**Department of Biology**

**School of Natural Sciences, Mathematics, and Engineering**

**Department Chair:** Todd McBride

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The Department of Biology offers the Bachelor of Science in Biology with or without a concentration in Biotechnology, the Bachelor of Arts in Human Biological Sciences, and the Master of Science in Biology. Throughout its curriculum the Department emphasizes evolution and the relationship between organisms and the environment. Classes include extensive field and laboratory investigations allowing students to observe and measure biological systems. Students are encouraged to select elective courses best suited to their interests. See Biology Tracks below. A detailed description of student learning goals and objectives can be found at http://www.csub.edu/biology/.

**Requirements for the Bachelor of Science Degree in Biology**

**Total Units Required to Graduate 180 units**

**Major Requirements 90 units**

 Biology Courses 65

 Cognates 25

**Minor Requirement 0 units**

**Other University Requirements 67-77 units**

 CSUB 101 2

 American Institutions 5

 Area A 15

 Area B 0-5\*

 Area C 15

 Area D 15

 Theme 1 0\*

 Theme 2 5

 Theme 3 5

 GRE 5

 GWAR (Exam) or Class 0-5

\*satisfied in major, minor or other university requirement

**Additional Units 13-23 units**

See http://www.csub.edu/schedules.shtml for current list of courses satisfying university-wide requirements.

**Note:** One (1) quarter unit of credit normally represents one hour of in-class work and 2-3 hours of outside study per week.

**Requirements for the Major in Biology**

The Bachelor of Science in Biology curriculum includes a wide range of courses that allow for diverse student interests. Students seeking a Bachelor of Science degree with a major in Biology must complete the following:

1. **Biology courses**\*

 a. BIOL 201, 202, and 203

 NOTE: A grade of C- or better in BIOL 201 is required to advance into upper division Biology courses.

 b. BIOL 301, 304, 305, 306, 470 and 490

 c. At least 25 units of additional upper division elective coursework in Biology. At least three courses must be five units with lab and at least one must be a laboratory course at the 400-level. One course selected from the following may be substituted for an elective: CHEM 331, 332, 333 or 340, PEAK 404 or other by advisor’s approval.

*\*A minimum GPA for these 65 units is 2.0*

2. **Cognates**+

 a. CHEM 211, 211L, 212, 212L, 213 and 213L

 b. MATH 191 or equivalent

 c. At least 5 units in appropriate cognate areas subject to the approval of the advisor.

*+ A minimum GPA for these 25 units is 2.0*

**Requirements for the Bachelor of Science Degree in Biology (Biotechnology Concentration)**

**Total Units Required to Graduate 180 units**

**Major Requirements 111 units**

 Biology Courses 61

 Cognates 50

**Minor Requirement 0 units**

**Other University Requirements 67-72 units**

 CSUB 101 2

 American Institutions 5\*

 Area A 15

 Area B 0\*

 Area C 15

 Area D 15

 Theme 1 0\*

 Theme 2 5

 Theme 3 5

 GRE 5

 GWAR (Exam) or Class 0-5

**Additional Units 0-2 units**

\*satisfied in major, minor or other university requirement

**Requirements for the Major in Biology and a Concentration in Biotechnology**

The Bachelor of Science in Biology and a concentration in Biotechnology curriculum include a specific set of courses designed to provide students with a foundation in Biotechnology related fields. Students seeking a Bachelor of Science degree with a major in Biology and a concentration in Biotechnology must complete the following:

1. **Biology courses**\*

 a. Core requirements: BIOL 201, 202, 203, 301, 304, 305, 470 and 490

 NOTE: A grade of C- or better in BIOL 201 is required to advance into upper division Biology courses.

 b. Concentration specific: BIOL 312, 330, 360, CHEM 340 and one of the following: BIOL 412, 414, 424, 430 or any 400 level course with lab (other than 440) by consent of advisor.

*\*A minimum GPA for these 61 units is 2.0*

2. **Cognates**+

 a. CHEM 211, 211L 212, 212L, 213, 213L, 331, 332, 333

 b. PHYS 201, 202, 203

 c. MATH 201 or 211

*+ A minimum GPA for these 50 units is 2.0*

**Requirements for the Bachelor of Arts Degree in Human Biological Sciences**

**Total Units Required to Graduate 180 units**

**Major Requirements 92-93 units**

 Biology Courses 67-68

 Cognates 25

**Minor Requirement Not Required**

**Elective Units 15-20 units**

**Other University Requirements 67-72 units**

 CSUB 101 2

 American Institutions 5\*

 Area A 15

 Area B 0\*

 Area C 15

 Area D 15

 Theme 1 0\*

 Theme 2 5

 Theme 3 5

 GRE 5

 GWAR (Exam) or Class 0-5

\*satisfied in major, minor or other university requirement

**Requirements for the Major in Human Biological Sciences**

The Bachelor of Arts Degree in Human Biological Sciences curriculum includes a specific set of courses designed to provide students with a foundation in Biology in Human/Health related fields. This degree is not intended for pre-medical or pre-professional students. Students seeking a Bachelor of Arts degree with a major in Human Biological Sciences must complete the following:

1. **Biology courses**\*

 Core Requirements:

 a. Lower division: BIOL 201, 250, 255, 256, 260, and 270. NOTE: A grade of C- or better in BIOL 201 is required to advance into upper division Biology courses.

 b. Upper division: BIOL 304, 305, 355, 414, 490B

 Electives:

 c. Two of the following: BIOL 316, 317, 318 or 319

 d. 15 units of additional upper division

*\*A minimum GPA for these 67 units is 2.0*

2. **Cognates**+

 a. NURS 235

 b. CHEM 150 and 203

 c. One 5 unit cognate elective subject to advisor approval

*+A minimum GPA for these 18 units is 2.0*

**Biology Tracks**

Students obtaining the BS in Biology are encouraged to take course sequences (tracks) with specific emphases such as Ecology/Field Biology, Physiology, Zoology, Pre-professional Biology, Clinical Laboratory Sciences, and Physical Therapy. These unofficial tracks are not listed on the diploma or transcript. For example, a track in Pre-professional Biology would include two years of chemistry, one year of physics, math through calculus, and selected electives in Biology. Specific courses recommended for these tracks can be obtained from an advisor or the Biology Department office.

**Requirements for the Minor in Biology**

A minor in Biology consists of 20 units, 10 of which must be upper division. Only courses applicable to the major will be accepted for the minor. Requests for approval are to be submitted to the Department Chair. A minimum grade point average of 2.0 is required for the units applied towards the Minor.

**Science Teacher Preparation Program Leading to a Degree in Natural Sciences, Primary Concentration in Biology**

CSUB has developed a degree program, the Bachelor of Arts in Natural Sciences, to prepare prospective science teachers for subject matter certification in California via the California Subject Matter Examinations for Teachers (CSET) in Science. See the catalog section under Natural Sciences for information about this degree program. Additional information may be obtained from the Biology Department office (661- 654-3089). CSUB has developed a degree program, the Bachelor of Arts in Natural Sciences, to prepare prospective science teachers for subject matter certification in California via the California Subject Matter Examinations for Teachers (CSET) in Science. See the catalog section under Natural Sciences for information about this degree program. Additional information may be obtained from the Biology Department office (661-654-3089).