

# SUSTAINABLE WATER INTERDISCIPLINARY MINOR



in partnership with



SCHOOL OF GLOBAL  
ENVIRONMENTAL SUSTAINABILITY  
COLORADO STATE UNIVERSITY

## Water is critical to our economic, societal, and environmental well-being

Ensuring year-round availability of water in the Western U.S. requires water leaders to understand multiple users and ecosystems, while working with neighboring cities and states to balance competing water needs and make sound decisions regarding supply. These efforts are highly interdisciplinary, addressing not only ecological needs, but those of recreation, agriculture, and municipalities.

Today's water professionals must understand the history of water management, the mechanisms by which water is controlled and distributed, the economics of its development and protection, its ecology, and how its use and quality is impacted by human activities. Students who plan to work in this field should have an area of specialization as well as a solid understanding of Western water.

*If there is magic on this planet,  
it is contained in water.*

- Loren Eisley

## Colorado State University is recognized as one of the world's leading institutions of higher education for water professionals

CSU has more than 200 faculty and staff who apply their disciplines to water, and over 180 water-oriented courses. Undergraduate majors — whether fishery and wildlife biology, engineering, or sociology — provide students the disciplined rigor needed to be successful, while the **Sustainable Water Interdisciplinary Minor (SWIM)** offers students an opportunity to gain deeper knowledge about the many dimensions of water. See more information regarding the minor at the [SoGES Focused Minors webpage](#) or by contacting Ryan Deming, Minor Advisor, at [SWIMadvising@colostate.edu](mailto:SWIMadvising@colostate.edu) or use Calenldy to [schedule an appointment in-person](#) or [schedule an appointment online](#).

SWIM students complete 21 credits in core and elective courses that are relevant to today's water professional. Completion of the SWIM is certified on the student's academic record.



[WATERCENTER.COLOSTATE.EDU/SWIM](http://WATERCENTER.COLOSTATE.EDU/SWIM)

The SWIM provides students from all majors the opportunity to gain deeper knowledge about the many dimensions of water and prepare for a career or graduate study in water.

**REQUIRED CORE COURSES** 9 CREDITS REQUIRED

KEY - F: FALL, S: SPRING, (E)/(O) EVEN/ODD YEARS, SS: SUMMER SESSION, O: MAY BE OFFERED ONLINE

Course Code	Course Name	Offered	Credit	Prerequisites
<input type="checkbox"/> GES 120	Water Sustainability in the Western U.S.	F	3	
<input type="checkbox"/> AREC 342	Water Law, Policy, and Institutions	S	3	
<b>Select one of the following courses:</b>				
<input type="checkbox"/> AREC / ECON 240	Issues in Environmental Economics (AUCC 3C)	F, S, SS	3	
<input type="checkbox"/> AREC / ECON 340	Introduction - Economics of Natural Resources	S	3	AREC 202 or ECON 202
<input type="checkbox"/> AREC 341	Environmental Economics	F	3	AREC 202 or ECON 202

**FOUNDATIONS OF WATER** SELECT 3 CREDITS FROM THE FOLLOWING COURSE-GROUPS

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**BIOLOGY**

Course Code	Course Name	Offered	Credit	Prerequisites
<input type="checkbox"/> BZ 104	Basic Concepts of Plant Life (AUCC 3A)	F,S	3	
<input type="checkbox"/> BZ 110	Principles of Animal Biology (AUCC 3A)	F, S, SS	3	
<input type="checkbox"/> BZ 120	Principles of Plant Biology (AUCC 3A)	F, S, SS	4	
<input type="checkbox"/> FW 204	Introduction to Fishery Biology	F	3	
<input type="checkbox"/> LIFE 103	Biology of Organisms - Animals & Plants (AUCC 3A)	F, S, SS	4	

**CHEMISTRY**

Course Code	Course Name	Offered	Credit	Prerequisites
<input type="checkbox"/> CHEM 103	Chemistry in Context (AUCC 3A)	F, S, SS	3	
<input type="checkbox"/> CHEM 107	Fundamentals of Chemistry (AUCC 3A)	F, S	4	MATH 117 or MATH 141 or MATH 155 or MATH 160 or MATH 161 or MATH 229 or MATH 261, any may be taken concurrently (CHEM 107 or CHEM 111 or CHEM 117) and (MATH 124 or MATH 141 or MATH 155 or MATH 160 or MATH 161 or MATH 229 or MATH 261, any may be taken concurrently)
<input type="checkbox"/> CHEM 113	General Chemistry II	F, S, SS	3	

**GEOGRAPHY**

Course Code	Course Name	Offered	Credit	Prerequisites
<input type="checkbox"/> GR 100	Introduction to Geography (AUCC 3C)	F, S	3	
<input type="checkbox"/> GR/ESS 210	Physical Geography	F, S	3	

**ECOLOGY**

Course Code	Course Name	Offered	Credit	Prerequisites
<input type="checkbox"/> ESS 211	Foundations in Ecosystem Science	S	3	GR/ESS 210
<input type="checkbox"/> ESS 311	Ecosystem Ecology	F	3	(PH 121 or PH 141) and (LIFE 320)
<input type="checkbox"/> LAND/LIFE 220	Fundamentals of Ecology (AUCC 3A)	F	3	(BIO 100 to 199 or BZ 100 to 199 or LIFE 100 to 199 or HORT 100) and (MATH 100 to 199)
<input type="checkbox"/> LIFE 320	Ecology	F, S	3	(BZ 101 or BZ 104 or BZ 110 or BZ 120 or LIFE 102) and (MATH 141 or MATH 155 or MATH 160)

**FOUNDATIONS OF WATER (CONT.)** SELECT 3 CREDITS FROM THE FOLLOWING COURSE-GROUPS**GEOLOGY**

	Course Code	Course Name	Offered	Credit	Prerequisites
<input type="checkbox"/>	GEOL 120	Exploring Earth - Physical Geology (AUCC 3A)	F, S, SS	3	
<input type="checkbox"/>	GEOL 122	The Blue Planet - Geology of our Environment (AUCC 3A)	F, S	3	
<input type="checkbox"/>	GEOL 124	Geology of Natural Resources (AUCC 3A)	S	3	
<input type="checkbox"/>	GEOL 150	Physical Geology for Scientists and Engineers (AUCC 3A)	F	4	

**PHYSICS**

	Course Code	Course Name	Offered	Credit	Prerequisites
<input type="checkbox"/>	PH 110	Physics of Everyday Phenomena (AUCC 3A)	F, S	3	
<input type="checkbox"/>	PH 121	General Physics I (AUCC 3A)	F, S, SS	5	MATH 125 or MATH 155 or MATH 157 or MATH 160, any may be taken concurrently (MATH 126 and MATH 155, both may be taken concurrently) or (MATH 155 or MATH 159 or MATH 160, any may be taken concurrently)
<input type="checkbox"/>	PH 141	Physics for Scientists and Engineers I (AUCC 3A)	F, S, SS	5	

**CONTEXT OF WATER** SELECT A MINIMUM OF 9 CREDITS FROM THE FOLLOWING COURSES. AT LEAST 3 CREDITS MUST BE TAKEN IN EACH CONTEXT CATEGORY

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**SOCIOLOGICAL - ECONOMIC CONTEXT**

	Course Code	Course Name	Offered	Credit	Prerequisites
<input type="checkbox"/>	GES 101	Foundations of Environmental Sustainability	F	3	
<input type="checkbox"/>	AGRI/IE 270	World Interdependence - Population and Food (AUCC 3E)	S	3	
<input type="checkbox"/>	AREC 340	Introduction-Economics of Natural Resources	S	3	AREC 202 or ECON 202
<input type="checkbox"/>	AREC 341	Environmental Economics	F	3	AREC 202 or ECON 202
<input type="checkbox"/>	CON 476 <sup>1</sup>	Sustainable Practice - Design and Construction	F	3	
<input type="checkbox"/>	E 339	Literature of the Earth	F, S	3	CO 150
<input type="checkbox"/>	JTC 461	Writing about Science, Health, and Environment	F	3	JTC 210 or JTC 300 or LB 300
<input type="checkbox"/>	MGT 360	Social and Sustainable Venturing	S	3	
<input type="checkbox"/>	NR 320	Natural Resources History and Policy	F, S, SS	3	Junior standing or higher
<input type="checkbox"/>	PHIL 320	Ethics of Sustainability	F, S	3	
<input type="checkbox"/>	PHIL 345	Environmental Ethics	F, S	3	Sophomore standing or higher
<input type="checkbox"/>	POLS 361	U.S. Environmental Politics and Policy	F, S, SS	3	POLS 101
<input type="checkbox"/>	SOC 323	Sociology of Env. Cooperation and Conflict	S	3	SOC 100 or SOC 105
<input type="checkbox"/>	SOC 461	Water, Society, and Environment	F, S, SS	3	SOC 100 or SOC 105

**BIOLOGICAL - PHYSICAL CONTEXT**

	Course Code	Course Name	Offered	Credit	Prerequisites
<input type="checkbox"/>	ATS 150	Science of Global Climate Change	S	3	
<input type="checkbox"/>	BZ 415	Marine Biology	S (O)	4	LIFE 320
<input type="checkbox"/>	BZ 471	Stream Biology and Ecology	F (O)	3	LAND/LIFE 220 or LIFE 320
<input type="checkbox"/>	BZ/ESS 474	Limnology	S (O)	3	LAND/LIFE 220 or LIFE 320
<input type="checkbox"/>	CIVE 322	Basic Hydrology	F, S	3	(CBE 331 or CIVE 300 or WR 416) and (CIVE 203 or STAT 301 or STAT 315)
<input type="checkbox"/>	CIVE 330	Ecological Engineering	S	3	([BZ 110 and BZ 111] or BZ 120 or LIFE 102 or SOCR 240) and (CHEM 113) and (CIVE 300 or LIFE 320)

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## BIOLOGICAL - PHYSICAL CONTEXT (CONT.)

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Course Code	Course Name	Offered	Credit	Prerequisites
<input type="checkbox"/> CIVE 413	Environmental River Mechanics	F	3	CIVE 300 or WR 416
<input type="checkbox"/> CIVE 423	Groundwater Engineering	S	3	CBE 331 or CIVE 300 or WR 416
<input type="checkbox"/> CIVE 440	Nonpoint Source Pollution	F	3	CIVE 300 or CIVE 322 or SOCR 240 or WR 416
<input type="checkbox"/> ERHS 320	Environmental Health - Water Quality	F	3	MIP 300 - May be taken concurrently
<input type="checkbox"/> FW 300	Biology and Diversity of Fishes	S	2	BZ 111 or LIFE 103
<input type="checkbox"/> FW 301	Ichthyology Lab	F, S	1	FW 300 - May be taken concurrently
<input type="checkbox"/> FW 400	Conservation of Fish in Aquatic Ecosystems	F	3	FW 300 and LIFE 320
<input type="checkbox"/> GEOL 452	Hydrogeology	F	4	(GEOL 110 or GEOL 120 or GEOL 122 or GEOL 124 or GEOL 150 or GR 210) and (MATH 161 or MATH 255) and (PH 121 or PH 141)
<input type="checkbox"/> LAND/HORT 368	Landscape Irrigation and Water Conservation	F, S	3	HORT 100 or LAND 110
<input type="checkbox"/> SOCR 370	Irrigation Principles	S	2	(HORT 100 or SOCR 100 or BZ 120) and (SOCR 240)
<input type="checkbox"/> SOCR 371	Irrigation of Field Crops	F	1	SOCR 370
<input type="checkbox"/> GR/WR 204 <sup>2</sup>	Sustainable Watersheds (AUCC 3A)	F, SS	3	
<input type="checkbox"/> WR 406	Seasonal Snow Environments	S (O)	3	Junior standing or higher / Must register for lecture and lab / Required field trips
<input type="checkbox"/> WR 416	Land Use Hydrology	F	3	(GEOL 120 or GEOL 122 or GEOL 124 or GEOL 150 or SOCR 240) and (CIVE 202 or STAT 201 or STAT 301 or STAT 307 or STAT 315) and (PH 110 or PH 121 or PH 141)
<input type="checkbox"/> WR 418	Land Use and Water Quality	S	3	[(CHEM 103 and CHEM 104) or [CHEM 107 and CHEM 108] or [CHEM 111 and CHEM 112] and (STAT 158) and (STAT 301 or STAT 315)
<input type="checkbox"/> WR 474	Snow Hydrology	F	3	WR 416

## SWIM REQUIREMENTS

- 21 Total credits for completion, 12 of the 21 credits must be upper division (300 level or above).
- Some courses have prerequisite(s), and some may only be offered during certain semesters. Visit the CSU Catalog at [catalog.colostate.edu](http://catalog.colostate.edu) to confirm.
- <sup>1</sup> Enrollment in CON 476 is limited to Construction Management majors only.
- <sup>2</sup> Students who have previously completed GR/WR304 may count this course towards the Context of Water requirement

## CONTACT INFORMATION

See more information regarding the minor at the [SoGES Focused Minors webpage](#) or by contacting Ryan Deming, Minor Advisor, at [SWIMadvising@colostate.edu](mailto:SWIMadvising@colostate.edu) or use Calendly to [schedule an appointment in-person](#) or [schedule an appointment online](#).

