DEGREE PLANNING GUIDE

Environmental Science (Biology Track) – B.S. (updated 2025)

First year (<28 credits)	**Sophomore** (28-59 credits)	**Junior** (60-91 credits)	**Senior** (92+ credits)
Fall GEOL 115 or ESCI 132 CHEM 111 MATH 108 (or MATH 113)	Fall BIOL 209 ENGR 123 DASC 120	Fall ESCI 310 GEOL 252 (odd year) or GEOL 310 (even year)	Fall PHYS 109 Biology elective #2
Spring BIOL 207 MATH 109 (if taking 108/109) CHEM 112	Spring BIOL 208 Allied elective #1	Spring Biology elective #1 Allied elective #2	Spring ESCI 430 Biology elective #3

*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)

- DASC120 Introduction to Computational Statistics (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 222 MN Ecosystem Management (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 Geology in the Field (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. (updated 2025)

First year (<28 credits)	**Sophomore** (28-59 credits)	**Junior** (60-91 credits)	**Senior** (92+ credits)
Fall GEOL 115 or ESCI 132 CHEM 111 (or CHEM 115) MATH 113	Fall BIOL 209 CHEM 201 PHYS 211	Fall ESCI 310 CHEM 300	Fall GEOL 252 (odd year) or GEOL 310 (even year) Allied elective #2
Spring BIOL 207 CHEM 112 (or CHEM 115) MATH 114	Spring CHEM 202 PHYS 212	Spring Chemistry elective Allied elective #1	Spring ESCI 430 Allied elective #3

*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)
- ENVR 222 MN Ecosystem Management (4 credits)
- ENVR 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 Geology in the Field (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)
- DASC 210 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. (updated 2025)

First year (<28 credits)	**Sophomore** (28-59 credits)	**Junior** (60-91 credits)	**Senior** (92+ credits)
Fall GEOL 115 or ESCI 132 CHEM 111 (or CHEM 115) MATH 108 (or MATH 113)	Fall BIOL 209 ENGR 123	Fall ESCI 310 GEOL 252 (odd year) or GEOL 310 (even year)	Fall GEOL elective #3
Spring BIOL 207 CHEM 112 (or CHEM 115) MATH 109	Spring DASC 120 GEOL elective #1	Spring BIOL 333 Allied elective #1 GEOL elective #2	Spring ESCI 430 Allied elective #2

*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)
- DASC 120 Introduction to Computational Statistics (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 Geology in the Field (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 222 MN Ecosystem Management (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)
- DASC 210 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 Geology in the Field (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,
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