## Bachelor of Science in Natural Resources: Global Change Ecology & Management

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Units</th>
<th>Prerequisite?</th>
<th>Course Title</th>
<th>Units</th>
<th>Prerequisite?</th>
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<tbody>
<tr>
<td>CHEM 151 OR CHEM 141 and 143</td>
<td>4</td>
<td>MATH 112 or placement</td>
<td>CHEM 152 OR CHEM 142 and 144</td>
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<td>1st semester CHEM</td>
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<tr>
<td>ENGL 101 or 109H</td>
<td>3</td>
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<td>ENGL 102 (or 109H)</td>
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<tr>
<td>RNR 101: Global Sustainability and Natural Resources</td>
<td>3</td>
<td>MATH 112 or placement test</td>
<td>ECOL 182R and L General Biology Lecture and Lab</td>
<td>4</td>
<td>Tier 1 Traditions and Cultures</td>
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<tr>
<td>Calculus: MATH 113, 122B, or 125</td>
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<td>Tier 1 Traditions and Cultures</td>
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<tr>
<td>Tier 1 Individuals and Societies</td>
<td>3</td>
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<td>RNR 100 Conservation of Natural Environments</td>
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<td><strong>TOTAL</strong></td>
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<tr>
<td>ECON 200</td>
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<td>Tier 2 Individuals and Societies</td>
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<td>Statistics: MATH 163 or 263, or PSY 230, or SBS 200</td>
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<td>MATH 112 or placement</td>
<td><strong>RNR 321 Ecological Surveys and Sampling</strong></td>
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<td>RNR 316 Natural Resources Ecology</td>
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<td>ECOL 182R, ECOL 182L, RNR 230R/L</td>
<td>Tier 1 Traditions and Cultures</td>
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<td>MCB 181L General Biology Lab</td>
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<td>MATH 112 or placement; CHEM</td>
<td>Tier 1 Individuals and Societies</td>
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<td>MCB 181R General Biology Lecture</td>
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<td>Technical Elective</td>
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<td><strong>TOTAL</strong></td>
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<td>Technical Elective</td>
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<td>Technical Writing: ENGL 308, 313, 340, 414 or ENV 408, 415</td>
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<td>Oral or Media Communication: ALC 422, COMM 113, COMM 119, JOUR 455, JOUR 472, SBE 202, SCI 401, RNR 495A</td>
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<td><strong>RNR 230R and 230L Field Botany</strong></td>
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<td><strong>RNR 384 Natural Resources Management Practices</strong></td>
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<td>Tier 2 Arts or Humanities Elect.</td>
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<td>RNR 458 Ecosystem Ecology</td>
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<td>RNR 429 Ecological Climatology</td>
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<td>Technical Skills: RNR 403, 417 or GEOG 330 or RAM 446 or 456A</td>
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<td><strong>TOTAL</strong></td>
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<tr>
<td>RNR 440 Climate Change Adaptation</td>
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<td>Seniors only</td>
<td>RNR 496G - Climate Assessment</td>
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<td>WSM 452 Dryland Ecohydrology</td>
<td>4</td>
<td>One year of general biology</td>
<td>Policy, Law, and Economics Elective: AREC 360, 476 or 479; RNR 485</td>
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<td>ECON 200/MATH 112</td>
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<td>WSM 460A Watershed Hydrology or GEOS 478</td>
<td>3 to 4</td>
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<td>Technical Electives</td>
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<td>Global Change</td>
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<td><strong>RNR 480 Natural Resources Policy and Law</strong></td>
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<td>RNR 200</td>
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Diversity Emphasis: One general education course must have the non-Western Civilization, Gender, Race, Class, Ethnicity designation
2nd semester language proficiency required— not included in this plan
Catalog Year 2020-21
# Technical Electives

GCEM students take a minimum of 18 units in any of the following areas:

### Earth Systems and Global Change
- ATMO 336 Weather climate and society
- ATMO 421C Physical climatology: mechanisms of change
- ATMO 436A Fundamentals of atmospheric sciences
- GEOG 304 Water environment and society
- GEOG 431 Global and regional climatology
- GEOS 212 Intro to oceanography
- GEOS 220 Environmental History of the Southwest
- GEOS 308 Paleontology
- GEOS 412A Ocean sciences
- GEOS 482 Paleoclimatology
- RNR 355 Wildland Fire
- ENVS 200/201 Soils w/ lab
- ENVS 461 Soil & water conservation
- WSM 468 Wildland water quality

### Biological systems
- PLS 312 Genetics
- ECOL 335 Evolutionary biology
- ECOL 406R Conservation biology
- ECOL 426 Population genetics
- ECOL 496J Plant population ecology
- ECOL 496R Species diversity
- ENVS 300 Soil Ecology and Sustainable Systems
- GEOG 348 Biogeography
- RAM 382 Rangeland plant communities
- PLS 240 Plant biology
- PLS 360 Principles of plant physiology
- PLS 440 Plant growth & development
- WFSC 471 Stream ecology

### Human Systems
- AREC 217 Resource and Environmental economics
- GEOG 305 Economic geography
- GEOG 371 Principles and practices of regional development
- GEOG 379 Urban growth and development
- GEOG 380 Global agricultural and international relations
- GEOG 404 Politics of nature
- ENVS 310 Ecosystem Health and Justice
- PA 461 Global climate change science and policy
- RNR 256 Sustainable cities and societies
- RNR 340 Conservation and Agriculture in the SW
- RNR 481 Environmental policy
- RNR 495F Conservation biology in developing countries

### Management
- GEOG 301 Intro to regional planning
- GEOG 379 Urban Growth and Development
- GEOG 408 Arizona and the Southwest
- RAM 436A Grazing ecology and management
- RAM 446 Management and Restoration of Wildland Vegetation
- RNR 496E Restoration ecology
- ENVS 401 Sustainable management of arid lands
- ENVS 454 Water harvesting
- WS M 462 Watershed management
- WFSC 444 Wildlife Management
- WFSC 455R Fishery Management

### Additional Electives
- GEOS 497C Introduction to dendrochronology
- WFSC 223 Dealing with Data in the Wild
- RNR 322 Field Methods in Nat Res
- RNR 419 Cartographic modeling

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28 April 2020, v10