

BIOLOGY: 7-12 TEACHER PREPARATION CONCENTRATION, BACHELOR OF SCIENCE

Student Learning Outcomes

1. Students will develop a broad-based knowledge of concepts and terminology in molecular, cellular, organismal, and ecological biology.
2. Students will develop applied scientific skills through field and laboratory experience and data analysis.
3. Students will develop skills in reading and interpreting the scientific literature and in presenting a synthesis of it accurately in oral and written form.
4. Students will demonstrate critical thinking and problem-solving skills using experimental design and the scientific method.

Outcomes Assessment Activities

- Assessment of students' improvement in intellectual skills, knowledge and capacities from entrance to graduation will be accomplished through the use of several tools. Exams and course assignments will be used as one measure of the student's proficiency in writing skills, acquisition of knowledge, communication, problem solving and laboratory skills. All majors will take a Senior Seminar that requires scientific literature interpretation along with oral and written presentations evaluated by peers and department faculty. Seniors will also take the Biology Major Field Test, which measures Colorado State University Pueblo students' content knowledge and analytical skills against national norms.

Specific Program Requirements

Course	Title	Credits
General Education		24
Biology Required		48
Biology Concentration		19-22
Education Minor		37-40
Total Credits		128-134

Specific Concentration Requirements

Students completing a major in Biology with a concentration in Secondary Education are required to complete a minor in Education and meet all other requirements outlined by the Teacher Education Program.

Course	Title	Credits
Required Courses		48
BIOL 181 & 181L	College Biology I/Organismal Bio (GT-SC2) and College Biology I/Organismal Bio Lab (GT-SC1)	4
BIOL 182 & 182L	College Biology II/Cellular Biology (GT-SC2) and College Biology II/Cellular Bio Lab (GT-SC1)	4
BIOL 312 & 312L	Cell Biology and Cell Biology Laboratory	4
BIOL 350	Mendelian and Population Genetics	2
BIOL 351	Molecular Biology & Genetics	3
BIOL 352	Evolutionary Biology and Ecology	3

BIOL 378	Laboratory in Teaching Biology	1
BIOL 493	Seminar	1
CHEM 121 & 121L	General Chemistry I (GT-SC2) and General Chemistry Lab I (GT-SC1)	5
CHEM 122 & 122L	General Chemistry II (GT-SC2) and General Chemistry Lab II (GT-SC1)	5
GEOL 101 & 101L	Earth Science (GT-SC2) and Earth Science Lab (GT-SC1)	4
MATH 221	Applied Calc: An Intuitive Approach (GT-MA1)	4
PHYS 201 & 201L	Principles of Physics I (GT-SC2) and Principles of Physics Lab I (GT-SC1)	4
PHYS 202 & 202L	Principles Of Physics II (GT-SC2) and Principles Of Physics II Lab (GT-SC1)	4
Select one of the following:		4
BIOL 201 & 201L	Botany (GT-SC2) and Botany Laboratory (GT-SC1)	4
BIOL 202 & 202L	Zoology and Zoology Laboratory	4
Select one of the following:		4-5
BIOL 206 & 206L	Introduction to Microbiology and Introduction to Microbiology Lab	4
BIOL 401 & 401L	and	4
Select one of the following:		4
BIOL 223 & 223L	Human Physiology and Anatomy I (GT-SC2) and Human Physiology and Anatomy I Lab (GT-SC1)	4
BIOL 224 & 224L	Human Physiology and Anatomy II (GT-SC2) and Human Physiology and Anatomy II Lab (GT-SC1)	4
BIOL 414 & 414L	Vertebrate Physiology and Vertebrate Physiology Lab	4
Select one Biology Upper Division Field Elective/Lab		3-4
Select one of the following:		4-5
CHEM 211 & 211L	Introduction to Organic Chemistry and Intro to Organic Chemistry Lab	4
CHEM 301 & 301L	Organic Chemistry I and Organic Chemistry Lab I	5
Education Minor		37-40
Institutional & General Education Courses <small>Must include the following course:</small>		24
CID 103	Speaking & Listening	3
Total Credits		128-134

Specific Requirements for the Education, Minor

The student must complete an appropriate major and the following Education courses:

Course	Title	Credits
PSYC 151	Human Development (GT-SS3) ¹	3
or PSYC 251	Childhood and Adolescence	
or PSYC 342	Educational Psychology	
ED 202	Foundations of Education ²	3
ED 280	Educational Media and Technology ²	3

ED 305	Frameworks of Teaching	3
ED 412	Teaching Diverse Learners ³	3
ED 460	Classroom Management ²	3
RDG 435	Disciplinary Literacy	4
Special Methods in Education Areas (Prerequisites - Admission to Education) ⁴		4-6
ED 485	Capstone Seminar in Education	1
ED 488 or ED 489	Student Teaching Secondary Student Teaching K-12	11
Total Credits		38-40

¹ Music students may take PSYC 151 Human Development (GT-SS3) (3 c.h.) or PSYC 251 Childhood and Adolescence (3 c.h.).

² Music Education students must complete MUS 220 Foundations of Music Education (3 c.h.) instead of ED 202 Foundations of Education (3 c.h.), MUS 103 Music and Computer Technology I (1 c.h.) and MUS 306 Technology for Music Educators (2 c.h.) instead of ED 280 Educational Media and Technology (3 c.h.), and MUS 440 Choral Music Methods (2 c.h.) instead of ED 460 Classroom Management (3 c.h.).

³ Physical Education students may complete EPER 465 Adapted Physical Education (3 c.h.) Adapted Physical Education (3 c.h.) or ED 412 Teaching Diverse Learners (3 c.h.) Teaching Diverse Learners (3 c.h.).

⁴ One of the following special methods courses (or sets of courses) is required depending on major: ED 444 Teaching Secondary Science (4 c.h.) ED 446 Teaching K-12 Art (4 c.h.), ED 447 Teaching English in Secondary Schools (4 c.h.), ED 448 Teaching Foreign Language (K-12) (4 c.h.), ED 451 Teaching Secondary Social Studies (4 c.h.), EPER 351 Methods of Teaching Elem Physical ED (3 c.h.) & EPER 478 Methods of Secondary Physical Education (3 c.h.), MATH 477 Methods for Teaching Secondary Math (4 c.h.), MUS 340 General Music Methods (2 c.h.) & MUS 440 Choral Music Methods (2 c.h.) & MUS 441 Instrumental Music Methods (2 c.h.).

Planning Sheet

Disclaimer: The Planning Sheet is designed as a guide for students planning their course selections. The information on this page provides only a suggested schedule. Actual course selections should be made with the advice and consent of an academic advisor. While accurately portraying the information contained in the college catalog, this form is not considered a legal substitute for that document. Students should become familiar with the catalog in effect at the time in which they entered the institution.

Note: Students completing a major with a concentration in Secondary Education are required to complete a minor in Education and to meet all other requirements outlined by the Teacher Education Program.

*CID 103 is required for admission into the Teacher Education Program.

Course	Title	Credits
Year 1		
Fall		
BIOL 171	First Year Seminar	1
BIOL 181 & 181L	College Biology I/Organismal Bio (GT-SC2) and College Biology I/Organismal Bio Lab (GT-SC1)	4
CHEM 111	Principles of Chemistry (GT-SC2)	3
MATH 120 or MATH 221	College Algebra (GT-MA1) or Applied Calc: An Intuitive Approach (GT-MA1)	3-4

ENG 101	Rhetoric & Writing I (GT-CO1)	3
Credits		14-15
Spring		
BIOL 182 & 182L	College Biology II/Cellular Biology (GT-SC2) and College Biology II/Cellular Bio Lab (GT-SC1)	4
CHEM 121 & 121L	General Chemistry I (GT-FSC2) and General Chemistry Lab I (GT-SC1)	5
BIOL 201 & 201L or BIOL 202/202L or MATH 221	Botany (GT-SC2) or Zoology or Applied Calc: An Intuitive Approach (GT-MA1)	4
ED 202	Foundations of Education	3
ENG 102 or ENG 115	Rhetoric & Writing II (GT-CO2) or Technical Writing (GT-CO2)	3
Credits		19

Year 2

Fall		
BIOL 202 & 202L or MATH 221	Zoology or Applied Calc: An Intuitive Approach (GT-MA1)	4
BIOL 350	Mendelian and Population Genetics	2
CHEM 122 & 122L	General Chemistry II (GT-SC2) and General Chemistry Lab II (GT-SC1)	5
ED 280	Educational Media and Technology	3
CID 103	Speaking & Listening	3
Credits		17

Spring

CHEM 211 & 211L or CHEM 301/301L	Introduction to Organic Chemistry or Organic Chemistry I	4
BIOL 312 & 312L	Cell Biology and Cell Biology Laboratory	4
PHYS 201 & 201L	Principles of Physics I (GT-FSC2) and Principles of Physics Lab I (GT-SC1)	4
ED 305	Frameworks of Teaching	3
Credits		15

Summer

General Education Courses	Humanities, History, or Social Sciences	6
Credits		6

Year 3

Fall		
GEOL 101 & 101L	Earth Science (GT-SC2) and Earth Science Lab (GT-SC1)	4
BIOL 206 & 206L	Introduction to Microbiology and Introduction to Microbiology Lab	4
RDG 435	Disciplinary Literacy	4
PHYS 202 & 202L	Principles Of Physics II (GT-SC2) and Principles Of Physics II Lab (GT-SC1)	4
Credits		16

Spring

Upper Division BIOL Field Electives		3-4
ED 412	Teaching Diverse Learners	3
BIOL 378	Laboratory in Teaching Biology	1
PSYC 151 or PSYC 251	Human Development (GT-SS3) or Childhood and Adolescence	3
BIOL 351	Molecular Biology & Genetics	3
Credits		13-14

Year 4

Fall		
BIOL 352	Evolutionary Biology and Ecology	3
ED 444	Teaching Secondary Science	4
General Education Courses	Humanities, History, or Social Science	6

BIOL 223 & 223L or BIOL 224/224L or BIOL 414/414L	Human Physiology and Anatomy I (GT-SC2) or Human Physiology and Anatomy II (GT-SC2) or Vertebrate Physiology	4
BIOL 493	Seminar	1
Credits		18
Spring		
ED 488	Student Teaching Secondary	12
ED 485	Capstone Seminar in Education	1
Credits		13
Total Credits		131-133