

**B.S. in BIOLOGICAL SCIENCE  
CONCENTRATION IN CELL AND MOLECULAR BIOLOGY (AY 2020-2021)**

**Core requirements (39 units)**

| <i>Lower Division BIOL Courses</i>               | <i>Units</i> |
|--|--------------|
| BIOL 140A Principles of Cell & Molecular Biology | 5            |
| BIOL 140B Principles of Organismal Biology       | 5            |
| <b>subtotal</b>                                  | <b>10</b>    |

| <i>Lower Division Physical Science and Math Courses</i> | <i>Units</i> |
|---|--------------|
| CHEM 111, 112 General Chemistry I & II                  | 10           |
| MATH 130 Calculus I                                     | 4            |
| PHYS 125, 126 Principles of Physics I & II              | 8            |
| <b>subtotal</b>   | <b>22</b>    |

| <i>Upper Division BIOL Courses</i> | <i>Units</i> |
|------------------------------------|--------------|
| BIOL 310 Genetic Analysis I        | 4            |
| BIOL 320 Evolutionary Biology      | 3            |
| <b>subtotal</b>                    | <b>7</b>     |

**Concentration Requirements (36 units)**

| <i>Upper Division BIOL Courses</i>            | <i>Units</i> |
|---|--------------|
| BIOL 410 Genetic Analysis II                  | 3            |
| BIOL 424 Bioinformatics                       | 3            |
| BIOL 426 Advanced Molecular and Cell Biology* | 3            |
| BIOL 427 Molecular and Cell Biology Lab       | 3            |
| BIOL 428 Genomics                             | 3            |
| <b>subtotal</b>                               | <b>15</b>    |

| <i>Physical Science Courses</i>               | <i>Units</i> |
|---|--------------|
| CHEM 331, 332 Organic Chemistry I & II (5, 5) | 10           |
| CHEM 441 Biochemistry I                       | 4            |
| <b>subtotal</b>                               | <b>14</b>    |

**Electives (select at least 7 units from the list of courses below)**

**Note:** *BIOL 490 Independent Study* and/or *BIOL 498 Internship* may be used for a maximum total of 3 units of elective credit. Enrollment in these courses requires approval by a faculty member and the Department Chair.

| <u>Course</u>                       | <u>Units</u> | <u>Offered</u> | <u>Prerequisites</u> |
|-------------------------------------|--------------|----------------|----------------------|
| BIOL 330 General Microbiology       | 5            | Fall           | BIOL 140B            |
| BIOL 415 PCR, Sequencing, and Frag. | 3            | Fall           | BIOL 310             |
| BIOL 420 CMB Undergraduate Seminar  | 2            | Spring         | BIOL 310             |
| BIOL 425 Mammalian Cell Culture     | 3            | Spring         | BIOL 310, 330        |
| BIOL 431 Medical Microbiology       | 5            | Spring         | BIOL 330             |
| BIOL 434 Molecular Microbiology     | 3            | Spring         | BIOL 330             |
| BIOL 440 Molecular Virology         | 3            | Fall           | BIOL 310             |
| BIOL 443 Hematology                 | 4            | Fall           | BIOL 140B, CHEM 112  |
| BIOL 445 Immunology                 | 3            | Fall & Spring  | BIOL 310, CHEM 332   |
| BIOL 466 Population Biology         | 4            | TBD            | BIOL 320             |
| BIOL 468 Molecular Ecology          | 4            | TBD            | BIOL 320             |
| CHEM 442 Biochemistry II            | 4            | Spring         | CHEM 441             |

\*Capstone course for the *Cell and Molecular Biology* concentration

FOR MAJOR GENERAL ADVISING: <http://www.csueastbay.edu/csci-ssc/index.html>, [cscistudentcenter@csueastbay.edu](mailto:cscistudentcenter@csueastbay.edu)

FOR CMB-SPECIFIC ADVISING: Dr. Chris Baysdorfer, [chris.baysdorfer@csueastbay.edu](mailto:chris.baysdorfer@csueastbay.edu), Dr. Ken Curr, [kenneth.curr@csueastbay.edu](mailto:kenneth.curr@csueastbay.edu)

**DEGREE:** B.S. in Biological Sciences (AY 2019-20)

**CONCENTRATION:** Cell and Molecular Biology

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

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

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

**CORE REQUIREMENTS**

| Course    | Grade | Semester & Year | Units | College/University<br>Where Equivalent<br>Course Was Taken | Equivalent<br>Course<br>Number | Assist.org<br>Verification |
|-----------|-------|-----------------|-------|--|--------------------------------|----------------------------|
| CHEM 111  | ..... | .....           | 5     | .....  | .....                          | .....                      |
| CHEM 112  | ..... | .....           | 5     | .....  | .....                          | .....                      |
| PHYS 125  | ..... | .....           | 4     | .....  | .....                          | .....                      |
| PHYS 126  | ..... | .....           | 4     | .....  | .....                          | .....                      |
| MATH 130  | ..... | .....           | 4     | .....  | .....                          | .....                      |
| BIOL 140A | ..... | .....           | 5     | .....  | .....                          | .....                      |
| BIOL 140B | ..... | .....           | 5     | .....  | .....                          | .....                      |
| BIOL 310  | ..... | .....           | 4     | .....  | .....                          | .....                      |
| BIOL 320  | ..... | .....           | 3     | .....  | .....                          | .....                      |

**CONCENTRATION REQUIREMENTS**

|          |       |       |   |       |       |       |
|----------|-------|-------|---|-------|-------|-------|
| CHEM 331 | ..... | ..... | 5 | ..... | ..... | ..... |
| CHEM 332 | ..... | ..... | 5 | ..... | ..... | ..... |
| CHEM 441 | ..... | ..... | 4 | ..... | ..... | ..... |
| BIOL 410 | ..... | ..... | 3 | ..... | ..... | ..... |
| BIOL 424 | ..... | ..... | 3 | ..... | ..... | ..... |
| BIOL 426 | ..... | ..... | 3 | ..... | ..... | ..... |
| BIOL 427 | ..... | ..... | 3 | ..... | ..... | ..... |
| BIOL 428 | ..... | ..... | 3 | ..... | ..... | ..... |

**ELECTIVES** (at least 7 units from the courses below)

|          |       |       |   |       |       |       |
|----------|-------|-------|---|-------|-------|-------|
| BIOL 330 | ..... | ..... | 5 | ..... | ..... | ..... |
| BIOL 415 | ..... | ..... | 3 | ..... | ..... | ..... |
| BIOL 420 | ..... | ..... | 2 | ..... | ..... | ..... |
| BIOL 425 | ..... | ..... | 3 | ..... | ..... | ..... |
| BIOL 431 | ..... | ..... | 5 | ..... | ..... | ..... |
| BIOL 434 | ..... | ..... | 3 | ..... | ..... | ..... |
| BIOL 440 | ..... | ..... | 3 | ..... | ..... | ..... |
| BIOL 443 | ..... | ..... | 4 | ..... | ..... | ..... |
| BIOL 445 | ..... | ..... | 3 | ..... | ..... | ..... |
| BIOL 466 | ..... | ..... | 4 | ..... | ..... | ..... |
| BIOL 468 | ..... | ..... | 4 | ..... | ..... | ..... |
| CHEM 442 | ..... | ..... | 4 | ..... | ..... | ..... |

Total Units for Concentration: (75 min.) \_\_\_\_\_

Note: A C- or better required in all courses that serve as a prerequisite.

Advisor Signature: \_\_\_\_\_

Date: \_\_\_\_\_

Dept. Chair Signature: \_\_\_\_\_

Date: \_\_\_\_\_