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

Expected Student Outcomes

- Students will develop a broad-based knowledge of concepts and terminology in molecular, cellular, organismal, and ecological biology.
- Students will develop applied scientific skills though field and laboratory experience and data analysis.
- Students will develop skills in reading and interpreting the scientific literature and in presenting a synthesis of it accurately in oral and written form.
- 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	Microbiology and Microbiology Laboratory	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	**Must include the following course:**	**24**
CID 103	Speaking & Listening	3
Total Credits		**128-134**

Specific Requirements for the Secondary and K-12 Teaching Endorsements/Minor

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

Course	Title	Credits
Select one of the following:		3
PSYC 151	Human Development (GT-SS3)	3
PSYC 251	Childhood and Adolescence	3
PSYC 342	Educational Psychology	3
ED 202	Foundations of Education	3
ED 280	Educational Media and Technology [2]	3

ED 301	Frameworks of Teaching (Admission to Education is completed in this course)	4
RDG 435	Disciplinary Literacy [3, 5]	4
Special Methods in Endorsement Areas (Prerequisites - Admission to Education) [5]		4
ED 412	Teaching Diverse Learners [4, 5]	3
ED 485	Capstone Seminar in Education	1
ED 488	Student Teaching Secondary	12
or ED 489	Student Teaching K-12	
Total Credits [3]		37-40

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 may complete MUS 103 Music and Computer Technology I (1 c.h.) and MUS 306 Technology for Music Educators (2 c.h.) for ED 280 Educational Media and Technology (3 c.h.).
3 English/Language Arts student must also complete RDG 410 Teaching Reading (3 c.h.)
4 Physical Education students may complete EPER 465 Adapted Physical Education (3 c.h.) or ED 412 Teaching Diverse Learners (3 c.h.).
5 GPA of 2.6 required

Planning Sheet

Disclaimer: The Planning Sheet is designed as a guide for student's 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 181 & 181L	College Biology I/Organismal Bio (GT-SC2) and College Biology I/Organismal Bio Lab (GT-SC1)	4
CHEM 121 & 121L	General Chemistry I (GT-SC2) and General Chemistry Lab I (GT-SC1)	5
ED 202	Foundations of Education	3
ENG 101	Rhetoric & Writing I (GT-CO1)	3
	Credits	**15**
Spring		
BIOL 182 & 182L	College Biology II/Cellular Biology (GT-SC2) and College Biology II/Cellular Bio Lab (GT-SC1)	4
CHEM 122 & 122L	General Chemistry II (GT-SC2) and General Chemistry Lab II (GT-SC1)	5
MATH 221	Applied Calc: An Intuitive Approach (GT-MA1)	4
ENG 102	Rhetoric & Writing II (GT-CO2)	3
	Credits	**16**
Year 2		
Fall		
BIOL 201 or BIOL 202	Botany (GT-SC2) or Zoology	2
BIOL 201L or BIOL 202L	Botany Laboratory (GT-SC1) or Zoology Laboratory	2
ED 280	Educational Media and Technology	3
BIOL 350	Mendelian and Population Genetics	2
CID 103	Speaking & Listening	3
General Education		3
	Credits	**15**
Spring		
BIOL 351	Molecular Biology & Genetics	3
CHEM 211 or CHEM 301	Introduction to Organic Chemistry or Organic Chemistry I	3
CHEM 211L or CHEM 301L	Intro to Organic Chemistry Lab or Organic Chemistry Lab I	1-2
ED 301	Frameworks of Teaching	4
PHYS 201 & 201L	Principles of Physics I (GT-SC2) and Principles of Physics Lab I (GT-SC1)	4
PSYC 151 or PSYC 251	Human Development (GT-SS3) or Childhood and Adolescence	3
	Credits	**18-19**
Year 3		
Fall		
BIOL 223 or BIOL 224 or BIOL 414	Human Physiology and Anatomy I (GT-SC2) or Human Physiology and Anatomy II (GT-SC2) or Vertebrate Physiology	3
BIOL 223L or BIOL 224L or BIOL 414L	Human Physiology and Anatomy I Lab (GT-SC1) or Human Physiology and Anatomy II Lab (GT-SC1) or Vertebrate Physiology Lab	1
PHYS 202 & 202L	Principles Of Physics II (GT-SC2) and Principles Of Physics II Lab (GT-SC1)	4
RDG 435	Disciplinary Literacy	4
General Education		3
	Credits	**15**
Spring		
BIOL 352	Evolutionary Biology and Ecology	3
BIOL 378	Laboratory in Teaching Biology	1
ED 412	Teaching Diverse Learners	3
GEOL 101 & 101L	Earth Science (GT-SC2) and Earth Science Lab (GT-SC1)	4
General Education		3
Elective Must be upper division Biology course.		3
	Credits	**17**
Year 4		
Fall		
BIOL 206 or BIOL 301	Introduction to Microbiology or General Microbiology	3
BIOL 206L or BIOL 301L	Introduction to Microbiology Lab or General Microbiology Lab	1-2
BIOL 493	Seminar	1
ED 444	Teaching Secondary Science	4
General Education		3
Elective Must be upper division Biology course.		3
	Credits	**15-16**
Spring		
ED 485	Capstone Seminar in Education	1
ED 488	Student Teaching Secondary	12
	Credits	**13**
	Total Credits	**124-126**