ENVIRONMENT AND RESOURCES, PH.D.

REQUIREMENTS

MINIMUM GRADUATE SCHOOL REQUIREMENTS

Review the Graduate School minimum academic progress and degree requirements (http://guide.wisc.edu/graduate/#policiesandrequirementstext), in addition to the program requirements listed below.

MAJOR REQUIREMENTS

MODE OF INSTRUCTION

<table>
<thead>
<tr>
<th>Mode of Instruction</th>
<th>Face to Face</th>
<th>Evening/Weekend</th>
<th>Online</th>
<th>Hybrid</th>
<th>Accelerated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
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</tbody>
</table>

Mode of Instruction Definitions

Accelerated: Accelerated programs are offered at a fast pace that condenses the time to completion. Students typically take enough credits aimed at completing the program in a year or two.

Evening/Weekend: Courses meet on the UW–Madison campus only in evenings and/or on weekends to accommodate typical business schedules. Students have the advantages of face-to-face courses with the flexibility to keep work and other life commitments.

Face-to-Face: Courses typically meet during weekdays on the UW-Madison Campus.

Hybrid: These programs combine face-to-face and online learning formats. Contact the program for more specific information.

Online: These programs are offered 100% online. Some programs may require an on-campus orientation or residency experience, but the courses will be facilitated in an online format.

CURRICULAR REQUIREMENTS

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Detail</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>Minimum Credit Requirement</td>
<td>51 credits</td>
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<tr>
<td>Minimum Residence Credit Requirement</td>
<td>32 credits</td>
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<tr>
<td>Minimum Graduate Coursework Requirement</td>
<td>26 credits must be graduate-level coursework. Details can be found in the Graduate School’s Minimum Graduate Coursework (50%) policy (<a href="https://policy.wisc.edu/library/UW-1244">https://policy.wisc.edu/library/UW-1244</a> (<a href="https://policy.wisc.edu/library/UW-1244/">https://policy.wisc.edu/library/UW-1244/</a>)).</td>
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<tr>
<td>Overall GPA Requirement</td>
<td>3.00 GPA required</td>
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<tr>
<td>Graduate GPA Requirement</td>
<td>This program follows the Graduate School’s policy: <a href="https://policy.wisc.edu/library/UW-1203">https://policy.wisc.edu/library/UW-1203</a> (<a href="https://policy.wisc.edu/library/UW-1203/">https://policy.wisc.edu/library/UW-1203/</a>).</td>
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Other Grade Requirements

Grades of BC or C may be counted toward program requirements if they are offset by equivalent AB or A grades in other courses. A 3.00 average must be maintained in the student’s breadth categories as well as their individual program focus category. With the exception of research credits, a maximum of 2 credits graded S may be counted toward program requirements if approved by the student’s dissertation committee and the program chair. Courses that are audited or graded pass/fail or credit/no credit will not count toward program requirements.

Assessments and Examinations

All students must complete an initial coursework proposal, preferably after their first year, as well as a final coursework proposal. Students must pass a qualifying examination, a preliminary examination, and a final dissertation defense which constitutes the final examination.

Language Requirements

No language requirements.

Breadth Requirement

Due to the breadth and interdisciplinary nature of the program, Environment and Resources doctoral students are not required to pursue a doctoral minor or Graduate/Professional certificate.

REQUIRED COURSES

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breadth Requirements</td>
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</tr>
<tr>
<td>Category 1: Natural Science (see course list below)</td>
<td></td>
<td>9</td>
</tr>
<tr>
<td>Category 2: Social Science &amp; Humanities (see course list below)</td>
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<tr>
<td>Category 3: Measurement &amp; Analysis (see course list below)</td>
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<tr>
<td>Individual Program Focus &amp; Research</td>
<td></td>
<td>15</td>
</tr>
<tr>
<td>Additional Coursework and Seminars</td>
<td></td>
<td>9</td>
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<tr>
<td>Students must also take at least two graduate seminars (research or topical) as well as a variable number of Research credits. Students may double count up to 9 credits with one of their breadth categories. At least six credits must be from UW-Madison (not including Research credits).</td>
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<tr>
<td>Total Credits</td>
<td>51</td>
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1 Students choose any biological sciences and/or physical sciences courses in the 300–999 range. This course list is not meant to be all-inclusive. Students are not restricted to the courses listed here. This is a sample of appropriate courses for this category that are offered through various departments/programs. At least three credits must be from UW-Madison.

2 Students choose any social sciences and/or arts & humanities courses in the 300–999 range. This course list is not meant to be all-inclusive. Students are not restricted to the courses listed here. This is a sample of appropriate courses for this category that are offered through various departments/programs. At least three credits must be from UW-Madison.
Students choose any measurement/analysis/tools/methods courses in the 300–999 range. This course list is not meant to be all-inclusive. Students are not restricted to the courses listed here. This is a sample of appropriate courses for this category that are offered through various departments/programs. At least three credits must be from UW-Madison.

Students choose any courses, in the 300–999 range, that pertain to their individual research and dissertation endeavor.

### Category 1: Natural Science courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tr>
<td>AGROECOL/AGRONOMY/ENVIR ST 724</td>
<td>Agroecosystems and Global Change</td>
<td>3</td>
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<tr>
<td>AGRONOMY/ATM OCN/SOIL SCI 532</td>
<td>Environmental Biophysics</td>
<td>3</td>
</tr>
<tr>
<td>AGRONOMY/BOTANY/SOIL SCI 370</td>
<td>Grassland Ecology</td>
<td>3</td>
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<tr>
<td>ANTHRO/BOTANY/ZOOLOGY 410</td>
<td>Evolutionary Biology</td>
<td>3</td>
</tr>
<tr>
<td>ATM OCN 425</td>
<td>Global Climate Processes</td>
<td>3</td>
</tr>
<tr>
<td>ATM OCN/ENVIR ST 355</td>
<td>Introduction to Air Quality</td>
<td>3</td>
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<tr>
<td>ATM OCN/ENVIR ST 520</td>
<td>Bioclimatology</td>
<td>3</td>
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<tr>
<td>ATM OCN/ENVIR ST/GEOG 332</td>
<td>Global Warming: Science and Impacts</td>
<td>3</td>
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<tr>
<td>ATM OCN/ENVIR ST/GEOG/GEOSCI 335</td>
<td>Climatic Environments of the Past</td>
<td>3</td>
</tr>
<tr>
<td>BOTANY 400</td>
<td>Plant Systematics</td>
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<tr>
<td>BOTANY 500</td>
<td>Plant Physiology</td>
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<tr>
<td>BOTANY 801</td>
<td>Advanced Plant Community Ecology</td>
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<tr>
<td>BOTANY/ENVIR ST/F&amp;W ECOL/ZOOLOGY 651</td>
<td>Conservation Biology</td>
<td>3</td>
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<tr>
<td>BOTANY/F&amp;W ECOL 402</td>
<td>Dendrology</td>
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<td>BOTANY/F&amp;W ECOL 455</td>
<td>The Vegetation of Wisconsin</td>
<td>4</td>
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<td>BOTANY/F&amp;W ECOL/ZOOLOGY 460</td>
<td>General Ecology</td>
<td>4</td>
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<tr>
<td>BOTANY/F&amp;W ECOL/ZOOLOGY 672</td>
<td>Historical Ecology</td>
<td>2</td>
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<td>BOTANY/GEOG 338</td>
<td>Environmental Biogeography</td>
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<td>BOTANY/HORT/SOIL SCI 626</td>
<td>Mineral Nutrition of Plants</td>
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<tr>
<td>BOTANY/ZOOLOGY 725</td>
<td>Ecosystem Concepts</td>
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<td>BSE/ENVIR ST 367</td>
<td>Renewable Energy Systems</td>
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<tr>
<td>CBE 562</td>
<td>Special Topics in Chemical Engineering</td>
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<td>CHEM/GENETICS 626</td>
<td>Genomic Science</td>
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<td>CIV ENGR 311</td>
<td>Hydrosience</td>
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<td>CIV ENGR 415</td>
<td>Hydrology</td>
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<td>CIV ENGR 500</td>
<td>Water Chemistry</td>
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<tr>
<td>CIV ENGR 501</td>
<td>Water Analysis-Intermediate</td>
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<tr>
<td>CIV ENGR/G LE 421</td>
<td>Environmental Sustainability Engineering</td>
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<tr>
<td>ENTOM 450</td>
<td>Basic and Applied Insect Ecology</td>
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<td>ENTOM/ZOOLOGY 302</td>
<td>Introduction to Entomology</td>
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<td>ENVIR ST 400</td>
<td>Special Topics in the Environment: Biological Aspects of Envir St</td>
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<tr>
<td>ENVIR ST 401</td>
<td>Special Topics: Environmental Perspectives in the Physical Sciences</td>
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<tr>
<td>ENVIR ST/GEOSCI 411</td>
<td>Energy Resources</td>
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<tr>
<td>ENVIR ST/PHYSICS 472</td>
<td>Scientific Background to Global Environmental Problems</td>
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<tr>
<td>ENVIR ST/POP HLTH 471</td>
<td>Introduction to Environmental Health</td>
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<tr>
<td>ENVIR ST/POP HLTH 502</td>
<td>Air Pollution and Human Health</td>
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<tr>
<td>ENVIR ST/SOIL SCI 324</td>
<td>Soils and Environmental Quality</td>
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<tr>
<td>F&amp;W ECOL 379</td>
<td>Principles of Wildlife Management</td>
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<tr>
<td>F&amp;W ECOL 401</td>
<td>Physiological Animal Ecology</td>
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<tr>
<td>F&amp;W ECOL 655</td>
<td>Animal Population Dynamics</td>
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<tr>
<td>F&amp;W ECOL/ZOOLOGY 660</td>
<td>Climate Change Ecology</td>
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<tr>
<td>G L E/GEOSCI 627</td>
<td>Hydrogeology</td>
<td>3-4</td>
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<tr>
<td>GEOSCI 376</td>
<td>Topics in Geology</td>
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<tr>
<td>GEOSCI 731</td>
<td>Carbonate Geology</td>
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<td>HORT 875</td>
<td>Special Topics</td>
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<tr>
<td>KINES/POP HLTH 791</td>
<td>Physical Activity Epidemiology</td>
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<tr>
<td>LAND ARC 668</td>
<td>Restoration Ecology</td>
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<tr>
<td>M E 466</td>
<td>Air Pollution Effects, Measurements and Control</td>
<td>3</td>
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<tr>
<td>M E/N E 565</td>
<td>Power Plant Technology</td>
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<tr>
<td>M&amp;ENVTOX/POP HLTH 789</td>
<td>Principles of Environmental Health: A Systems Thinking Approach</td>
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<tr>
<td>MICROBIO/SOIL SCI 523</td>
<td>Soil Microbiology and Biochemistry</td>
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<tr>
<td>N E 571</td>
<td>Economic and Environmental Aspects of Nuclear Energy</td>
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<tr>
<td>PL PATH 801</td>
<td>Teaching Biology: Special Topics</td>
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<td>PL PATH/SOIL SCI 323</td>
<td>Soil Biology</td>
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<tr>
<td>POP HLTH/SOC 797</td>
<td>Introduction to Epidemiology</td>
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### Category 2: Social Science & Humanities courses

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<td>AAE 375</td>
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<td>AAE 635</td>
<td>Applied Microeconomic Theory</td>
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<td>AAE 643</td>
<td>Foundations of Environmental and Natural Resource Economics</td>
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<td>AAE/C&amp;E SOC/</td>
<td>Issues in Food Systems</td>
<td>3-4</td>
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<tr>
<td>SOC 340</td>
<td>Agrcultural and Economic Development in Africa</td>
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<td>AAE/ECON/</td>
<td>Environmental Economics</td>
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<tr>
<td>ENVIR ST 343</td>
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<td>AAE/ECON/ENVIR</td>
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<td>ST/URB R PL 671</td>
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<td>AAE/ECON/F&amp;W ECOL</td>
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<td>531</td>
<td>Natural Resource Economics</td>
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<tr>
<td>AGROECOL 701</td>
<td>The Farm as Socio-Environmental Endeavor</td>
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<td>AGROECOL 702</td>
<td>The Multifunctionality of Agriculture</td>
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<td>AMER IND 450</td>
<td>Issues in American Indian Studies</td>
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<td>AMER IND/</td>
<td>Indians of North America</td>
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<td>AMER IND/</td>
<td>Indigenous Peoples and the Environment</td>
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<td>AMER IND/ENVIR</td>
<td>Managing Nature in Native North America</td>
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<td>ST/GEOG 345</td>
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<td>ANTHRO 330</td>
<td>Topics in Ethnology</td>
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<td>ASIAN 630</td>
<td>Proseminar: Studies in Cultures of Asia</td>
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<tr>
<td>C&amp;E SOC/SOC</td>
<td>Environmental Stewardship and Social Justice</td>
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<td>C&amp;E SOC/SOC</td>
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<td>C&amp;E SOC/SOC/</td>
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<td>URB R PL 617</td>
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<tr>
<td>COUN PSY 601</td>
<td>Best Practices in Community-Engaged Scholarship</td>
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<td>ECON 711</td>
<td>Economic Theory-Microeconomics Sequence</td>
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<td>ECON 713</td>
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<td>POLI SCI/</td>
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<tr>
<td>PUB AFFR/</td>
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<td>URB R PL 449</td>
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<td>ED PSYCH 551</td>
<td>Quantitative Ethnography</td>
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<td>ENVIR ST 308</td>
<td>Outdoors For All: Inequities in Environmentalism</td>
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<td>ENVIR ST 349</td>
<td>Climate Change Governance</td>
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<td>ENVIR ST 402</td>
<td>Special Topics: Social Perspectives in Environmental Studies</td>
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<td>ENVIR ST 404</td>
<td>Special Topics in Environmental Humanities</td>
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<td>ENVIR ST 922</td>
<td>Historical and Cultural Methods in Environmental Research</td>
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<td>GEOG 337</td>
<td>Nature, Power and Society</td>
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<td>ENVIR ST/GEOG</td>
<td>US Environmental Policy and Regulation</td>
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<td>HISTORY 460</td>
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<td>ENVIR ST/PHILOS</td>
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<td>ENVIR ST/POLI SCI/PUB AFFR 866</td>
<td>Global Environmental Governance</td>
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<td>ENVIR ST/PUB AFFR/URB R PL 809</td>
<td>Introduction to Energy Analysis and Policy</td>
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<td>ENVIR ST/URB R PL 821</td>
<td>Resources Policy Issues: Regional and National</td>
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<td>ENVIR ST/URB R PL 865</td>
<td>Water Resources Institutions and Policies</td>
<td>3</td>
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<td>GEOG 538</td>
<td>The Humid Tropics: Ecology, Subsistence, and Development</td>
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<td>GEOG 930</td>
<td>Seminar in People-Environment Geography</td>
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<td>GEG/URB R PL 503</td>
<td>Reseraching the City: Qualitative Strategies</td>
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<tr>
<td>HISTORY 901</td>
<td>Studies in American History</td>
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<tr>
<td>INTER-HE 801</td>
<td>Special Topics in Human Ecology</td>
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<td>INTL ST 401</td>
<td>Topics in Global Security</td>
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<td>JOURN 812</td>
<td>Qualitative Communication Research Methods</td>
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<td>LAW 731</td>
<td>Constitutional Law I</td>
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<td>LAW 744</td>
<td>Administrative Law</td>
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<td>LAW 918</td>
<td>Selected Problems in International Law-Seminar</td>
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<td>LSC 625</td>
<td>Risk Communication</td>
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<td>MHR 710</td>
<td>Challenges &amp; Solutions in Business Sustainability</td>
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<td>POLI SCI/PUB AFFR/URB R PL 874</td>
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<td>Workshop in International Public Affairs</td>
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<td>SOC 441</td>
<td>Criminology</td>
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<tr>
<td>URB R PL 590</td>
<td>Contemporary Topics in Urban and Regional Planning</td>
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<td>URB R PL 611</td>
<td>Urban Design: Theory and Practice</td>
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### Category 3: Measurement & Analysis courses

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