

Checklist for MS in Environmental Sciences
Non-thesis Track
 39 Credit Hours

Student Name:
 Specialization:

Student Number:
 Advisor:

| All of the following: | | | | NOTES |
|---|----------------|--|---|-------|
| <input type="checkbox"/> | ENVS 6002 | Research Topics in Environmental Science | 3 | |
| <input type="checkbox"/> | GEOG 5265 | Sustainability in Resources Management | 3 | |
| | | OR | | |
| <input type="checkbox"/> | GEOG 5440 | Science, Policy and the Environment | 3 | |
| <input type="checkbox"/> | ENVS 6800 | Community-Based Research Practicum | 3 | |
| 30 Hours of Elective Courses | | | | |
| PHYSICAL/ECOLOGICAL SCIENCE COURSES | | | | |
| <p><i>For the General MS Degree with No Specialization Option: at least 5, with at least 1 in the physical sciences and 1 in the ecological sciences, 2 of these must be field/lab-based.</i></p> <p><i>For the MS Degree with a Specialization Option: at least 2, with at least 1 in the physical sciences and 1 in the ecological sciences, 2 of these must be field/lab-based.</i></p> <p><i>Courses considered field/lab courses are marked with an asterisk (*).</i></p> | | | | |
| <i>Physical Sciences</i> | | | | |
| <input type="checkbox"/> | ENVS 5010 | Landscape Geochemistry | 3 | |
| <input type="checkbox"/> | ENVS 5020 | Earth Environments and Human Impacts | 3 | |
| <input type="checkbox"/> | * ENVS 5280 | Environmental Hydrology | 4 | |
| <input type="checkbox"/> | ENVS 5720 | Climate Change: Causes, Impacts and Solutions | 3 | |
| <input type="checkbox"/> | ENVS 6220 | Toxicology | 3 | |
| <input type="checkbox"/> | GEOG 5240 | Geomorphology | 3 | |
| <input type="checkbox"/> | GEOG 5270 | Glacial Geomorphology | 3 | |
| <input type="checkbox"/> | GEOG/ENVS 5740 | Geography of Soils | 3 | |
| <input type="checkbox"/> | * GEOG 5995 | Travel Study: Patagonia | 4 | |
| <input type="checkbox"/> | GEOL 5030 | Environmental Geology | 3 | |
| <input type="checkbox"/> | * CHEM 5010 | Advanced Inorganic Chemistry | 4 | |
| <input type="checkbox"/> | * CHEM 5110 | Advanced Analytical Chemistry | 4 | |
| <input type="checkbox"/> | * CHEM 5310 | Advanced Organic Chemistry | 4 | |
| <input type="checkbox"/> | * CHEM 5530 | Advanced Physical Chemistry | 4 | |
| <input type="checkbox"/> | CHEM 5700 | Environmental Chemistry | 3 | |
| <input type="checkbox"/> | CHEM 5710 | Air Pollution Chemistry | 3 | |
| <input type="checkbox"/> | CHEM 5720 | Atmospheric Sampling and Analysis | 3 | |
| <input type="checkbox"/> | CVEN 5333 | Surface Water Hydrology | 3 | |
| <input type="checkbox"/> | CVEN 5334 | Groundwater Hydrology | 3 | |
| <input type="checkbox"/> | CVEN 5335 | Vadose Zone Hydrology | 3 | |
| <input type="checkbox"/> | CVEN 5336 | Urban Runoff Quality and Quantity Modeling | 3 | |
| <input type="checkbox"/> | CVEN 5343 | Open Channel Hydraulics | 3 | |
| <input type="checkbox"/> | CVEN 5344 | Unsteady Open Channel Hydraulics | 3 | |
| <input type="checkbox"/> | CVEN 5393 | Water Resources Development and Management | 3 | |
| <input type="checkbox"/> | CVEN 5401 | Introduction to Environmental Engineering | 3 | |
| <input type="checkbox"/> | CVEN 5460 | Introduction to Sustainable Urban Infrastructure | 3 | |
| <input type="checkbox"/> | CVEN 5461 | Defining and Measuring Sustainability | 3 | |

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| <input type="checkbox"/> | CVEN 5462 | Theories of Sustainable Infrastructure Management | 3 | |
| <input type="checkbox"/> | CVEN 5464 | Fundamentals of Sustainability and Climate Change | 3 | |
| <input type="checkbox"/> | CVEN 5480 | Hazardous Wastes and Site Remediation | 3 | |
| <input type="checkbox"/> | CVEN 5481 | Sustainable Water Systems Policy and Planning | 3 | |
| <input type="checkbox"/> | CVEN 5494 | Risk Assessment in Environmental Engineering | 3 | |
| <input type="checkbox"/> | CVEN 5708 | Advanced Soils Engineering | 3 | |
| Ecological Sciences | | | | |
| <input type="checkbox"/> | * ENVS 5731 | Mountain Biogeography | 3 | |
| <input type="checkbox"/> | BIOL 5050 | Landscape Ecology | 3 | |
| <input type="checkbox"/> | BIOL 5052 | Advanced Ecology | 3 | |
| <input type="checkbox"/> | BIOL 5053 | Disease Ecology | 3 | |
| <input type="checkbox"/> | BIOL 5154 | Conservation Biology | 3 | |
| <input type="checkbox"/> | BIOL 5315 | Plant Systematics | 3 | |
| <input type="checkbox"/> | BIOL 5330 | Evolution and Diversification of Plants | 3 | |
| <input type="checkbox"/> | *BIOL 5335 | Plant Science | 3 | |
| <input type="checkbox"/> | *BIOL 5345 | Flora of Colorado | 4 | |
| <input type="checkbox"/> | BIOL 5415 | Microbial Ecology | 3 | |
| <input type="checkbox"/> | BIOL 5416 | Aquatic Ecology | 3 | |
| <input type="checkbox"/> | * BIOL 5445 | Applied Environmental Biology | 3 | |
| <input type="checkbox"/> | BIOL 5450 | Marine Biology | 3 | |
| <input type="checkbox"/> | BIOL 5455 | Comparative Environmental Physiology | 3 | |
| <input type="checkbox"/> | BIOL 5460 | Environmental Toxicology | 3 | |
| ENVIRONMENTAL-BASED SOCIAL SCIENCE COURSES (At least 1): | | | | |
| <input type="checkbox"/> | ENVS 5305 | Water Quality and Resources | 3 | |
| <input type="checkbox"/> | ENVS 5340 | Multicultural Science Education | 3 | |
| <input type="checkbox"/> | ENVS 5450 | Urban Food and Agriculture | 3 | |
| <input type="checkbox"/> | ENVS 5460 | Sustainable Urban Agriculture Field Study I | 3 | |
| <input type="checkbox"/> | ENVS 5470 | Sustainable Urban Agriculture Field Study II | 3 | |
| <input type="checkbox"/> | ENVS/SECE 5650 | Environmental Education | 3 | |
| <input type="checkbox"/> | GEOG 5230 | Hazard Mitigation and Vulnerability Assessment | 3 | |
| <input type="checkbox"/> | GEOG 5265 | Sustainability in Resources Management | 3 | |
| <input type="checkbox"/> | GEOG 5301 | Population, Culture, & Resources | 3 | |
| <input type="checkbox"/> | GEOG 5335 | Contemporary Environmental Issues | 3 | |
| <input type="checkbox"/> | GEOG 5350 | Environment & Society in the American Past | 3 | |
| <input type="checkbox"/> | GEOG 5420 | The Politics of Nature | 3 | |
| <input type="checkbox"/> | GEOG 5440 | Science, Policy and the Environment | 3 | |
| <input type="checkbox"/> | GEOG 5710 | Disasters, Climate Change and Health | 3 | |
| <input type="checkbox"/> | GEOG 5990 | Travel Study: Costa Rica | 4 | |
| <input type="checkbox"/> | GEOG 5990 | Travel Study: China | 4 | |
| TECHNIQUES COURSES (At least 2): | | | | |
| <input type="checkbox"/> | ENVS 6200 | Risk Assessment | 3 | |
| Plus, 1 of the following: | | | | |
| <input type="checkbox"/> | ENVS 6230 | Environmental Epidemiology | 3 | |
| <input type="checkbox"/> | GEOG 5050 | Applied Spatial Statistics | 3 | |
| <input type="checkbox"/> | GEOG 5060 | Remote Sensing I: Introduction to Environmental Remote Sensing | 3 | |
| <input type="checkbox"/> | GEOG 5070 | Remote Sensing II: Advanced Remote Sensing | 3 | |
| <input type="checkbox"/> | GEOG 5080 | Introduction to GIS | 3 | |
| <input type="checkbox"/> | GEOG 5081 | Cartography and Computer Mapping | 3 | |
| <input type="checkbox"/> | GEOG 5085 | GIS Applications for the Urban Environment | 3 | |
| <input type="checkbox"/> | GEOG 5090 | Environmental Modeling with Geographic Information Systems | 3 | |

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| <input type="checkbox"/> | GEOG 5091 | Open Source Software for Geospatial Applications | 3 | |
| <input type="checkbox"/> | GEOG 5092 | GIS Programming and Automation | 3 | |
| <input type="checkbox"/> | GEOG 5095 | Deploying GIS Functionality on the Web | 3 | |
| <input type="checkbox"/> | GEOG 5235 | GIS Applications in the Health Sciences | 3 | |
| <input type="checkbox"/> | GEOG 6700 | Integrated Methods | 3 | |
| <input type="checkbox"/> | BIOL 5474 | Ecological Methods | 4 | |
| <input type="checkbox"/> | CVEN 5345 | Computational Methods for Water Resources | 3 | |
| Additional 1 Elective Graduate Course (3 hours) for the General MS degree without a concentration taken from any of the electives listed above. This course should be chosen in close cooperation with the advisor. | | | | |
| <input type="checkbox"/> | | | | |
| <input type="checkbox"/> | | | | |
| Specialization Options | | | | |
| Ecosystems | | | | |
| <input type="checkbox"/> | ENVS 5010 | Landscape Geochemistry | 3 | Required |
| <input type="checkbox"/> | BIOL 5415 | Microbial Ecology | 3 | Required |
| Choose two: | | | | |
| <input type="checkbox"/> | * ENVS 5731 | Mountain Biogeography | 3 | |
| <input type="checkbox"/> | ENVS 6220 | Toxicology | 3 | |
| <input type="checkbox"/> | BIOL 5154 | Conservation Biology | 3 | |
| <input type="checkbox"/> | GEOG 5060 | Remote Sensing I: Introduction to Environmental Remote Sensing | 3 | |
| Environmental Health (ENVS 6200, Risk Assessment is a prerequisite of the Environmental Health option) | | | | |
| <input type="checkbox"/> | ENVS 6220 | Toxicology | 3 | Required |
| <input type="checkbox"/> | ENVS 6230 | Environmental Epidemiology | 3 | Required |
| Choose two: | | | | |
| <input type="checkbox"/> | GEOG 5710 | Climate Change, Disasters and Health | 3 | |
| <input type="checkbox"/> | ENVS 6210 | Human Health and Environmental Pollution | 3 | |
| <input type="checkbox"/> | ANTH 5600 | Medical Anthropology | 3 | |
| <input type="checkbox"/> | PUAD 5633 | Seminar in Natural Resource and Environmental Health Law | 3 | |
| Environmental Science Education (This concentration corresponds with the Graduate Environmental Science Education Certificate.) | | | | |
| <input type="checkbox"/> | ENVS 5340 | Multicultural Science Education | 3 | Required |
| <input type="checkbox"/> | ENVS/SECE 5650 | Environmental Education | 3 | Required |
| Choose two: | | | | |
| <input type="checkbox"/> | ANTH 5170 | Culture and the Environment | 3 | |
| <input type="checkbox"/> | BIOL 5154 | Conservation Biology | 3 | |
| <input type="checkbox"/> | COMM 5282 | Environmental Communication | 3 | |
| <input type="checkbox"/> | GEOG 5365 | Sustainability and Resource Management | 3 | |
| <input type="checkbox"/> | GEOG 5335 | Contemporary Environmental Issues | 3 | |
| <input type="checkbox"/> | GEOG 5440 | Science, Policy, and the Environment | 3 | |
| <input type="checkbox"/> | PSCI 5354 | Environmental Politics and Policy | 3 | |
| Geospatial Analysis (This concentration tracks towards the Graduate GISci Certificate, but does not meet the full requirements of this certificate.) | | | | |
| <input type="checkbox"/> | GEOG 5080 | Introduction to GIS | 3 | Required |
| <input type="checkbox"/> | GEOG 5090 | Environmental Modeling with Geographic Information Systems | 3 | Required |

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|--------------------------|----------------|--|---|----------|
| Choose two: | | | | |
| <input type="checkbox"/> | GEOG 5092 | GIS Programming and Automation | 3 | |
| <input type="checkbox"/> | CVEN 5382 | GIS Spatial Database Development | 3 | |
| <input type="checkbox"/> | CVEN 5385 | GIS Relational Database Systems | 3 | |
| <input type="checkbox"/> | CVEN 5386 | GIS Lab | 3 | |
| Water Systems | | | | |
| <input type="checkbox"/> | * ENVS 5280 | Environmental Hydrology | 4 | Required |
| and either | | | | |
| <input type="checkbox"/> | CVEN 5334 | Groundwater Hydrology | 3 | Required |
| OR | | | | |
| <input type="checkbox"/> | CVEN 5335 | Vadose Zone Hydrology | 3 | Required |
| Choose two: | | | | |
| <input type="checkbox"/> | BIOL 5416 | Aquatic Ecology | 3 | |
| <input type="checkbox"/> | ENVS 5410 | Aquatic Chemistry | 3 | |
| <input type="checkbox"/> | GEOG/GEOL 5251 | Fluvial Geomorphology | 3 | |
| <input type="checkbox"/> | CVEN 5333 | Surface Water Hydrology | 3 | |
| <input type="checkbox"/> | CVEN 5334 | Groundwater Hydrology | 3 | |
| <input type="checkbox"/> | CVEN 5335 | Vadose Zone Hydrology | 3 | |
| <input type="checkbox"/> | CVEN 5336 | Urban Runoff Quality and Quantity Modeling | 3 | |
| <input type="checkbox"/> | CVEN 5393 | Water Resources Development and Management | 3 | |

ADVISING NOTES

- Students should fill out and submit all relevant department forms for their files. Importantly, all petitions for course substitutions and identification of where courses fit as electives, with the subsequent approval/denial, should be submitted to this file.
- By the end of the first semester, each student should identify and declare a graduate advisor in the area of the student's interests or specialization. Students should file the Graduate Student – Faculty Advisor form by the first week of the second semester.
- Additionally, by the end of the first semester, students should determine whether or not s/he is pursuing the thesis or non-thesis option. If pursuing the thesis option, students should begin work under the guidance of their graduate advisor (see above) to develop a thesis topic and identify a thesis committee. The Graduate Student – Faculty Committee form is due to the department by the third semester of the student's degree program.
- Many of the electives have pre-requisites; students must have met these requirements in order to take the course.
- Students may transfer up to 9 hours of approved graduate-level credit into the program. These courses must be approved by the Graduate Director and they may not replace core courses.
- Students may count up to 6-credit hours of Independent Study, with a maximum of 3-credit hours per Independent Study toward elective credit in the degree program as approved by the Graduate Director. No more than 3 credit hours of independent study may be taken with the same instructor, and they may not be taken in the same term.
- Students may count up to 6-credit hours of internship in total, but only 3-credit hours per internship (two sponsorships may be sponsored by the same professor, but they may not be the same internship or project). Please note that a maximum of 6 total credit hours of internship and independent study, combined, may apply.

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- Students may not count 4000-level courses towards electives in the program; this may be petitioned to the Graduate Committee in exceptional cases.
- Students may take a maximum of 2 online courses, or petition to the Graduate Committee in exceptional cases to apply more than two online courses.
- Students may enroll in thesis preparation and writing hours only after submission of the signed committee form (see above), which requires approval of the thesis proposal.
- Students will not receive a grade for thesis preparation and writing hours until the thesis is successfully defended.
- Students must follow the graduate school deadlines for submission of paperwork for the graduation application, comprehensive exam, and any other deadlines, in addition to departmental guidelines and deadlines. Links to these can be found on the GES/MS website: <http://www.ucdenver.edu/academics/colleges/CLAS/Departments/ges/Programs/MasterofScience/Pages/Forms.aspx>