**River Studies and Leadership Certificate**

**Accepted Courses**

**Core Courses**

**Geographic Information Systems Core Courses (choose ONE):**

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| **CMU** | **Prescott College** | **SNC** | **U of U** | **WWU** |
| GEOL 332/332L - Intro to GIS (3 cr) | ENV21400 - Intro to GIS (4 cr) | ENVS 421/ENVS 425 Graphic Information Systems and lab (4 cr) | GEOG 3140 Introduction to GIS (4 cr) | ENVS 320 Introduction to Geographic Information Science (4 cr) |
|  | ENV44720 - Environmental Problem Solving: A Spatial Approach (4 cr) |  | GEOG 3110 The Earth from Space – Remote Sensing of the Environment (3 cr) | ENVS 419 Applications in GIS (3 cr) |
|  |  |  | GEOG 5140 – Methods in GIS (4 cr) | ESCI 442 Introduction to Remote Sensing (5 cr) |

**River Science (choose ONE):**

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| **CMU** | **Prescott College** | **SNC** | **U of U** | **WWU** |
| GEOL 455/455L - River Dynamics (4 cr) | ENV40000 - River Ecology &  Conservation (4 cr) | ESCI 301/305 Hydrology and Water Resources with lab | BIOL 3045: Landscape Ecology (3 cr) | ESCI 310 Environmental Systems (4 cr) |
| ENVS 433 - Restoration of Aquatic Systems (3 cr) | ENV 42XX – Hydrology (4 cr) |  | BIOL 3480/5430: Biography of and Urban Stream (3 cr) | ESCI 315 The Art, Science, and Ethics of Fly fishing (3 cr) |
|  | ENV42724 - Restoration  Ecology: Watersheds of the  Southwest (4 cr) |  | CVEEN 4410: Engineering Hydrology (3 cr) | ESCI 410 Habitat and Ecology of Pacific Salmon and Trout (3 cr) |
|  | ENV42750 - Wetland Ecology &  Management (4 cr) |  | CVEEN 5610/6610: Water Chemistry and Laboratory Analysis (3 cr) | ESCI 411 Habitat Assessment of Pacific Salmon and Trout (2 cr) |
|  | ENV44754 – Topics in  Geomorphology (4 cr) |  | GEO 3300: The Water Planet (3 cr) | ESCI 429 Stream Ecology (5 cr) |
|  |  |  |  | ESCI 431 Watershed Biogeochemistry (3 cr) |
|  |  |  |  | ESCI 470 Ecological Restoration (5 cr) |
|  |  |  |  | GEOL 472 Surface Water Hydrology (4 cr) |

**River Policy (choose ONE):**

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| **CMU** | **Prescott College** | **SNC** | **U of U** | **WWU** |
| POLS 488 – Environmental Politics and Policy (3 cr) | ENV40000 - River Ecology &  Conservation (4 cr) | BIOL 407 Conservation Biology | POLSS 5510: Water Policy and Politics (3 cr) | ENVS 426 Water Resources (4 cr) |
|  | ENV42750 - Wetland Ecology &  Management (4 cr) | ENVP 425  Environmental Law |  | ENVS 451 Natural Resource Policy (3 cr) |
|  | ENV21550/ENV41550 - Water  in the West (4 cr) | ENVP 423 Environmental Planning and Policy |  | ENVS 463 Native American Planning and Natural Resource Policy (3 cr) |
|  | ENV42020 - Conservation  Biology (4cr) |  |  | ESCI/ENVS 493 Environmental Impact Assessment (5 cr) |
|  |  |  |  | ESCI 496 Integration of Environmental Science and Policy (3 cr) |

**Swiftwater Rescue Core Courses (choose ONE):**

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| **CMU** | **Prescott College** | **SNC** | **U of U** | **WWU** |
| Level 4 American Canoe Association Swiftwater Rescue Course through CMU Outdoor Program (1 cr – KINA topics course) | AE2449/AE4449 - River Guides Training (4 cr) | PHED XXX Swiftwater Rescue (TBA) | H ED 4510: Swiftwater Rescue Techniques and Theory (3 cr) | PE 177 Basic Kayak (1 cr) |
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**Emphasis Coursework (Choose ONE emphasis area)**

**River Science Emphasis Area Courses (choose TWO)**

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| **CMU** | **Prescott** | **SNC** | **U of U** | **WWU** |
| GEOL 355 - Basic Hydrology (3 cr) | ENV42724 - Restoration Ecology: Watersheds of the Southwest (4 cr) | ESCI 280 Stream Ecology (1cr) | GEOG 2000: Utah’s Backyard: An Introduction to Field-Based Physical Geography (3 cr) | ESCI 315 The Art, Science, and Ethics of Fly fishing (3 cr) |
| ENVS 331/331L - Water Quality (4 cr) | ENV40000 - River Ecology &  Conservation (4 cr) | BIOL 421/425 Aquatic Ecology and lab (4cr) | GEOG 3200/5200: Geomorphology: Mountains, Rivers and Deserts (4 cr) | ESCI 316 Advanced Fly fishing: River Stewardship, Reflection, and Native Trout (2 cr) |
| BIOL 414/414L – Aquatic Biology (4 cr) | ENV 42XX – Hydrology (4 cr) | ESCI 320 Climate Change (3 cr) | GEOG 3290/5290: Water in Utah (3 cr) | ESCI 410 Habitat and Ecology of Pacific Salmon and Trout (3 cr) |
| GEOL 402/402L – Applications of Geomorphology (4 cr) | ENV42020 - Conservation  Biology (4cr) | ESCI 301/305 Hydrology and Water Resources (4 cr) | GEOG 3350: Resource Conservation and Environmental Management (3 cr) | ESCI 411 Habitat Assessment of Pacific Salmon and Trout (2 cr) |
| BIOL 336 – Fish Biology (3 cr) | ADV25008 - In the Creeks &  Canyons: Explorations of the  Mogollon Rim (4 cr) | ENVS 360 Natural History of the Rogue River (3 cr) | GEO 5350/6350/7350: Groundwater (3 cr) | ESCI 429 Stream Ecology (5 cr) |
|  | ENV44720 - Environmental Problem Solving: A Spatial Approach (4 cr) |  | GEO 5390/6390/7390: Solute Transport and Subsurface Remediation (3 cr) | ESCI 431 Watershed Biogeochemistry (3 cr) |
|  |  |  | CVEEN 5410/6410: Watershed Modeling (3 cr) | ESCI 470 Ecological Restoration (5 cr) |
|  |  |  |  | GEOL 472 Surface Water Hydrology (4 cr) |
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**River-based Policy and Management Emphasis Area Courses (choose TWO courses):**

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| **CMU** | **Prescott** | **SNC** | **U of U** | **WWU** |
| POLS 488 – Environmental Politics and Policy (3 cr) | ENV40000 - River Ecology &  Conservation (4 cr) | ENVS 2XX Natural Resources Management (3 cr) | CMP 5350/6350: Public Lands and Environmental Policy (3cr) | ENVS 426 Water Resources (4 cr) |
|  | ENV21550/ENV41550 – Water in the West (4 cr) | ENVS 4XX Natural Resource Economics (3 cr) | CPM 5360/6360: Environmental Planning Law and Policy (3 cr) | ENVS 450 Science in the Policy Process (4 cr) |
|  | ENV42020 – Conservation Biology (4cr) | BIOL 407 Conservation Biology (3 cr) | Civil and Environmental Engineering 6480/Philosophy  5540: Hydroptopia (3 cr) | ENVS 451 Natural Resources Policy (3 cr) |
|  | ENV24700/ENV44700 - Park &  Wilderness Management (4 cr) | ENVP 425  Environmental Law (3 cr) |  | ENVS 454 Environmental Policy Analysis (4 cr) |
|  | ENV42750 - Wetland Ecology &  Management (4 cr) | ENVP 423 Environmental Planning and Policy (3 cr) |  | ENVS 463 Native American Planning and Natural Resource Policy (3 cr) |
|  |  |  |  | ESCI/ENVS 493 Environmental Impact Assessment (5 cr) |
|  |  |  |  | ESCI 496 Integration of Environmental Science and Policy (3 cr) |
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**River-based Recreation, Education, and Tourism Emphasis Area Courses (choose TWO courses):**

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| **CMU** | **Prescott** | **SNC** | **U of U** | **WWU** |
|  | Grand Canyon Wilderness Explorations & Landscape Studies,  ADV21026 - Phase I: Expeditionary & Technical Skills for Rivers & Canyons (4 cr),  ENV41027 - Phase II: Landscape Ecology (4 cr),  ENV41028 - Phase III: Teaching and Research on Public Lands. Conservation and Management Challenges in Grand Canyon (4cr) | ODAL 301  Fundamentals of Environmental Interpretation | PRT 3050: Natural Resources Learning, Federal Lands: Wilderness Saftey and Survival (3 credits) | ENVS 483 Environmental Interpretation (4 cr) |
|  | ADV24050 - Environmental Perspectives & Whitewater Rafting (4 cr) | ODAL 380 River Expedition Rogue River | PRT4430: Environmental Interpretation and Communication (3 credits) | RECR 272 Introduction to Outdoor Recreation (3 cr) |
|  | ADV21010 - Environmental Topics in Adventure Education  (4 cr) | SUST 480 Special Topics; Geotourism (3 cr) | PRT 5180: Field Ecology in PRT (3 credits) | RECR 279 Introduction to Tourism (3 cr) |
|  | AE2449/AE4449 - River Guides  Training (4 cr) | PHED 2XX Whitewater Kayaking (1 or 2 cr) | PRT 5420 / 6420: Ecology and Management of Wildland Recreation Settings (3 credits) | RECR 370 Outdoor Program Development (4 cr) |
|  | ADV 24200 – Canoeing: Introduction to Expeditionary Paddling (4 cr) |  | PRT 5430: Recreation Issues in Human Dimensions of Wildlife (3 credits) | RECR 379 Foundations of Ecotourism (4 cr) |
|  | ADV4235 – Expeditionary Rivers (4 cr) |  | PRTW 2020: Rivers and Community (4 credits) | RECR 470 Adventure-based Programming (3 cr) |