

MAJOR IN WATERSHED SCIENCE AND SUSTAINABILITY, WATERSHED DATA CONCENTRATION

Requirements Effective Fall 2022

Freshman

		AUCC	Credits
CO 150	College Composition (GT-CO2)	1A	3
CS 150B	Culture and Coding: Python (GT-AH3)	3B	3
STAT 158	Introduction to R Programming		1
WR 204/GR 204	Sustainable Watersheds (GT-SC2)	3A	3
Select 4 credits from the following:			4
BZ 110 & BZ 111	Principles of Animal Biology (GT-SC2)	3A	
BZ 120	Principles of Plant Biology (GT-SC1)	3A	
Select one course from the following:			4
CHEM 107	Fundamentals of Chemistry (GT-SC2)	3A	
CHEM 111	General Chemistry I (GT-SC2)	3A	
Select one course from the following:			3-4
ESS 210/GR 210	Physical Geography		
GEOL 110	Introduction to Geology-Parks and Monuments (GT-SC2)	3A	
GEOL 120	Exploring Earth - Physical Geology (GT-SC2)	3A	
GEOL 122	The Blue Planet - Geology of Our Environment (GT-SC2)	3A	
GEOL 124	Geology of Natural Resources (GT-SC2)	3A	
GEOL 150	Physical Geology for Scientists and Engineers	3A	
Select one course from the following:			4
MATH 155	Calculus for Biological Scientists I (GT-MA1)	1B	
MATH 160	Calculus for Physical Scientists I (GT-MA1)	1B	
Diversity, Equity, and Inclusion (http://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#diversity-equity-inclusion)			3
Electives			3

Total Credits

31-32

Sophomore

CS 220	Discrete Structures and their Applications		4
DSCI 369	Linear Algebra for Data Science		4
NR 322	Intro. to Geographic Information Systems		4
SOCR 240	Introductory Soil Science		4
Select one course from the following:			5
PH 121	General Physics I (GT-SC1)	3A	
PH 141	Physics for Scientists and Engineers I (GT-SC1)	3A	
Select one course from the following:			3
STAT 301	Introduction to Applied Statistical Methods		
STAT 315	Intro to Theory and Practice of Statistics		
Social and Behavioral Sciences (http://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#social-behavioral-sciences)			3

Electives			3
Total Credits			30
Summer			
NR 220	Natural Resource Ecology and Measurements		5
Total Credits			5
Junior			
Summer			
AREC 342	Water Law, Policy, and Institutions		3
DSCI 335	Inferential Reasoning in Data Analysis		3
STAT 341	Statistical Data Analysis I		3
WR 416	Land Use Hydrology	4B	3
WR 418	Land Use and Water Quality		3
WR 474	Snow Hydrology		3
WR 486	Watershed Field Practicum		2
Select one course from the following:			3
CO 301B	Writing in the Disciplines: Sciences (GT-CO3)	2	
JTC 300	Strategic Writing and Communication (GT-CO3)	2	
Watershed Science Department List (see list below)			3
Historical Perspectives (http://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#historical-perspectives)		3D	3
Total Credits			29
Senior			
WR 417	Watershed Measurements		3
WR 440	Watershed Problem Analysis	4A,4B,4C	3
Data Science Electives (see list below)			3
Watershed Science Department List (see list below)			6
Arts and Humanities (http://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#arts-humanities)		3B	3
Electives ^{1,2}			6-7
Total Credits			24-25
Program Total Credits:			120

Data Science Elective List

Select a minimum of 3 credits from courses not taken elsewhere in the program. Additional coursework may be required due to prerequisites.

Code	Title	Credits
AREC 335/ECON 335	Introduction to Econometrics	3
BZ 346	Population and Evolutionary Genetics	3
BZ 350	Molecular and General Genetics	4
BZ 425	Conservation and Population Genomics	3
CS 345	Machine Learning Foundations and Practice	3
ERHS 332	Principles of Epidemiology	3
ERHS 430	Human Disease and the Environment	3
ESS 330	Quantitative Reasoning for Ecosystem Science	3
F 321	Forest Biometry	3
FW 370	Design of Fish and Wildlife Projects	3
FW 401	Fishery Science	3
FW 455	Principles of Conservation Biology	3
FW 469	Conservation and Management of Large Mammals	3

FW 475	Conservation Decision Making	3
GEOL 454	Geomorphology	4
HDFS 350	Applied Research Methods	3
MKT 410	Marketing Research	3
NR 421	Natural Resources Sampling	3
PSY 250	Research Design and Analysis I	3
PSY 350	Research Design and Analysis II	3
RS 432	Rangeland Measurements and Monitoring	2
SOWK 300	Research in Applied Professions	3
STAT 305	Sampling Techniques	3
STAT 342	Statistical Data Analysis II	3

Watershed Science Department List

Select a minimum of 9 credits from courses not taken elsewhere in the program. Additional coursework may be required due to prerequisites.

Code	Title	Credits
AREC 442	Water Resource Economics	3
ATS 350	Introduction to Weather and Climate	2
ATS 351	Introduction to Weather and Climate Lab	1

BSPM 445	Aquatic Insects	4	WR 492	Seminar	1-18
BZ 440	Plant Physiology	3	WR 575	Snow Hydrology Field Methods	1
BZ 441	Plant Physiology Laboratory	2			
BZ 471	Stream Biology and Ecology	3			
BZ 472	Stream Biology and Ecology Laboratory	1			
CHEM 334	Quantitative Analysis Laboratory	1			
CHEM 335	Introduction to Analytical Chemistry	3			
CHEM 338	Environmental Chemistry	3			
CIVE 322	Basic Hydrology	3			
CIVE 330	Ecological Engineering	3			
CIVE 413	Environmental River Mechanics	3			
CIVE 423	Groundwater Engineering	3			
CIVE 425	Soil and Water Engineering	3			
CIVE 440	Nonpoint Source Pollution	3			
ERHS 448	Environmental Contaminants	3			
ESS 311	Ecosystem Ecology	3			
ESS 312	Sustainability Science	3			
ESS 471	Special Topics in Ecosystem Sustainability	1-6			
ESS 474	Limnology	3			
F 311	Forest Ecology	3			
F 324	Fire Effects and Adaptations	3			
FW 300	Biology and Diversity of Fishes	2			
FW 301	Ichthyology Laboratory	1			
GEOL 446	Environmental Geology	3			
GEOL 452	Hydrogeology	4			
GEOL 454	Geomorphology	4			
GEOL 551	Groundwater Modeling	3			
GEOL 552	Advanced Topics in Hydrogeology	2-3			
GEOL 553	Use of Tracers in Hydrogeology	3			
GES 470	Applications of Environmental Sustainability	3			
GR 410	Climate Change: Science, Policy, Implications	3			
GRAD 592	Water Resources Seminar	1			
NR 310	Ecosystem Services and Human Well-Being	3			
NR 320	Natural Resources History and Policy	3			
NR 323/GR 323	Remote Sensing and Image Interpretation	3			
NR 370	Coastal Environmental Ecology	3			
NR 422	GIS Applications in Natural Resource Management	4			
NRRT 330	Social Aspects of Natural Resource Management	3			
NRRT 362	Environmental Conflict Management	3			
RS 478	Ecological Restoration	3			
SOC 461	Water and Social Justice	3			
SOCR 322	Principles of Microclimatology	3			
SOCR 370	Irrigation Principles	2			
SOCR 371	Irrigation of Field Crops	1			
SOCR 440	Pedology	4			
SOCR 500	Environmental Measurement Laboratory	1			
WR 406	Seasonal Snow Environments	3			

¹ Select enough elective credits to bring the program total to a minimum of 120 credits, of which at least 42 must be upper-division (300- to 400-level).

² Completion of this major may satisfy requirements for a minor. Contact a Watershed Science advisor for more information.