MAJOR IN WATERSHED SCIENCE AND SUSTAINABILITY, WATERSHED DATA CONCENTRATION

Requirements
Effective Fall 2024

Freshman

		AUCC	Credits
CO 150	College Composition (GT-CO2)	1A	3
CS 152	Python for STEM		2
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	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	
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	
Arts and Humanities (http://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#arts-humanities)		3B	3
Diversity, Equity, and Inclusion (http://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#diversity-equity-inclusion)		1C	3
	Total Credits		**30-31**

Sophomore

CS 220	Discrete Structures and their Applications		4
DSCI 369	Linear Algebra for Data Science		4
NR 319	Introduction to Geospatial Science		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)		3C	3
Electives			3
	Total Credits		**30**
Summer			
NR 220	Natural Resource Ecology and Measurements		5
	Total Credits		**5**
Junior			
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:		2	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
Watershed Science Department List (see list below)			9
Arts and Humanities (http://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#arts-humanities)		3B	3
Electives[1,2]			7-8
	Total Credits		**25-26**
	Program Total Credits:		**120**

Watershed Science Department List

Select a minimum of 12 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
AREC 335/ECON 335	Introduction to Econometrics	3
AREC 340/ECON 340	Introduction-Economics of Natural Resources	3
AREC 341	Environmental Economics	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
BZ 450	Plant Ecology	4
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 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
DSCI 320	Optimization Methods in Data Science	3
DSCI 335	Inferential Reasoning in Data Analysis	3
DSCI 336	Data Graphics and Visualization	1
DSCI 445	Statistical Machine Learning	3
ERHS 320	Environmental Health--Water Quality	3
ERHS 448	Environmental Contaminants	3
ESS 311	Ecosystem Ecology	3
ESS 312	Sustainability Science	3

ESS 330	Quantitative Reasoning for Ecosystem Science	3
ESS 353	Global Change Impacts, Adaptation, Mitigation	3
ESS 365	Global Climate Justice	3
ESS 400	Global Perspectives on Sustainability	3
ESS 474	Limnology	3
ESS 523A	Environmental Data Science Applications: Introduction	5
ESS 523C/WR 523C	Environmental Data Science Applications: Water Resources	2
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
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
NRRT 330	Social Aspects of Natural Resource Management	3
NRRT 362	Environmental Conflict Management	3
RS 378	Disturbance Ecology	2
RS 432	Rangeland Measurements and Monitoring	2
RS 478	Ecological Restoration	3
SOC 322	Environmental Justice	3
SOC 323	Soc. of Environmental Cooperation & Conflict	3
SOC 362	Social Change	3
SOC 461	Water and Social Justice	3
SOCR 370	Climate-Smart Irrigation Principles	2
SOCR 371	Climate-Smart Irrigation Management	1
SOCR 375	Soil Biogeochemistry	3
SOCR 425	Internet of Ag Things--Sensors and Data Lab	2
SOCR 440	Pedology	4
SOCR 442	Forest and Range Soils	3
STAT 305	Sampling Techniques	3
STAT 342	Statistical Data Analysis II	3
WR 406	Seasonal Snow Environments	3
WR 575	Snow Hydrology Field Methods	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).

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