

SUSTAINABLE WATER INTERDISCIPLINARY MINOR

in partnership with



**COLORADO
WATER CENTER**
COLORADO STATE UNIVERSITY



SCHOOL OF GLOBAL
ENVIRONMENTAL SUSTAINABILITY
COLORADO STATE UNIVERSITY



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

In the Western US, water management continually evolves and impacts both individuals and communities in various and complex ways. In order to ensure year-round availability for multiple users and ecosystems, water leaders must work together 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. As a result, a career in the water arena demands a diverse skillset.

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. By taking advantage of CSU's outstanding water expertise, students can prepare themselves for careers in water or graduate study in a water-related area.

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

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

	Course Code	Course Name	Credits	Prerequisites
<input type="checkbox"/>	GES 120	Water Sustainability in the Western U.S.	3	
<input type="checkbox"/>	AREC/ECON 240	Issues in Environmental Economics	3	
<input type="checkbox"/>	AREC 342	Water Law, Policy, and Institutions	3	

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

BIOLOGY

	Course Code	Course Name	Credits	Prerequisites
<input type="checkbox"/>	BZ 104	Basic Concepts of Plant Life	3	
<input type="checkbox"/>	BZ 110	Principles of Animal Biology	3	
<input type="checkbox"/>	BZ 120	Principles of Plant Biology	4	
<input type="checkbox"/>	FW 204	Introduction to Fishery Biology	3	
<input type="checkbox"/>	LIFE 103	Biology of Organisms - Animals and Plants	4	

CHEMISTRY

	Course Code	Course Name	Credits	Prerequisites
<input type="checkbox"/>	CHEM 103	Chemistry in Context	3	
<input type="checkbox"/>	CHEM 107	Fundamentals of Chemistry	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
<input type="checkbox"/>	CHEM 113	General Chemistry II	3	(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)

GEOGRAPHY

	Course Code	Course Name	Credits	Prerequisites
<input type="checkbox"/>	GR 100	Introduction to Geography	3	
<input type="checkbox"/>	GR/ESS 210	Physical Geography	3	

ECOLOGY

	Course Code	Course Name	Credits	Prerequisites
<input type="checkbox"/>	ESS 211	Foundations in Ecosystem Science	3	GR/ESS 210
<input type="checkbox"/>	ESS 311	Ecosystem Ecology	3	(PH 121 or PH 141) and (LIFE 320)
<input type="checkbox"/>	LAND/LIFE 220	Fundamentals of Ecology	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	3	(BZ 101 or BZ 104 or BZ 110 or BZ 120 or LIFE 102) and (MATH 141 or MATH 155 or MATH 160)

GEOLOGY

	Course Code	Course Name	Credits	Prerequisites
<input type="checkbox"/>	GEOL 120	Exploring Earth - Physical Geology	3	
<input type="checkbox"/>	GEOL 122	The Blue Planet - Geology of our Environment	3	
<input type="checkbox"/>	GEOL 124	Geology of Natural Resources	3	
<input type="checkbox"/>	GEOL 150	Physical Geology for Scientists and Engineers	4	

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

PHYSICS

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

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

SOCIOLOGICAL - ECONOMIC CONTEXT

	Course Code	Course Name	Credits	Prerequisites
<input type="checkbox"/>	GES 101	Foundations of Environmental Sustainability	3	
<input type="checkbox"/>	AGRI/IE 270	World Interdependence - Population and Food	3	
<input type="checkbox"/>	AREC 341	Environmental Economics	3	AREC 202 or ECON 202
<input type="checkbox"/>	CON 476 ¹	Sustainable Practice - Design and Construction	3	
<input type="checkbox"/>	E 339	Literature of the Earth	3	CO 150
<input type="checkbox"/>	JTC 461	Writing about Science, Health, and Environment	3	JTC 210 or JTC 300 or LB 300
<input type="checkbox"/>	NR 320	Natural Resource History and Policy	3	
<input type="checkbox"/>	PHIL 320	Ethics of Sustainability	3	
<input type="checkbox"/>	PHIL 345	Environmental Ethics	3	
<input type="checkbox"/>	POLS 361	U.S. Environmental Politics and Policy	3	POLS 101
<input type="checkbox"/>	SOC 323	Sociology of Env. Cooperation and Conflict	3	SOC 100 or SOC 105
<input type="checkbox"/>	SOC 461	Water, Society, and Environment	3	SOC 100 or SOC 105

BIOLOGICAL - PHYSICAL CONTEXT

	Course Code	Course Name	Credits	Prerequisites
<input type="checkbox"/>	ATS 150	Science of Global Climate Change	3	
<input type="checkbox"/>	BZ 415	Marine Biology	4	LIFE 320
<input type="checkbox"/>	BZ 471	Stream Biology and Ecology	3	LAND/LIFE 220 or LIFE 320
<input type="checkbox"/>	BZ/ESS 474	Limnology	3	LAND/LIFE 220 or LIFE 320
<input type="checkbox"/>	CIVE 322	Basic Hydrology	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	3	(BZ 110 and BZ 111 or BZ 120 or LIFE 102 or SOCR 240) and (CHEM 113) and (CIVE 300 or LIFE 320)
<input type="checkbox"/>	CIVE 413	Environmental River Mechanics	3	CIVE 300 or WR 416
<input type="checkbox"/>	CIVE 423	Groundwater Engineering	3	CBE 331 or CIVE 300 or WR 416
<input type="checkbox"/>	CIVE 440	Nonpoint Source Pollution	3	CIVE 300 or CIVE 322 or SOCR 240 or WR 416
<input type="checkbox"/>	ERHS 320	Environmental Health - Water Quality	3	MIP 300, may be taken concurrently
<input type="checkbox"/>	FW 300	Biology and Diversity of Fishes	2	BZ 111 or LIFE 103
<input type="checkbox"/>	FW 400	Conservation of Fish in Aquatic Ecosystems	3	FW 300 and LIFE 320
<input type="checkbox"/>	GEOL 452	Hydrogeology	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	3	HORT 100 or LAND 110
<input type="checkbox"/>	SOCR 370	Irrigation Principles	2	(HORT 100 or SOCR 100 or BZ 120) and (SOCR 240)
<input type="checkbox"/>	SOCR 371	Irrigation of Field Crops	1	SOCR 370

Continue on next page.

BIOLOGICAL - PHYSICAL CONTEXT (CONT.)

	Course Code	Course Name	Credits	Prerequisites
<input type="checkbox"/>	GR/WR 204 ²	Sustainable Watersheds	3	
<input type="checkbox"/>	WR 406	Seasonal Snow Environments	3	Junior or Senior Standing
<input type="checkbox"/>	WR 416	Land Use Hydrology	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	3	(CHEM 103 and CHEM 104) or (CHEM 107 and CHEM 108) or (CHEM 111 and CHEM 112)
<input type="checkbox"/>	WR 474	Snow Hydrology	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 to confirm.
- ¹ Enrollment in CON 476 is limited to Construction Management majors only.
- ² Students who have previously completed GR/WR304 may count this course towards the Context of Water requirement

CONTACT INFORMATION

For more information about the Sustainable Water Interdisciplinary Minor, contact Ryan Deming at SWIMAdvising@colostate.edu



**COLORADO
WATER CENTER**
COLORADO STATE UNIVERSITY

COLORADO WATER CENTER | WATERCENTER.COLOSTATE.EDU

SWIMAdvising@colostate.edu