For students who entered IUB  
Fall 2015

Bachelor of Science in  
Environmental Science  
School of Public and Environmental Affairs (SPEA)  
College of Arts and Sciences (COLL)

While every effort has been made to provide accurate information, this requirement sheet is for advising purposes only and is not an official document. Refer to the Bachelor of Science in Environmental Science website: http://www.indiana.edu/~bses/curriculum/index.php for comprehensive information regarding major and degree requirements.

GENERAL EDUCATION

COMMON GROUND (~ 24-30cr)  
See http://gened.iub.edu/ for current requirements and course lists

FOUNDATIONS
• Both of the following requirements:
  o English Composition (3cr)
  o Mathematical Modeling (3-4cr) (satisfied by BSES requirements)

BREADTH OF INQUIRY
• The following three requirements:
  o Arts and Humanities (6cr)
  o Social and Historical Studies (6cr) (BSES majors encouraged to consider SPEA-V 220, CMCL-C 212, ECON-E 201 or E 202)
  o Natural and Mathematical Sciences (5-6cr) (satisfied by BSES requirements)

WORLD LANGUAGES AND CULTURES
• One of the following options:
  o Language Studies (through second year of single language)
  o World Culture courses (6cr)
  o International Experience (in approved study abroad program)

COMMUNICATION (9cr)
• One of the following courses:
  o ENG-W 231 Professional Writing Skills (3cr) (P: English composition)
  o ENG-W 240 Community Service Writing (3cr) (P: English composition)
  o ENG-W 270 Argumentative Writing (3cr) (P: English composition)

• One of the following courses:
  o CMCL-C 121 Public Speaking (3cr) (ended after fall 2013)
  o COLL-P 155 Public Oral Communication (3cr)
  o SPEA-V 260 Speaking, Listening, and Public Affairs (3cr)

• One course to satisfy the College of Arts and Sciences Intensive Writing requirement. For a list of Intensive Writing courses, see the Special Course Listings on the Registrar’s website at http://registrar.indiana.edu/specialcourse.shtml.

BSES FOUNDATION

MATHEMATICS, STATISTICS, AND COMPUTATION (12-16cr)
• One of the following options:
  o MATH-M 119 Brief Survey of Calculus I (3cr) (P: Two years high school algebra or MATH-M 014)  
    AND MATH-M 120 Brief Survey of Calculus II (3cr) (P: MATH-M 119)
  o MATH-M 211 Calculus I (4cr) (P: From high school: two years algebra, one year geometry, pre-calculus or equivalent, and trigonometry; or MATH-M 025 and M 026)

• One of the following courses:
  o MATH-K 310 Statistical Techniques (3cr) (P: MATH-M 119 or equivalent)
  o SPEA-K 300 Statistical Techniques (3cr) (P: MATH-M 014 or equivalent, R: MATH-M 118)
  o STAT-K 310 Statistical Techniques (3cr) (P: MATH-M 119 or equivalent)

• One of the following courses:
  o GEOG-G 250 Computing in the Geospatial Sciences (3cr) (P: One of MATH-M 118, M 119, M 211, or equivalent, or consent of instructor)
  o SPEA-E 325 Computing for Environmental Scientists (2cr)

• At least one of the following courses. Students interested in physical sciences, such as hydrology or atmospheric modeling, should take both MATH-M 212 and MATH-M 343:
  o CSCI-A 321 Computing Tools for Scientific Research (4cr) (P: MATH-M 118 or higher; M 211 recommended)
  o GEOG-G 488 Applied Spatial Statistics (3cr) (P: 6 cr of Geography or consent of instructor)
  o MATH-M 212 Calculus II (4cr) (P: MATH-M 211 or M 119 and X 201)
  o MATH-M 343 Introduction to Differential Equations with Applications I (3cr) (P: MATH-M 212)
  o MATH-M 365 Introduction to Probability and Statistics (3cr) (P: MATH-M 212)
  o SPEA-E 426 Applied Math for Environmental Science (3cr) (P: Differential and integral calculus)

CHEMISTRY (10-11cr)
• The following three requirements:
  o CHEM-C 117 Principles of Chemistry and Biochemistry I (3cr) (P: CHEM-C 101 and C 121, or C103, or chemistry and math placement exams and consent of department)
  o CHEM-C 127 Principles of Chemistry and Biochemistry I Laboratory (2cr) (P or C: CHEM-C 117)
• One of the following courses:
  o CHEM-A 314 Biological and Environmental Chemical Analysis (2cr) (P: CHEM-C 341, S 341, or R 340 and MATH-M 119 or M 211)
  o CHEM-C 342 Organic Chemistry II Lectures (3cr) (P: CHEM-C 341 or S 341)
  o SPEA-E 464 Organic Pollutants: Environmental Chemistry and Fate (3cr) (R: CHEM-C 341 or R 340)
  o GEOL-G 444 Methods in Analytical Geochemistry (2cr)
• Students considering a chemistry minor should take CHEM-C 341.

BIOLOGY (6cr)
• Both of the following courses:
  o BIOL-L 111 Foundations of Biology: Diversity, Evolution, and Ecology (3cr)
  o BIOL-L 112 Foundations of Biology: Biological Mechanisms (3cr) (P: High school or college chemistry)

PHYSICS (10cr)
• One of the following options:
  o PHYS-P 201 General Physics I (5cr) (P: MATH-M 026 or high school equivalent)
    AND PHYS-P 202 General Physics II (5cr) (P: PHYS-P 201 or high school equivalent)
  o PHYS-P 221 Physics I (5cr) (C: MATH-M 211 or consent of instructor)
    AND PHYS-P 222 Physics II (5cr) (P: PHYS-P 221, C: MATH-M 212 or consent of instructor)

ENVIRONMENTAL SCIENCE (30cr)
• One of the following courses:
  o BIOL-L 222 The City as Ecosystem (3cr)
  o GEOG-G 107 Physical Systems of the Environment (3cr)
  o GEOG-G 208 Environment and Society (3cr)
  o GEOL-G 171 Environmental Geology (3cr)
  o SPEA-E 272 Introduction to Environmental Science (3cr)

• Additional courses from the following list to total at least 27 credit hours. The complete course listing can be accessed here: http://www.indiana.edu/~bses/curriculum/index.php Students are strongly encouraged to select courses in consultation with an academic advisor or environmental science faculty member:
  o Up to 6 credits from the following research options. BSES students are encouraged to pursue independent research; however, no more than 6 credits from this category may be used to satisfy the 27 credits of environmental science course work.
    ▪ BIOL-L 490 Individual Study (1-12cr) (P: Overall GPA 2.50 and written permission of faculty member supervising research)
    ▪ GEOG-G 450 Undergraduate Readings and Research in Geography (1-3cr) (P: Consent of instructor)
    ▪ GEOL-G 410 Undergraduate Research in Geology (1-6cr) (P: Junior standing and consent of advisor)
    ▪ SPEA-E 490 Directed Research in Environmental Science (1-4cr)
  o Or other courses in environmental science approved by the BSES Program Chair

FIELD EXPERIENCE (5-6cr)
Courses used to satisfy the Field Experience Requirement cannot be used to satisfy any other degree requirement.
• One of the following options:
  o One field experience:
    ▪ GEOL-G 329 Introductory Field Experience in Environmental Science (5-6cr) (P: One course in environmental science and GEOL-G 225) (This is a summer course held at the Geologic Field Station in Montana and is typically taken after the sophomore year)
    ▪ GEOL-G 433 Geology, Hydrology and Geochemistry in the Rocky Mountains (6cr) (P: At least 22 credit hours of geology course work or consent of instructor)
    ▪ Comparable course at an approved biological field station (students interested in this option should consult the BSES Program Chair prior to attending the field station)
  o Two of the following courses:
    ▪ BIOL-L465 Advanced Field Biology (3cr) (P: BIOL-L 473 or equivalent and consent of instructor)
    ▪ GEOG-G 350 Field Methods in Physical Geography (3cr) (P: One of GEOG-G 107, G 109, G 185, G 208; or consent of instructor)
    ▪ SPEA-E 400 Topics in Environmental Studies: Plants and Plant Communities (3cr)
    ▪ SPEA-E 442 Habitat Analysis-Terrestrial (3cr)
    ▪ SPEA-E 443 Habitat Analysis-Aquatic (3cr)

ELECTIVES
Additional courses to reach 120 credit hours. Students are encouraged to pursue a minor, certificate, or second major in a biological, physical, or social science field that complements the interdisciplinary training provided by the B.S. in Environmental Science.