# Environmental Science (Biology Track) – B.S.

<table>
<thead>
<tr>
<th>First year (&lt;28 credits)</th>
<th>Sophomore (28-59 credits)</th>
<th>Junior (60-91 credits)</th>
<th>Senior (92+ credits)</th>
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<td>GEOL 115 or ESCI 132</td>
<td>BIOL 209</td>
<td>ESCI 310</td>
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<td>ENGR 123</td>
<td>GEOL 252 (odd year) or GEOL 310 (even year)</td>
<td>Biology elective #2</td>
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<td>MATH 108 (or MATH 113)</td>
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<td>BIOL 207</td>
<td>BIOL 208</td>
<td>Biology elective #1</td>
<td>ESCI 430</td>
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<td>MATH 109 (if taking 108/109)</td>
<td>Allied elective #1</td>
<td>Allied elective #2</td>
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<td>CHEM 112</td>
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*This is an example 4-year plan. Specific sequence depends on math placement. Many courses could be taken in different semesters.*

## Requirements for Degree

- ESCI 310 Environmental Problem Solving (4 credits)
- ESCI 430 Senior Research Seminar (4 credits)
- BIOL 209 Biology of Sustainability (4 credits)
- GEOL 115 Environmental Geology
  OR *ESCI 132 Intro to Environmental Science (4 credits each)
- GEOL 252 Geomorphology
  OR GEOL 310 Environmental Geochemistry (4 credits each)
- CHEM 111 and 112 General Chemistry I and II (8 credits total)
  OR CHEM 115 Accelerated General Chemistry (4 credits)
- PHYS 211 Classical Physics I (4 credits) OR *PHYS 109 General Physics I (an acceptable PHYS choice for Biology and Geosciences track majors only) (4 credits)
- MATH 113 Calculus I (4 credits)
  OR MATH 108 and 109 Calculus with Review I and II (8 credits total)

All Biology track students must complete the following four (4) courses:

- BIOL 207 Genetics, Evolution, and Ecology (4 credits)
- BIOL 208 Biological Communications & Energetics (4 credits)
- ENGR 123 Energy and the Environment (4 credits)
- STAT 220 Statistics I (4 credits)
**Biology Electives** - Plus 12 credits from the following (at least 4 credits must be 400-level)

- BIOL 211 Introduction to Field Research (4 credits)
- BIOL 328 Environmental Toxicology and Health (4 credits)
- BIOL 333 Ecology (4 credits)
- BIOL 335 Conservation Biology (4 credits)
- BIOL 361 Medical Geology (4 credits)
- BIOL 435 Aquatic Biology (4 credits)
- BIOL 480 Urban Ecosystem Ecology (4 credits)
- BIOL 486 Seminar (4 credits)
- BIOL 491 Individual Research (2 or 4 credits)

**Allied Electives** - Plus 8 elective credits from the following, including at least 4 credits of courses with ECON/ENVR/GEOG/HIST/PHIL/POLS/PSYCH prefix. Additionally, if ESCI 132 is taken as Environmental Science core requirement, 4 credits of GEOL is required as an elective. (all courses are 4 credits each)

- CHEM 201 Organic Chemistry I (4 credits)
- ECON 370 Environmental and Natural Resource Economics (4 credits)
- ENVR 212 Society and Sustainability (4 credits)
- ENVR 351 Environmental Policy (4 credits)
  - or POLS 309 Environmental Policy
- GEOG 331 Conservation Geography (4 credits)
- GEOG 321 Geographic Info Systems (4 credits)
- GEOL 211 Earth Materials (4 credits)
- GEOL 220 Oceanography (4 credits)
- GEOL 252 Geomorphology (4 credits)
- GEOL 260 Regional Geology and Geological Field Methods (4 credits)
- GEOL 310 Environmental Geochemistry (4 credits)
- GEOL 410 Hydrogeology (4 credits)
- GEOL 491 Individual Research (4 credits)
- HIST 228 Environmental History (4 credits)
- MATH 114 Calculus II
- PHIL 258 Environmental Ethics (4 credits)
- PHYS 212 Classical Physics II (4 credits)
  - or PHYS 110 General Physics II (4 credits)
- PSYC 334 Psychology of Sustainability (4 credits)
- STAT 310 Biostatistics (4 credits)

To help students meet specific academic goals, other classes may be taken for this requirement with prior approval from the ESCI director.
## Environmental Science (Chemistry Track) – B.S.

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<td>ESCI 310</td>
<td>GEOL 252 (odd year) or GEOL 310 (even year)</td>
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<td>CHEM 111 (or CHEM 115)</td>
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<td>Allied elective #2</td>
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<td>MATH 113</td>
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<td>BIOL 207</td>
<td>CHEM 202</td>
<td>CHEM 201 Organic Chemistry I (4 credits)</td>
<td>ESCI 430</td>
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<tr>
<td>CHEM 112 (or CHEM 115)</td>
<td>PHYS 212</td>
<td>Organic Chemistry II (4 credits)</td>
<td>Allied elective #3</td>
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<td>MATH 114</td>
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<td>Quantitative Analysis (4 credits)</td>
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*This is an example 4-year plan. Specific sequence depends on math placement. Many courses could be taken in different semesters.*

### Requirements for Degree

- ESCI 310 Environmental Problem Solving (4 credits)
- ESCI 430 Senior Research Seminar (4 credits)
- BIOL 209 Biology of Sustainability (4 credits)
- GEOL 115 Environmental Geology
  OR *ESCI 132 Intro to Environmental Science (4 credits each)*
- GEOL 252 Geomorphology
  OR GEOL 310 Environmental Geochemistry (4 credits each)
- CHEM 111 and 112 General Chemistry I and II (8 credits total)
  or CHEM 115 Accelerated General Chemistry (4 credits)
- PHYS 211 Classical Physics I (4 credits) OR *PHYS 109 General Physics I (an acceptable PHYS choice for Biology and Geosciences track majors only) (4 credits)*
- MATH 113 Calculus I (4 credits)
  OR MATH 108 and 109 Calculus with Review I and II (8 credits total)

All Chemistry track students must complete the following five (5) courses:

- CHEM 201 Organic Chemistry I (4 credits)
- CHEM 202 Organic Chemistry II (4 credits)
- CHEM 300 Quantitative Analysis (4 credits)
- MATH 114 Calculus II (4 credits)
- PHYS 212 Classical Physics II (4 credits)
Chemistry Electives - Plus one of the following courses

- CHEM 320 Instrumental Analysis (4 credits)
- CHEM 331 Chemical Thermodynamics and Reaction Dynamics (4 credits)
- CHEM 332 Quantum Chemistry and Molecular Spectroscopy (4 credits)
- CHEM 440 Biochemistry I (4 credits)
- CHEM 491 Research (4-credit option only)

Allied Electives - Plus 12 elective credits from the following, including at least 4 credits of courses with ECON/ENVR/GEOG/HIST/PHIL/POLS/PSYCH prefix. Additionally, if ESCI 132 is taken as Environmental Science core requirement, 4 credits of GEOL is required as an elective. (all courses are 4 credits each)

- BIOL 207 Genetics, Evolution and Ecology (4 credits)
- BIOL 208 Biological Communication & Energetics (4 credits)
- BIOL 211 Introduction to Field Research (4 credits)
- ECON 370 Environmental and Natural Resource Economics (4 credits)
- ENGR 123 Energy and the Environment (4 credits)
- ENVR 212 Society and Sustainability (4 credits)
- ECON 351 Environmental Policy (4 credits)
  or POLS 309 Environmental Policy (4 credits)
- GEOG 321 Geographic Info Systems (4 credits)
- GEOG 331 Conservation Geography (4 credits)
- GEOL 211 Earth Materials (4 credits)
- GEOL 220 Oceanography (4 credits)
- GEOL 252 Geomorphology (4 credits)
- GEOL 260 Regional Geology and Geological Field Methods (4 credits)
- GEOL 310 Environmental Geochemistry (4 credits)
- GEOL 410 Hydrogeology (4 credits)
- GEOL 491 Individual Research (2 or 4 credits)
- HIST 228 Environmental History (4 credits)
- PHIL 258 Environmental Ethics (4 credits)
- PSYC 334 Psychology of Sustainability (4 credits)
- STAT 310 Biostatistics (4 credits)

To help students meet specific academic goals, other classes may be taken for this requirement with prior approval from the ESCI director.
## Environmental Science (Geosciences Track) – B.S.

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<td>GEOL elective #1</td>
<td>Allied elective #1</td>
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| *This is an example 4-year plan. Specific sequence depends on math placement. Many courses could be taken in different semesters.*

### Requirements for Degree

- ESCI 310 Environmental Problem Solving (4 credits)
- ESCI 430 Senior Research Seminar (4 credits)
- BIOL 209 Biology of Sustainability (4 credits)
- GEOL 115 Environmental Geology
  - OR *ESCI 132 Intro to Environmental Science (4 credits each)*
- GEOL 252 Geomorphology
  - OR GEOL 310 Environmental Geochemistry (4 credits each)
- CHEM 111 and 112 General Chemistry I and II (8 credits total)
  - or CHEM 115 Accelerated General Chemistry (4 credits)
- PHYS 211 Classical Physics I (4 credits) OR *PHYS 109 General Physics I (an acceptable PHYS choice for Biology and Geosciences track majors only) (4 credits)*
- MATH 113 Calculus I (4 credits)
  - or MATH 108 and 109 Calculus with Review I and II (8 credits total)

All students in the Geosciences track must complete the following four (4) courses:

- BIOL 207 Genetics, Evolution and Ecology (4 credits)
- BIOL 333 Ecology or BIOL 335 Conservation Biology (4 credits)
- ENGR 123 Energy and the Environment (4 credits)
- STAT 220 Statistics I (4 credits)
**Geology Electives** - Plus 12 credits from the following (all courses are 4-credits):

- GEOL 162 Earth's Record of Climate (4 credits)
- GEOL 211 Earth Materials (4 credits)
- GEOL 220 Oceanography (4 credits)
- GEOL 252 Earth Surface Processes and Geomorphology (4 credits)
- GEOL 260 Regional Geology and Field Methods (4 credits)
- GEOL 461/BIOL 361 Medical Geology (4 credits)
- GEOL 410 Hydrogeology (4 credits)
- GEOL 462 Advanced Earth's Record of Climate (4 credits)
- GEOL 491 Research (4 credits)

**Allied Electives** - Plus 8 elective credits from the following, including at least 4 credits of courses with ECON/ENVR/GEOG/HIST/PHIL/POLs/PSYCH prefix. (all courses are 4 credits each)

- BIOL 208 Biological Communication & Energetics (4 credits)
- BIOL 211 Introduction to Field Research (4 credits)
- CHEM 201 Organic Chemistry I (4 credits)
- ECON 370 Environmental and Natural Resource Economics (4 credits)
- ENVR 212 Society and Sustainability (4 credits)
- ENVR 351 Environmental Policy (4 credits)
  or POLS 309 Environmental Policy
- GEOG 321 Geographic Info Systems (4 credits)
- GEOG 331 Conservation Geography (4 credits)
- HIST 228 Environmental History (4 credits)
- MATH 114 Calculus II (4 credits)
- PHIL 258 Environmental Ethics (4 credits)
- PHYS 212 Classical Physics II (4 credits)
- PHYS 110 General Physics II (4 credits)
- PSYC 334 Psychology of Sustainability (4 credits)
- STAT 310 Biostatistics (4 credits)
Minor in Environmental Science

Complete 12 credits from the list, including courses from at least two categories. No more than one 100-level course may be taken from a single category.

Biology

- BIOL 102 Conservation Biology (4 credits)
- BIOL 207 Genetics, Ecology, and Evolution (4 credits)
- BIOL 209 Biology of Sustainability (4 credits)
- BIOL 328 Environmental Toxicology and Health (4 credits)

Chemistry

- CHEM 101 Environmental Chemistry (4 credits)
- CHEM 109 General Chem for ENGR (4 credits)
- CHEM 111 General Chemistry I (4 credits)
- CHEM 115 Accelerated General Chemistry (4 credits)

Geology/Environmental Science

- ESCI 132 Intro to Environmental Science (4 credits)
- GEOL 111 Intro to Physical Geology (4 credits)
- GEOL 115 Environmental Geology (4 credits)
- GEOL 162 The Earth’s Record of Climate (4 credits)
- GEOL 163 Applied Geology (4 credits)
- GEOL 220 Oceanography (4 credits)
- GEOL 260 Regional Geol & Field Methods (4 credits)

Upper-level Environmental Science course. All students will complete this course. (4 credits)

- ESCI 310 Environmental Problem Solving (4 credits)

Capstone Course. Select one course from this list. (4 credits)

- ESCI 430 Senior Research Seminar (4 credits)
- ESCI 491 Independent Research (4 credits)
- ENGR 468 Environmental Engineering (4 credits)

Questions? Contact Dr. Chip Small,
Environmental Science Program Director (smal7939@stthomas.edu)