

# WILDLIFE & NATURAL RESOURCES: AQUATIC CONCENTRATION, BACHELOR OF SCIENCE

## Wildlife & Natural Resources Program

Majoring Wildlife and Natural Resources leads to a Bachelor of Science (BS) Degree. In addition, supporting courses and general education courses in biology are available to meet a wide range of interests, backgrounds and needs. The Wildlife and Natural Resources Program emphasizes an understanding of fish and wildlife ecology and management with practical skills obtained during laboratory and field exercises. Graduates are prepared for positions with state and federal agencies, tribal departments, conservation organizations, and higher academic degrees. Carefully supervised career planning is provided to all students.

The Wildlife and Natural Resources Program offers Aquatic and Terrestrial concentration areas, with curriculum for each meeting the certification requirements of the American Fisheries Society (AFS) or The Wildlife Society (TWS), respectively.

## Program Goals

- To provide students with the necessary background to successfully pursue graduate study towards a professional career in wildlife and natural resources;
- To prepare students upon graduation to enter field positions in government or private industry; and,
- To supply students with the necessary coursework to obtain professional certification as associate fishery or wildlife biologists

## Expected Student Outcomes

- Students will know the taxonomy, ecology and natural history of flora and fauna in southern Colorado and the desert southwest.
- Students will know the principles and concepts of fish and wildlife science and how they are used to make informed decisions on difficult management decisions.
- Students will use contemporary tools and techniques for studying fish and wildlife, habitat, and ecosystem processes.
- Students will be familiar with laws, policies, regulations and administrative processes that dictate how wildlife and natural resources are held in trust for the public.
- Students will develop communication and interpersonal skills to enhance their working relations with co-workers, other wildlife professionals, the public and non-governmental organizations, landowners, hunters and anglers, and other natural resources interests.
- 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 process.

## 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 and field skills. All majors will take a Senior Seminar requiring scientific literature interpretation along with oral and written presentations evaluated by peers and department faculty. Students performing at a high academic level will be strongly encouraged to take the Graduate Record Examination (GRE) to prepare for graduate study.

## Specific Program Requirements

- Students majoring in wildlife and natural resources must receive a grade of C or better (2.000) in all core biology and wildlife and natural resources courses.
- Students graduating with a BS in wildlife and natural resources must have at least a cumulative GPA of 2.000 in the major area.
- Transfer students are required to earn a minimum of 15 semester credit hours in approved biology and wildlife and natural resources upper division courses from CSU Pueblo, including BIOL 493 Seminar (1 c.h.), for graduation with a BS degree in wildlife and natural resources.
- Students are strongly encouraged to complete an internship or temporary employment in a natural resources discipline prior to graduation.

Course	Title	Credits
<b>General Education</b>		
CHEM 111 & 111L	Principles of Chemistry (GT-SC2) and Principles of Chemistry Lab (GT-SC1)	4
CHEM 211 & 211L	Introduction to Organic Chemistry and Intro to Organic Chemistry Lab	4
CID 103	Speaking & Listening	3
MATH 156	Introduction to Statistics (GT-MA1)	3
MATH 221	Applied Calc: An Intuitive Approach (GT-MA1)	4
English		6
History		3
Humanities		6
Social Science		6
<b>Major Requirements</b>		
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
BIOL 182 & 182L	College Biology II/Cellular Biology (GT-SC2) and College Biology II/Cellular Bio Lab (GT-SC1)	4
BIOL 201 & 201L	Botany (GT-SC2) and Botany Laboratory (GT-SC1)	4
BIOL 202 & 202L	Zoology and Zoology Laboratory	4
BIOL 350	Mendelian and Population Genetics	2
BIOL 352	Evolutionary Biology and Ecology	3
BIOL 493	Seminar	1
WANR 303	Nat Resource Policy & Admin	3
WANR 304	Human Dimensions in Nat Res Mgmt	3
WANR 475	Science Communication	3

Select 2 from the following:	6
BIOL 461 Applied Geospatial Technology (GIS/GPS)	3
GEOL 101 Earth Science (GT-SC2)	3
PHYS 201 Principles of Physics I (GT-SC2)	3
<b>Required Electives</b> 4 credits must be upper division and have advisor approval.	<b>25</b>
BIOL 441 Freshwater Invertebrate Zoology & 441L	4
BIOL 443 Limnology & 443L	4
BIOL 453 Ecology & 453L	4
BIOL 479 Ichthyology & 479L	3
WANR 401 Fisheries Science & 401L	3
WANR 410 Aquaculture	3
Open Electives <small>Must be upper division and have advisor approval.</small>	4
<b>Additional Electives</b>	<b>14</b>
<b>Total Credits</b>	<b>120</b>

## 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.

Course	Title	Credits
<b>Year 1</b>		
<b>Fall</b>		
BIOL 181 & 181L	College Biology I/Organismal Bio (GT-SC2) and College Biology I/Organismal Bio Lab (GT-SC1)	4
BIOL 171	First Year Seminar	1
CHEM 121 & 121L	General Chemistry I (GT-SC2) and General Chemistry Lab I (GT-SC1)	5
CID 103	Speaking & Listening	3
ENG 101	Rhetoric & Writing I (GT-CO1)	3
<b>Credits</b>		<b>16</b>
<b>Spring</b>		
BIOL 182 & 182L	College Biology II/Cellular Biology (GT-SC2) and College Biology II/Cellular Bio Lab (GT-SC1)	4
CHEM 211 & 211L	Introduction to Organic Chemistry and Intro to Organic Chemistry Lab	4
ENG 102	Rhetoric & Writing II (GT-CO2)	3
General Education		3
<b>Credits</b>		<b>14</b>
<b>Year 2</b>		
<b>Fall</b>		
BIOL 202 & 202L	Zoology and Zoology Laboratory	4
BIOL 350	Mendelian and Population Genetics	2
MATH 156	Introduction to Statistics (GT-MA1)	3
PHYS 201 & 201L	Principles of Physics I (GT-SC2) and Principles of Physics Lab I (GT-SC1)	4
Elective <small>Must be a Communication course.</small>		3
<b>Credits</b>		<b>16</b>

<b>Spring</b>		
BIOL 201 & 201L	Botany (GT-SC2) and Botany Laboratory (GT-SC1)	4
BIOL 352	Evolutionary Biology and Ecology	3
MATH 221	Applied Calc: An Intuitive Approach (GT-MA1)	4
General Education		3
<b>Credits</b>		<b>14</b>
<b>Year 3</b>		
<b>Fall</b>		
BIOL 479 & 479L	Ichthyology and Ichthyology Laboratory	3
GEOL 101 & 101L	Earth Science (GT-SC2) and Earth Science Lab (GT-SC1)	4
General Education		6
Elective		3
<b>Credits</b>		<b>16</b>
<b>Spring</b>		
BIOL 443 & 443L	Limnology and Limnology Lab	4
WANR 303	Nat Resource Policy & Admin	3
Elective <small>Must be upper division Biology course.</small>		7
<b>Credits</b>		<b>14</b>
<b>Year 4</b>		
<b>Fall</b>		
BIOL 453 & 453L	Ecology and Ecology Field Studies	4
WANR 304	Human Dimensions in Nat Res Mgmt	3
General Education		3
Elective		6
<b>Credits</b>		<b>16</b>
<b>Spring</b>		
BIOL 441 & 441L	Freshwater Invertebrate Zoology and Freshwater Invertebrate Zoology Lab	4
BIOL 493	Seminar	1
WANR 401 & 401L	Fisheries Science and Fisheries Science Lab	3
Elective <small>3 credits must be upper division Biology course.</small>		6
<b>Credits</b>		<b>14</b>
<b>Total Credits</b>		<b>120</b>