

River Science (choose ONE):

Colorado Mesa University	Eastern Washington University	Northern Arizona University	Prescott College	University of Montana Western	University of Northern Colorado	University of Tennessee Chattanooga	Utah State University	Virginia Commonwealth University	Western Carolina University	Western Colorado University	Western Washington University	Fort Lewis College
GEOL 455/455L - River Dynamics	GEOG 413 River and Floods	GSP 259 - Principles Of Geomorphology	ENV40000 - River Ecology & Conservation	GEO 421 Hydrology	ESCI 474 – Principles of Surface and Groundwater Hydrology	ESC 4520 - Limnology and Reservoir Ecology	WATS 3700: Fundamentals of Watershed Science	ENVS 201. Earth Systems Science	BIO 467: Aquatic Ecology	ENVS 373 - Water Planet	ESCI 410 Habitat and Ecology of Pacific Salmon and Trout	BIO 435 Advanced Topics in Ecology: River Ecology
ENVS 433 - Restoration of Aquatic Systems	GEOG 203 Surface Hydrology	GLG 259/ L – Geomorphology	ENV 42XX – Hydrology	ENSC 429 Environmental Field Studies	GEOG 391 – Western Colorado Rivers	GEOL 4450 - Hydrology	WATS 3100: Fish Diversity and Conservation & WATS 3110 Lab	BIOL 335. Global Change Biology	GEOL 423: Contaminated Rivers, Assessment, Remediation, and Restoration	GEOL 320 - Geomorphology	ESCI 429 Stream Ecology	BIO 437 Adv Topics with lab: River Ecology (with lab)
	BIOL 445 Stream Ecology	FOR 565 - Watershed Restoration	ENV42724 - Restoration Ecology: Watersheds of the Southwest		GEOL 410 – Groundwater Geology			BIOL 491. River Rock Pool Ecology	GEOL 305: Soils and Hydrology	BIOL 476 - Aquatic Ecology		
		ENV 440/L/ or 540/L - Conservation Biology/Lab	ENV42750 - Wetland Ecology & Management		GEOG 230 – Landforms, Water & Hazards			BIOL 430. Invasion Biology	NRM 460: Watershed Management	BIOL 467 - Fisheries Biology		
		BIO 477 - Fish Management	ENV44754 – Topics in Geomorphology		GEOL 460 – Geomorphology (if river related project completed)			BIOL XXX/ENVS XXX Enviro-Techniques 1	ENVH 310/311: Water Quality Control			
		FOR 563 - Watershed Hydrology			BIO 360 – Ecology (if river related project completed)			BIOL XXX/ENVS XXX Enviro-Techniques 2	GEOL 410: Fluvial Geomorphology			
		ENV 375 - Environmental Sciences of The San Juan River Basin (accelerated semester course with one week on San Juan River)			ENST 235 Chemistry and the Environment(if river related project completed)			BIOL 391 Footprints on the James: The Human and Natural History of the James River Watershed. Month long summer field class; completely taught on the river.	HBS Courses: -Rock Pool Community Ecology (HBS 2019) -Southern Appalachian Mayflies, Stoneflies, and Caddisflies (Stream Quality Indicators)			
		CENE 562 - Water Quality Modeling			BIO 336 – Animal Plant Interactions (if river related project completed)			BIOL 391 South African Summits to Seas: Human and Natural History of				

								kwaZulu-Natal (as viewed by traveling along major rivers) (3 credit winter expedition class)				
					ESCI 491 – Geoscience Field Issues (if river related)			BIOL 535. Wetlands Ecology				
					ESCI 420 – Chemistry of the Earth System (if river related project completed)			BIOL/ENVS 503 Fish Biology				
					ESCI 496 – Earth Science Study Abroad (if river related)			BIOL 532. Water Pollution Biology				
					ESCI 200 – Introduction to Environmental Earth Science (if river related project completed)			BIOL 5XX Restoration Ecology				
					ESCI 101 – Earth’s Climate System (if river related project completed)			ENVS 556. Historical and Cultural Landscapes. Emphasis on riverine landscapes				
					GEOG 445 – Landscape Ecology (if river related project completed)							

River Policy (choose ONE):

Colorado Mesa University	Eastern Washington University	Northern Arizona University	Prescott College	University of Montana Western	University of Northern Colorado	University of Tennessee Chattanooga	Utah State University	Virginia Commonwealth University	Western Carolina University	Western Colorado University	Western Washington University	Fort Lewis College
POLS 488 – Environmental Politics and Policy	POLI 324 Comparative and International Water Policy	GSP 402 - Environmental Impact Analysis: Assessing Project Impacts Under The National Environmental Policy Act	ENV40000 - River Ecology & Conservation	ENST 384 - Environmental Policy *RSLC students will need to focus their research project on a water-specific topic	ECON 356 – Water Resource Economics	ESC 4100 - Environmental Law and Agencies	ENVS 3010: Fundamentals of Natural Resource and Environmental Policy	BIOL 510 Conservation Biology	PSC 326: Natural Resources Policy and Administration	ENVS 370 - Water Policy and Politics	ENVS 426 Water Resources	PS 420 Water Politics: An Uphill Flow to Money

**River Studies and Leadership Certificate
Accepted Courses**

		ENV 425/525 Water Resources Policy and Management	ENV21550/ENV4 1550 - Water in the West	NRSM 441 Sustaina ble Natural Resource Management *RSLC students will need to focus their research project on a water-specific topic	ENST 321 – Introduction to Environmental Impact Assessment		APEC 3012: Introduction to Natural Resources and Regional Economics	ENVS 311 Politics of the Environment	PAR 330: America’s Wilderness Ethics and Aesthetics	ENVS 375 - Seminar in Water Topics	ENVS 451 Natural Resource Policy	
		FOR 430 - Leadership and the Environment	ENV42020 - Conservation Biology		BIO 462 – Conservation Biology			ENVS 300 Sustainable Societies: James River Basin	PRM 433: Outdoor Recreation	ENVS 430 - Watersheds of the World	ESCI 496 Integration of Environmental Science and Policy	
		GSP 206 - Public Participation and Communication	ENV42750 - Wetland Ecology & Management		ENST 261 – Water Quality Management			URSP 650. Natural Resources and Environmental Planning		BUAD 410 - Water Law		
		FOR 230 - Multicultural Perspectives of Natural Resource Management			ENST 265 – Conservation of Natural Resources			ENVS 640. River Policy				
		FOR 445 - Wilderness Management			ENST 335 – Environmental and Resource Economics			ENVS 628. Environmental Policy and Administration				
		FOR 360 - Natural Resources Policy			ENST 355 – Introduction to Environmental Health			ENVS 660. Virginia Environmental Law				
		PHI 331 - Environmental Ethics			ENST 411 – Conservation Project Design and Planning			BIOL 610. Conservation Applications				
		ENV 555- The Environmental Science-Policy Interface										
		POS 359/659- Environmental Policy										

River Safety Core Courses (choose ONE):

Colorado Mesa University	Eastern Washington University	Northern Arizona University	Prescott College	University of Montana Western	University of Northern Colorado	University of Tennessee Chattanooga	Utah State University	Virginia Commonwealth University	Western Carolina University	Western Colorado University	Western Washington University	Fort Lewis College
Level 4 American Canoe Association	RCLS 330 Intermediate	PRM 203- Intro to White Water Rafting	AE2449/AE4449 - River Guides Training &	*Need to take elsewhere (UM – Missoula)	*Need to take elsewhere	Extracurricular Basic River Rescue,	PE 1507 - Swiftwater Safety (Taking the	ENVS 491 Special topics: Level 4 American Canoe	PRM 352: Beginner/Interm ediate	ROE 293 - Outdoor Pursuits	PE 177 Basic Kayak	AE 231 Swiftwater Rescue

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Accepted Courses**

Swiftwater Rescue Course through CMU Outdoor Program	Whitewater Kayaking		Swiftwater Rescue	FreeFlow Institute may offer valuable courses for students - https://freeflowinstitute.com/		Swiftwater Rescue, or Whitewater Rescue Technician course offered by numerous local/region river rescue providers. The Department will create and maintain a list of qualifying courses.	course for credit is not required.)	Association Swiftwater Rescue Course	Whitewater Kayaking	Education- Water Based		
	RCLS 375 Whitewater Rafting Guide Techniques	PRM 210- Intro to Kayaking							PRM 426 Water-based outdoor pursuits education (Swiftwater: ST through LandMark Learning)			
		PRM 399 – Special Topics: Swiftwater Rescue										

Emphasis Coursework (Choose ONE emphasis area)

River Science Emphasis Area Courses (choose TWO)

Colorado Mesa University	Eastern Washington University	Northern Arizona University	Prescott College	University of Montana Western	University of Northern Colorado	University of Tennessee Chattanooga	Utah State University	Virginia Commonwealth University	Western Carolina University	Western Colorado University	Western Washington University	Fort Lewis College
GEOL 355 - Basic Hydrology	BIOL 405 Limnology	GSP 259 - Principles Of Geomorphology	ENV42724 - Restoration Ecology: Watersheds of the Southwest	ENST 274 Sustaining Water Resources	ESCI 474 – Principles of Surface and Groundwater Hydrology	BIOL 4110 - Ichthyology	WATS 3600: Geomorphology	ENVS 201. Earth Systems Science	BIO 467: Aquatic Ecology	ENVS 373 - Water Planet	ESCI 315 The Art, Science, and Ethics of Fly fishing	Students are encouraged to take one special topics science course with a river or water focus OR perform a 3-credit independent study or research project with a river or water focus AND take one course from the following list:
ENVS 331/331L - Water Quality	GEOG 325 Wetland Science I	CENE 568 - Engineering in Natural Systems: Rivers and Streams	ENV40000 - River Ecology & Conservation	BIOE 425 Wetlands Ecology	GEOG 391 – Western Colorado Rivers	ESC 4460 - Global Change Biology	WATS 3910: Climatology and Hydrology for Western Watersheds	BIOL 335. Global Change Biology	GEOL 423: Contaminated Rivers, Assessment, Remediation, and Restoration	GEOL 320 - Geomorphology	ESCI 316 Advanced Fly fishing: River Stewardship, Reflection, and Native Trout	BIO 245 – Issues in Ecology
BIOL 414/414L – Aquatic Biology	GEOG 410 Geomorphology	GSP 150 - Physical Geography: Air, Water, Earth And Life	ENV 42XX – Hydrology	GEO 210 Weather and Climate	GEOL 410 – Groundwater Geology	ESC 4520 – Limnology and Reservoir Ecology	WATS 4490: Small Watershed Hydrology (4 credits, has prerequisite of WATS 3700)	BIOZ 491. River Rock Pool Ecology	GEOL 305: Soils and Hydrology	BIOL 476 - Aquatic Ecology	ESCI 410 Habitat and Ecology of Pacific Salmon and Trout	BIO 250 – Ecology of the Southwest
GEOL 402/402L – Applications of Geomorphology	BIOL 446 Riparian Ecology	ENV 440/L/ or 540/L - Conservation Biology/Lab	ENV42020 - Conservation Biology	BIOO 210 Natural History of the Aquatic Vertebrates	GEOG 230 – Landforms, Water & Hazards	ESC 4530 - Microbial Ecology	WATS 5200: Fish Habitats	BIOL 430. Invasion Biology	NRM 460: Watershed Management	BIOL 467 - Fisheries Biology	ESCI 431 Watershed Biogeochemistry	BIO 377 – Ecological Methods
BIOL 336 – Fish Biology	BIOL 462 Ichthyology	GLG 112/L - Geologic Disasters	ADV25008 - In the Creeks & Canyons: Explorations of the Mogollon Rim		GEOL 460 – Geomorphology (if river related project completed)	GEOL 4080 - Geomorphology and Earth Surface Processes	WATS 5550: Freshwater Invertebrates	BIOL XXX/ENVS XXX Enviro-techniques 1	ENVH 310/311: Water Quality Control		ESCI 470 Ecological Restoration	ENGR 301 – Environmental Principles
		GLG 451 – Hydrogeology	ENV44720 - Environmental Problem Solving: A Spatial Approach		BIO 360 – Ecology (if river related project completed)	GEOL 4450 - Hydrology	WATS 4110: Biogeochemistry: Tracking Environmental Processes and Change	BIOL XXX/ENVS XXX Enviro-techniques 2	HBS Courses: -Rock Pool Community Ecology (HBS 2019) -Southern Appalachian Mayflies,		GEOL 472 Surface Water Hydrology	ENGR 425 – Hydraulics and Hydrology

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Accepted Courses**

									Stoneflies, and Caddisflies (Stream Quality Indicators)			
		CENE 562 - Water Quality Modeling			ENST 235 Chemistry and the Environment (if river related project completed)			BIOL 391 Footprints on the James: The Human and Natural History of the James River Watershed). Month long summer field class; completely taught on the river.	CHEM 330: Aquatic Chemistry			GEOL 435 – Groundwater Geology
		GLG 670 - Advanced Hydrogeology			BIO 336 – Animal Plant Interactions (if river related project completed)			BIOL 391 South African Summits to Seas: Human and Natural History of kwaZulu-Natal (as viewed by traveling along major rivers) (3 credit winter expedition class)	GEOL 405: Hydrogeology			GEOL 323 – Geomorphology
		GLG 259/ L – Geomorphology			ESCI 491 – Geoscience Field Issues (if river related)			BIOL 535. Wetlands Ecology	GEOL 493 (Special Topics: depending on syllabus)			
		FOR 563 - Watershed Hydrology			ESCI 420 – Chemistry of the Earth System (if river related project completed)			BIOL/ENVS 503 Fish Biology	BIOL 438: Ecological Restoration			
		FOR 565 - Watershed Restoration			ESCI 496 – Earth Science Study Abroad (if river related)			BIOL 532. Water Pollution Biology				
		ENV 324 - Sustainable Ecology			ESCI 200 – Introduction to Environmental Earth Science (if river related project completed)			BIOL 5XX Restoration Ecology				
		BIO 568 - Conservation and Management of Imperiled Species			ESCI 101 – Earth’s Climate System (if river related project completed)			ENVS 556. Historical and Cultural Landscapes. Emphasis on				

								riverine landscapes				
		ENV 326/L - Essential Ecology										
		ENV 544 - Landscape Ecology										
		FOR 340/L - Environmental Hydrology										
		FOR 560 - Wetland Ecology and Management										

River-based Policy and Management Emphasis Area Courses (choose TWO courses):

Colorado Mesa University	Eastern Washington University	Northern Arizona University	Prescott College	University of Montana Western	University of Northern Colorado	University of Tennessee Chattanooga	Utah State University	Virginia Commonwealth University	Western Carolina University	Western Colorado University	Western Washington University	Fort Lewis College
POLS 488 – Environmental Politics and Policy	GEOG 235 Energy/Water Nexus	ENV 425/525 Water Resources Policy and Management	ENV40000 - River Ecology & Conservation	NRSM 213 Natural Resources Conflict Resolution	ECON 356 – Water Resource Economics	ECON 4300 - Environmental Economics	WATS 4530: Water Quality and Pollution	BIOL 510 Conservation Biology	NRM 442: Natural Resources Policy and Administration	ENVS 370 - Water Policy and Politics	ENVS 426 Water Resources	Students are encouraged to take one special topics course in the social sciences with a river or water focus OR perform a 3-credit independent study or research project with a river or water focus AND take one course from the following list:
	GEOG 315 Water Resources	GSP 402 - Environmental Impact Analysis: Assessing Project Impacts Under the National Environmental Policy Act	ENV21550/ENV41550 – Water in the West	ENSC 430 Human Dimensions of Global Change	ENST 321 – Introduction to Environmental Impact Assessment	ECON 4550 – Urban Economics	ENVS 4000: Human Dimensions in Natural Resource Management	ENVS 311 Politics of the Environment	PAR 333: Environmental Ethics	ENVS 375 - Seminar in Water Topics	ENVS 450 Science in the Policy Process	ECON 335 – Environment/Resource Economics
	BIOL 422 Conservation Biology	GSP 421 - Land Use Planning Law and Ethics	ENV42020 – Conservation Biology		BIO 462 – Conservation Biology	ESC 4070 - Environmental Conservation	WATS 5300: Principles of Aquatic Ecosystem Restoration	ENVS 300 Sustainable Societies: James River Basin	PAR 330: America’s Wilderness Ethics and Aesthetics	BUAD 410 - Water Law	ENVS 451 Natural Resources Policy	ENVS 393 – Advanced Topics in Environmental Studies
	PLAN 420 Environmental Planning	GSP 514 - Planning	ENV24700/ENV44700 - Park &		ENST 261 – Water Quality Management	ESC 4300 - Problems in	WATS 5340: Management and Restoration of	URSP 650. Natural Resources and	PRM 433: Outdoor Recreation		ENVS 463 Native American Planning and	HIST 181 – US/SW

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Accepted Courses**

		Sustainable Communities	Wilderness Management			Environmental Management	Aquatic Ecosystems Capstone I	Environmental Planning			Natural Resource Policy	Environmental History
	BIOL 463 Fisheries Biology and Management	ECO 324 - Environmental Economics	ENV42750 - Wetland Ecology & Management		ENST 265 – Conservation of Natural Resources	ESC 4830 – Economics and the Environment	WATS 5350: Management and Restoration of Aquatic Ecosystems Capstone II	ENVS 640. River Policy	PSC 326: Natural Resources Policy and Administration		ESCI 496 Integration of Environmental Science and Policy	HIST 313 – Wilderness in America
	GEOG 317 Resources and Conservation	FOR 255 - International Wildlife Issues			ENST 335 – Environmental and Resource Economics	PSPS 3420 - American Public Policy	WATS 4650: Principles of Fishery Management	ENVS 628. Environmental Policy and Administration				HIST 323 - America's National Parks
		AIS 470 - Traditional Ethno-Biological Knowledge of Indigenous Peoples			ENST 355 – Introduction to Environmental Health	PSPS 3430 - Urban Public Policy	POLS 4820: Natural Resources and Environmental Policy: Political Economy of Environmental Quality	ENVS 660. Virginia Environmental Law				
		ENV 385W - Energy, Resources and Policy			ENST 411 – Conservation Project Design and Planning	PSPS 3520 - Leadership and Management in the Public Sector		BIOL 610. Conservation Applications				
		ENV 555 - The Environmental Science-policy Interface				PSPS 3620 - Public Service Law & Ethics						
						PSPS 3710 - Comparative Public Policy						

River-based Recreation, Education, and Tourism Emphasis Area Courses (choose TWO courses):

Colorado Mesa University	Eastern Washington University	Northern Arizona University	Prescott College	University of Montana Western	University of Northern Colorado	University of Tennessee Chattanooga	Utah State University	Virginia Commonwealth University	Western Carolina University	Western Colorado University	Western Washington University	Fort Lewis College
	RCLS 370 Outdoor Recreation Aquatic Programs	GSP 276 - Planning for Sustainable Tourism	ADV21026 - Phase I: Expeditionary & Technical Skills for Rivers & Canyons	ENST 275 Environmental Interpretation I	RTH 203 – Introduction to Recreation, Tourism and Hospitality (if river related project completed)	HHP 1050 - Adventure Tourism	ENVS 2340: Natural Resources and Society	BIOL 391 Footprints on the James: The Human and Natural History of the James River Watershed. Month long summer field class; completely taught on the river.	PRM 352: Beginner/Intermediate Whitewater Kayaking	ROE 182 - Intro to Recreation and Outdoor Education	ENVS 483 Environmental Interpretation	AE 131 - Paddling Fundamentals

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Accepted Courses**

	RCLS 313 Public Lands and Outdoor Recreation	PRM 346W - Outdoor Recreation	ENV41027 - Phase II: Landscape Ecology		RTH 231 – Leadership in Recreation, Tourism and Hospitality(if river related project completed)	HHP 3010 - Principles of Tourism	ENVS 3400: Fundamentals of Tourism	BIOL 391 South African Summits to Seas: Human and Natural History of kwaZulu-Natal (as viewed by traveling along major rivers) (3 credit winter expedition class)	PRM 426 Water-based outdoor pursuits education (Swiftwater: ST through LandMark Learning)	ROE 293 - Outdoor Pursuits Education- Water Based	RECR 272 Introduction to Outdoor Recreation	AE 331 – Advanced Paddling
		PRM 300 – Ecotourism	ENV41028 - Phase III: Teaching and Research on Public Lands		RTH 232 – Leadership in Parks and Recreation (if river related project completed)	HHP 3060 - Outdoor Recreation	ENVS 3300: Fundamentals of Natural Resource and Environmental Policy	OAP XXX - Experiential Education & Outdoor Leadership	PRM 352: Whitewater Canoeing		RECR 279 Introduction to Tourism	AE 360 or AE 361 – Adventure Education special topics course with river focus
		GSP 376 - Critical Geographies of Global Tourism and Recreation	ADV24050 - Environmental Perspectives & Whitewater Rafting		RTH 233 – Leadership in Tourism and Hospitality (if river related project completed)	COMM 4100 - Public Communication and Environmental Issues	ENVS 4130: Recreation Policy & Planning	ENVS 556. Historical and Cultural Landscapes. Emphasis on riverine landscapes	PRM 310: SUPing		RECR 370 Outdoor Program Development	
		FOR 500- Ecosystem Science and Management Principles	ADV21010 - Environmental Topics in Adventure Education		ENST 364 – Leadership and Community Building (if river related project completed)		ENVS 4500: Wildland Recreation Behavior	URSP 520. Park Planning	PRM 427: Wilderness Education (Boundary Waters)		RECR 379 Foundations of Ecotourism	
		PRM 515- Experience Marketing in Recreation and Tourism	ADV2449/ADV4449 - River Guides Training & Swiftwater Rescue				ENVS 4600: Natural Resource Interpretation		HT 238: Travel and Tourism			
			ADV 2251 – Canoeing: Introduction to Expeditionary Paddling				ENVS 4700: Communicating Sustainability					
			AE2223/4223 - Whitewater Kayaking and Swiftwater Rescue									
			AE4253 – Expeditionary Rivers									