

# BACHELOR OF SCIENCE IN BIOLOGY (IMPACTED)

## Option in Molecular Cell Biology and Physiology (MCBP)

### Major Requirements Worksheet

#### 2017-2018 Catalog

Name: \_\_\_\_\_

Student ID: \_\_\_\_\_

**NOTE:** This checklist is not intended to replace advising from the major department. Students should consult with the major advisor to determine the appropriate sequence of courses. This checklist is to inform students of major requirements and course prerequisites only. CSULB Enrollment Services prepares the Academic Requirements Report, which is the official graduation verification. **Pre-Biology majors must complete their GE Foundation courses, and the highlighted areas below all with a "C" or better and a cumulative GPA of 2.5, by 60 units to be considered for the major.**

#### Degree Progress

Pre-Biology majors must complete CHEM 111A, CHEM 111B, BIOL 211, and MATH 119A (or 122) within one and a half calendar years of declaring the pre-major. Some students may need to take courses during Summer Session to meet these requirements. Students who have not met the requirements by the required semester must either declare another major or meet with an Academic Advisor to determine if the student's performance in the courses merits an additional semester to complete.

ALL Biology Department courses require a "C" or better on prerequisites.

Semester	Grade	Course #	Course Title	Prerequisites
		BIOL 211 <sup>†</sup>	Intro. to Evolution and Diversity (4)	Pre/Corequisite: CHEM 111A
		BIOL 212	Intro. to Cell and Molecular Biology (4)	BIOL 211 and CHEM 111A; Pre/Corequisite: CHEM 111B
		BIOL 213	Intro. to Ecology and Physiology (4)	BIOL 211, 212 and CHEM 111B
		BIOL 260	Biostatistics (3)	BIOL 211 or BIOL 207 or MICR 200; MATH 111 or 113 or 119A or 122
		CHEM 111A <sup>†</sup>	General Chemistry (5)*	A passing score on the CPT; Corequisite: MATH 109 or higher
		CHEM 111B <sup>†</sup>	General Chemistry (5)	CHEM 111A and MATH 113 or 115 or 119A or 122
		CHEM 220A	Organic Chemistry I (3)	CHEM 111B. Corequisite: CHEM 223A. CHEM 224A is required for students repeating course
		CHEM 220B	Organic Chemistry II (3)	CHEM 220A Corequisite: CHEM 223B or 320L
		CHEM 223A	Organic Chemistry Laboratory I (1)*	Corequisite: CHEM 220A
		CHEM 223B	Organic Chemistry Laboratory II (1)*	CHEM 220A and CHEM 223A Corequisite: CHEM 220B

#### Choose ONE of the following courses:

Semester	Grade	Course #	Course Title	Prerequisites
		MATH 119A <sup>†</sup>	Survey of Calculus I (3) <b>OR</b>	MDPT placement* or MATH 113
		MATH 122 <sup>†</sup>	Calculus I (4)	MDPT placement* or MATH 111 and 113

\*See exception or clarification in the catalog

#### Choose ONE of the following courses:

Semester	Grade	Course #	Course Title	Prerequisites
		PHYS 100A	General Physics (4) <b>OR</b>	MATH 109 or 113 or 119A or 122
		PHYS 151	Mechanics and Heat (4)	Pre/Corequisite: MATH 122

#### Choose ONE of the following courses:

Semester	Grade	Course #	Course Title	Prerequisites
		PHYS 100B	General Physics (4) <b>OR</b>	PHYS 100A
		PHYS 152	Electricity and Magnetism (4)	PHYS 151; Pre/Corequisite: MATH 123

## UPPER DIVISION COURSES (See major faculty advisor)

Take ALL of the following courses:

Semester	Grade	Course #	Course Title	Prerequisites
		BIOL 340	Molecular Cell Biology (3)	BIOL 211, 212
		BIOL 370	General Genetics (4)	BIOL 211, 212, and either BIOL 260 <i>or</i> CHEM 251
		BIOL 480	Seminars (1)	Consent of the department. Undergraduates must have filed for graduation and be in their last semester.
		CHEM 441A	Biological Chemistry (3)	CHEM 220B <i>or</i> CHEM 223B. Recommended: Biology or Microbiology course
		CHEM 441B	Biological Chemistry (3)	CHEM 441A

Choose ONE of the following courses:

Semester	Grade	Course #	Course Title	Prerequisites
		BIOL 312	Evolutionary Biology (3)	BIOL 211, 212, 213, 260
		BIOL 350	General Ecology (3)*	BIOL 211, 212, 213, 260; MATH 119A <i>or</i> 122

\*See exception or clarification in the catalog

Choose at least ONE of the following laboratory course/course pairs:

Semester	Grade	Course #	Course Title	Prerequisites
		BIOL 342	Human/Mammalian Physiology (3)	BIOL 211, 212, 213
		BIOL 342L	Human/Mammalian Physiology Lab (1)	<i>Pre/Corequisite:</i> BIO 342

OR

Semester	Grade	Course #	Course Title	Prerequisites
		BIOL 345	Comparative Animal Physiology (3)	BIOL 211, 212, 213
		BIOL 345L	Comparative Animal Physiology Lab (1)	<i>Pre/Corequisite:</i> BIO 345

OR

Semester	Grade	Course #	Course Title	Prerequisites
		BIOL 440L*	Molecular Cell Biology Laboratory (3)	BIOL 340, 370 and Instructor Consent

Choose FOUR of the following upper division elective courses:

Semester	Grade	Course #	Course Title	Prerequisites
		BIOL 311	General Microbiology (4)	BIOL 211, 212, CHEM 111B
		BIOL 416	Virology (3)	BIOL 320 <i>or</i> MICR 320 <i>or</i> BIOL 340
		BIOL 430	Immunology (3)	BIOL 340
		BIOL 431	Biology of Cancer (3)	BIOL 340, 370
		BIOL 432	Stem Cell Biology (3)	BIOL 340, BIOL 370
		BIOL 433	Developmental Biology (3)	BIOL 340; BIOL 370 <i>or</i> BIOL 371 <i>or</i> MICR 371
		BIOL 435	Pharmacology and Toxicology (3)	BIOL 340; CHEM 220A <i>or</i> CHEM 227. Recommend: BIOL 342 <i>or</i> 345, BIOL 370, CHEM 448
		BIOL 440L*	Molecular Cell Biology Lab (3)	BIOL 340, 370 and Instructor Consent
		BIOL 442	Physiology at the Limit (3)	BIOL 342 <i>or</i> 345
		BIOL 443	Endocrinology (3)	BIOL 340; 342 <i>or</i> 345
		BIOL 444	Reproductive Biology (3)	BIOL 342 <i>or</i> 345
		BIOL 445	Metabolic Regulation (3)	BIOL 340, 342 <i>or</i> 345; CHEM 441A
		BIOL 447	Molecular Plant Physiology (3)	BIOL 340, 370
		BIOL 448	Principles of Neurobiology (3)	BIOL 340; 342 <i>or</i> 345
		BIOL 449	Fish Physiology and Endocrinology (3)	BIOL 345
		BIOL 472	Molecular Evolution (3)	BIOL 370
		BIOL 473	Molecular Genetics (3)	BIOL 370 <i>or</i> BIOL 371 <i>or</i> MICR 371; CHEM 220A,B and 223 A,B <i>or</i> CHEM 227
		BIOL 474	Bioinformatics (3)	BIOL 260; BIOL370 <i>or</i> BIOL 371 <i>or</i> MICR 371
		BIOL 477	Biotechnology and Bioinformatics (4)	BIOL 340 <i>or</i> 370 <i>or</i> CHEM 441A,B

\*Note that 440L does not double-count. It will count as an elective only if 342/342L or 345/345L was taken for lab requirement.

These courses do not meet any specific or elective requirements for this major: BIOL 300, BIOL 301, BIOL 304, BIOL 305, 309; and NSCI 492.