

# MAJOR IN WATERSHED SCIENCE AND SUSTAINABILITY, WATERSHED SUSTAINABILITY CONCENTRATION

## Requirements Effective Fall 2024

### Freshman

		AUCC	Credits
CHEM 103	Chemistry in Context (GT-SC2)	3A	3
CO 150	College Composition (GT-CO2)	1A	3
ESS 120	Intro to Ecosystem and Watershed Sciences		1
ESS 129	Information Management for Sustainability		1
GES 120	Water Sustainability in the Western US		3
GR 204/WR 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:			3-4
ESS 210/GR 210	Physical Geography		
GEOL 110	Introduction to Geology-Parks and Monuments (GT-SC2)	3A	
GEOL 120	Geology and Society (GT-SC2)	3A	
GEOL 122	Geoscience--Climate and Environmental Change (GT-SC2)	3A	
GEOL 124	Earth Resources and Sustainability (GT-SC2)	3A	
GEOL 150	Dynamic Earth (GT-SC2)	3A	
1C ( <a href="http://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#aucc">http://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#aucc</a> )		1C	3
Historical Perspectives ( <a href="http://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#historical-perspectives">http://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#historical-perspectives</a> )		3D	3

### Total Credits

27-28

### Sophomore

AREC 342	Water Law, Policy, and Institutions		3
ATS 150	Science of Global Climate Change (GT-SC2)	3A	3
LIFE 320	Ecology		3
PH 110	Physics of Everyday Phenomena (GT-SC2)	3A	3
STAT 158	Introduction to R Programming		1
Select one course from the following:			3
AREC 202	Agricultural and Resource Economics (GT-SS1)	3C	
ECON 202	Principles of Microeconomics (GT-SS1)	3C	
Select one course from the following:			3-4
MATH 141	Calculus in Management Sciences (GT-MA1)	1B	
MATH 155	Calculus for Biological Scientists I (GT-MA1)	1B	
MATH 160	Calculus for Physical Scientists I (GT-MA1)	1B	
Select one course from the following:			3
SOC 100	Introduction to Sociology (GT-SS3)	3C	

SOC 105	Social Problems (GT-SS3)	3C	
Select one course from the following:			3
STAT 301	Introduction to Applied Statistical Methods		
STAT 315	Intro to Theory and Practice of Statistics		
Arts and Humanities ( <a href="http://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#arts-humanities">http://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#arts-humanities</a> )			3B 3
Electives			3
<b>Total Credits</b>			<b>31-32</b>
<b>Summer</b>			
NR 220	Natural Resource Ecology and Measurements		5
<b>Total Credits</b>			<b>5</b>
<b>Junior</b>			
ESS 312	Sustainability Science		3
NR 319	Introduction to Geospatial Science		4
WR 416	Land Use Hydrology	4B	3
WR 418	Land Use and Water Quality		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	
Select one course from the following:			3
NR 310	Ecosystem Services and Human Well-Being		
NR 320	Natural Resources History and Policy		
Arts and Humanities ( <a href="http://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#arts-humanities">http://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#arts-humanities</a> )			3B 3
Watershed Science Department List (see list below)			3
Electives			3
<b>Total Credits</b>			<b>30</b>
<b>Senior</b>			
WR 440	Watershed Problem Analysis	4A,4B,4C	3
Watershed Science Department List (see list below)			12
Electives <sup>1</sup>			10-12
<b>Total Credits</b>			<b>25-27</b>
<b>Program Total Credits:</b>			<b>120</b>

### Watershed Science Department List

Select a minimum of 15 credits from courses not taken elsewhere in the program. Additional coursework may be required due to prerequisites.

Code	Title	Credits			
AREC 330	Data-Driven Ag and Res Econ Decision Making	3	BZ 440	Plant Physiology	3
AREC 335/ECON 335	Introduction to Econometrics	3	BZ 441	Plant Physiology Laboratory	2
AREC 340/ECON 340	Introduction-Economics of Natural Resources	3	BZ 450	Plant Ecology	4
AREC 341	Environmental Economics	3	BZ 471	Stream Biology and Ecology	3
AREC 375	Agricultural Law	3	BZ 472	Stream Biology and Ecology Laboratory	1
AREC 442	Water Resource Economics	3	CHEM 334	Quantitative Analysis Laboratory	1
ATS 350	Introduction to Weather and Climate	2	CHEM 335	Introduction to Analytical Chemistry	3
ATS 351	Introduction to Weather and Climate Lab	1	CHEM 338	Environmental Chemistry	3
			CIVE 322	Basic Hydrology	3
			CIVE 330	Ecological Engineering	3
			CIVE 421	Global Water Challenges	3
			CIVE 423	Groundwater Engineering	3
			CIVE 440	Nonpoint Source Pollution	3
			CIVE 515	River Mechanics	3

CS 345	Machine Learning Foundations and Practice	3	NRRT 330	Social Aspects of Natural Resource Management	3
DSCI 320	Optimization Methods in Data Science	3	NRRT 362	Environmental Conflict Management	3
DSCI 335	Inferential Reasoning in Data Analysis	3	RS 378	Disturbance Ecology	2
DSCI 336	Data Graphics and Visualization	1	RS 432	Rangeland Measurements and Monitoring	2
DSCI 445	Statistical Machine Learning	3	RS 478	Ecological Restoration	3
ERHS 320	Environmental Health–Water Quality	3	SOC 322	Environmental Justice	3
ERHS 448	Environmental Contaminants	3	SOC 323	Soc. of Environmental Cooperation & Conflict	3
ESS 311	Ecosystem Ecology	3	SOC 362	Social Change	3
ESS 312	Sustainability Science	3	SOC 461	Water and Social Justice	3
ESS 353	Global Change Impacts, Adaptation, Mitigation	3	SOCR 370	Climate-Smart Irrigation Principles	2
ESS 365	Global Climate Justice	3	SOCR 371	Climate-Smart Irrigation Management	1
ESS 400	Global Perspectives on Sustainability	3	SOCR 375	Soil Biogeochemistry	3
ESS 474	Limnology	3	SOCR 425	Internet of Ag Things–Sensors and Data Lab	2
ESS 523A	Environmental Data Science Applications: Introduction	5	SOCR 440	Pedology	4
ESS 523C/WR 523C	Environmental Data Science Applications: Water Resources	2	SOCR 442	Forest and Range Soils	3
F 311	Forest Ecology	3	STAT 305	Sampling Techniques	3
F 324	Fire Effects and Adaptations	3	STAT 342	Statistical Data Analysis II	3
FW 300	Biology and Diversity of Fishes	2	WR 406	Seasonal Snow Environments	3
FW 301	Ichthyology Laboratory	1	WR 575	Snow Hydrology Field Methods	1
GEOL 446	Environmental Geology	3			
GEOL 452	Hydrogeology	4			
GEOL 454	Geomorphology	4			
GES 440/ATS 440	Sea Level Rise and a Sustainable Future	3			
GES 450	Global Sustainability and Health	3			
GES 460	Law and Sustainability	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 348	Biogeography	3			
GR 410	Climate Change: Science, Policy, Implications	3			
GRAD 592	Water Resources Seminar	1			
HIST 355	American Environmental History	3			
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 375	Environment and Natural Resources Leadership	1			
NR 400	Public Communication in Natural Resources	3			
NR 422	GIS Applications in Natural Resource Management	4			
NR 425	Natural Resource Policy and Sustainability	3			
NR 450	Geospatial Project Design and Analysis	4			
NR 453	Geospatial Field Methods in Natural Resources	2			

<sup>1</sup> 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).