

MAJOR IN WATERSHED SCIENCE AND SUSTAINABILITY, WATERSHED SCIENCE CONCENTRATION

Requirements Effective Fall 2023

Freshman

		AUCC	Credits
CO 150	College Composition (GT-CO2)	1A	3
ESS 120	Intro to Ecosystem and Watershed Sciences		1
ESS 129	Information Management for Sustainability		1
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 group from the following:			5
Group A:			
CHEM 107	Fundamentals of Chemistry (GT-SC2)	3A	
CHEM 108	Fundamentals of Chemistry Laboratory (GT-SC1)	3A	
Group B:			
CHEM 111	General Chemistry I (GT-SC2)	3A	
CHEM 112	General Chemistry Lab I (GT-SC1)	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	
Diversity, Equity, and Inclusion (http://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#diversity-equity-inclusion)			3
Social and Behavioral Sciences (http://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#social-behavioral-sciences)			3

Total Credits

27-28

Sophomore

LIFE 320	Ecology		3
MATH 155 or 160	Calculus for Biological Scientists I (GT-MA1) Calculus for Physical Scientists I (GT-MA1)	1B	4
MATH 161 or 255	Calculus for Physical Scientists II (GT-MA1) Calculus for Biological Scientists II	1B	4
SOCR 240	Introductory Soil Science		4
STAT 301 or 315	Introduction to Applied Statistical Methods Intro to Theory and Practice of Statistics		3
Select one group from the following:			10

Group A:			
PH 121	General Physics I (GT-SC1)	3A	
PH 122	General Physics II (GT-SC1)	3A	
Group B:			
PH 141	Physics for Scientists and Engineers I (GT-SC1)	3A	
PH 142	Physics for Scientists and Engineers II (GT-SC1)	3A	
Arts and Humanities (http://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#arts-humanities)		3B	3
Total Credits			31
Summer			
NR 220	Natural Resource Ecology and Measurements		5
Total Credits			5
Junior			
AREC 342	Water Law, Policy, and Institutions		3
NR 319	Introduction to Geospatial Science		4
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:		2	3
CO 301B	Writing in the Disciplines: Sciences (GT-CO3)	2	
JTC 300	Strategic Writing and Communication (GT-CO3)	2	
LB 300	Specialized Professional Writing	2	
Arts and Humanities (http://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#arts-humanities)		3B	3
Electives			6
Total Credits			30
Senior			
WR 417	Watershed Measurements		3
WR 440	Watershed Problem Analysis	4A,4B,4C	3
Select one from the following:			4
GEOL 452	Hydrogeology		
SOCR 470 & SOCR 471	Soil Physics		
Select one course from the following:			3
BZ 471	Stream Biology and Ecology		
ESS 474	Limnology		
Watershed Science Department List (see list below)			6
Historical Perspectives (http://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#historical-perspectives)		3D	3
Electives ¹			4-5
Total Credits			26-27
Program Total Credits:			120

Watershed Science Department List

Select a minimum of 6 credits from courses not taken elsewhere in the program. Additional coursework may be required due to prerequisites.

Code	Title	Credits
AREC 311	Agricultural and Resource Product Marketing	3
AREC 340/ECON 340	Introduction-Economics of Natural Resources	3
AREC 375	Agricultural Law	3
AREC 442	Water Resource Economics	3
ATS 350	Introduction to Weather and Climate	2
ATS 351	Introduction to Weather and Climate Lab	1
BZ 440	Plant Physiology	3

BZ 441	Plant Physiology Laboratory	2	NR 400	Public Communication in Natural Resources	3
BZ 471	Stream Biology and Ecology	3	NR 422	GIS Applications in Natural Resource Management	4
BZ 472	Stream Biology and Ecology Laboratory	1	NR 425	Natural Resource Policy and Sustainability	3
CHEM 334	Quantitative Analysis Laboratory	1	NR 450	Geospatial Project Design and Analysis	4
CHEM 335	Introduction to Analytical Chemistry	3	NRRT 330	Social Aspects of Natural Resource Management	3
CHEM 338	Environmental Chemistry	3	NRRT 362	Environmental Conflict Management	3
CIVE 322	Basic Hydrology	3	RS 478	Ecological Restoration	3
CIVE 330	Ecological Engineering	3	SOC 322	Environmental Justice	3
CIVE 413	Environmental River Mechanics	3	SOC 323	Soc. of Environmental Cooperation & Conflict	3
CIVE 423	Groundwater Engineering	3	SOC 461	Water and Social Justice	3
CIVE 425	Soil and Water Engineering	3	SOC 463	Sociology of Disaster	3
CIVE 440	Nonpoint Source Pollution	3	SOCR 322	Principles of Microclimatology	3
ERHS 448	Environmental Contaminants	3	SOCR 370	Climate-Smart Irrigation Principles	2
ESS 311	Ecosystem Ecology	3	SOCR 371	Climate-Smart Irrigation Management	1
ESS 312	Sustainability Science	3	SOCR 375	Soil Biogeochemistry	3
ESS 353	Global Change Impacts, Adaptation, Mitigation	3	SOCR 440	Pedology	4
ESS 365	Global Climate Justice	3	SOCR 500	Environmental Measurement Laboratory	1
ESS 400	Global Perspectives on Sustainability	3	WR 406	Seasonal Snow Environments	3
ESS 471	Special Topics in Ecosystem Sustainability	1-6	WR 492	Seminar	3
ESS 474	Limnology	3	WR 575	Snow Hydrology Field Methods	1
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			
GEOL 554	Remote Sensing of the Earth System	3			
GES 440/ATS 440	Sea Level Rise and a Sustainable Future	3			
GES 450	Global Sustainability and Health	3			
GES 470	Applications of Environmental Sustainability	3			
GR 320	Cultural Geography	3			
GR 330	Urban Geography	3			
GR 331	Geography of Farming Systems	3			
GR 333	Glaciers and Climate Change	3			
GR 345	Geography of Hazards	3			
GR 348	Biogeography	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 330	Human Dimensions in Natural Resources	3			
NR 365	Environmental Education	3			
NR 370	Coastal Environmental Ecology	3			
NR 375	Environment and Natural Resources Leadership	1			

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).