.....	4	.....	.....	.....
BIOL 140A	.....	.....	5	.....	.....	.....
BIOL 140B	.....	.....	5	.....	.....	.....
BIOL 310	.....	.....	4	.....	.....	.....
BIOL 320	.....	.....	3	.....	.....	.....

**CONCENTRATION REQUIREMENTS**

Course	Grade	Semester & Year	Units	College/University Where Equivalent Course Was Taken	Equivalent Course Number	TES Verification
CHEM 331	.....	.....	5	.....	.....	.....
CHEM 332	.....	.....	5	.....	.....	.....
CHEM 340	.....	.....	3	.....	.....	.....
BIOL 330	.....	.....	5	.....	.....	.....
BIOL 430	.....	.....	3	.....	.....	.....

**ELECTIVES** (At least 15 units from the courses below)

Course	Grade	Semester & Year	Units	College/University Where Equivalent Course Was Taken	Equivalent Course Number	TES Verification
BIOL 350	.....	.....	4	.....	.....	.....
BIOL 431	.....	.....	5	.....	.....	.....
BIOL 432	.....	.....	3	.....	.....	.....
BIOL 433	.....	.....	3	.....	.....	.....
BIOL 434	.....	.....	3	.....	.....	.....
BIOL 440	.....	.....	3	.....	.....	.....
BIOL 441	.....	.....	3	.....	.....	.....
BIOL 443	.....	.....	4	.....	.....	.....
BIOL 445	.....	.....	3	.....	.....	.....
BIOL 447	.....	.....	3	.....	.....	.....
BIOL 454	.....	.....	3	.....	.....	.....
BIOL 468	.....	.....	3	.....	.....	.....
CHEM 220	.....	.....	4	.....	.....	.....
STAT 303	.....	.....	3	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....

Total Units for Concentration (75 units): \_\_\_\_\_ Note: A C- or better required in all courses that serve as a prerequisite.