

COLLEGE OF NATURAL RESOURCES AND ENVIRONMENT
Department of Forest Resources and Environmental Conservation
Bachelor of Science in Forest Resources and Environmental Conservation
Major: Environmental Informatics

For students graduating in calendar year 2022 and for student date of entry under UG Catalog 2020-2021

Minimum credit hours required for graduation is 120. *Prerequisites or enrollment restrictions may apply to some courses. Consult the undergraduate course catalog or the timetable of classes.

Degree Core Requirements (21 credits)

- ___ FREC 2004 Forest Ecosystems **or** FREC 3314 Forest Ecology and Silvics* (3 credits) (*Students in Environmental Informatics should take FREC 2004 Forest Ecosystems.*)¹
- ___ FREC 2214 Introduction to Land and Field Measurements* (3 credits)
- ___ FREC 2314 Forest Biology and Dendrology* (2 credits)
- ___ FREC 2324 Dendrology Laboratory (1 credit)
- ___ FREC 2614 Human-Environment Systems* (3 credits)
- ___ FREC 4014 (NR 4014) Natural Resources Economics* (3 credits)
- ___ FREC 4114 Information Technologies for Natural Resources Management* (3 credits)
- ___ FREC 4434 Natural Resource Policy* (3 credits)

Environmental Informatics Major Requirements – (32 credits)

Computational Requirements (24 credits – complete all)

- ___ BIT 3424 Introduction to Business Analytics Modeling* (3 credits)
- ___ BIT 3514 Systems Analysis* (3 credits)
- ___ BIT 3524 Database Management and Design* (3 credits)
- ___ FREC 1004 (GEOG 1084) Digital Planet (3 credits)
- ___ FREC 1044 Introduction to Environmental Informatics (3 credits)
- ___ FREC 3004 Environmental Informatics (3 credits)
- ___ FREC 4044 Environmental Informatics Capstone* (3 credits)
- ___ FREC 4214 Forest Photogrammetry and Spatial Data Processing* (3 credits)

Computer Programming Requirement (3 credits – choose one)

- ___ CS 1044 Introduction to Programming in C (3 credits)
- ___ **or** CS 1064 Introduction to Programming in Python (3 credits)
- ___ **or** CS 1114 Introduction to Software Design (3 credits)

Data Management Requirement (3 credits – choose one)

- ___ CMDA 2014 Data Matter* (3 credits)
- ___ **or** STAT 2524 Data Science* (3 credits)

Natural Science Requirements (2 credits – complete all)

- ___ BIOL 1115 Principles of Biology Laboratory (1 credit)
- ___ BIOL 1116 Principles of Biology Laboratory (1 credit)

***NOTICE: Some courses have pre-requisites. Please check the Course Catalog for details.**

¹ Consult with your advisor regarding your forest ecology course selection. FREC 2004 Forest Ecosystems is strongly recommended for Environmental Informatics students.

Pathways to General Education Requirements (45 - 47 credits)

Pathways Concept 1: Discourse (9 credits)

- ___ COMM 1015 Communication Skills **or** ENGL 1105 First-Year Writing (3 credits)
- ___ COMM 1016 Communication Skills **or** ENGL 1106 First-Year Writing (3 credits)
- ___ Pathways Concept 1 Advanced course: _____ (3 credits)

Pathways Concept 2: Critical Thinking in the Humanities (6 credits)

- ___ Pathways 2 Concept course: _____ (3 credits)
- ___ Pathways 2 Concept course: _____ (3 credits)

Pathways Concept 3: Reasoning in the Social Sciences (6 credits)

- ___ AAEC 1005 Economics of Food & Fiber Systems **or** ECON 2005 Principles of Economics (3 credits)
- ___ Pathways Concept 3 course: _____ (3 credits)

Pathways Concept 4: Reasoning in the Natural Sciences (6 credits)

- ___ BIOL 1105 Principles of Biology (3 credits)
- ___ BIOL 1106 Principles of Biology (3 credits)

Pathways Concept 5: Quantitative and Computational Thinking (9 - 11 credits)

- ___ MATH 1025 Elementary Calculus **or** MATH 1225 Calculus of a Single Variable (3-4 credits)
- ___ MATH 1026 Elementary Calculus **or** MATH 1226 Calculus of a Single Variable (3-4 credits)
- ___ STAT 3615 Biological Statistics* (3 credits)

Pathways Concept 6: Critique and Practice in Design and the Arts (6 credits)

- ___ Pathways Concept 6 Design or Integrated course: _____ (3 credits)
- ___ Pathways Concept 6 Arts or Integrated course: _____ (3 credits)

Pathways Concept 7: Critical Analysis of Identity and Equity in the United States (3 credits)²

- ___ Pathways Concept 7 course: _____ (3 credits)

Free Electives (additional credit hours to total at least 120, estimated 20 - 22 credits)

IMPORTANT NOTES ON THE FOLLOWING PAGE

²A course taken to satisfy another area of Pathways that is also listed within Concept 7 will satisfy the Concept 7 requirement simultaneously

ENVIRONMENTAL INFORMATICS NOTES

- 1. Satisfactory Progress:** By the end of the semester in which the student has attempted 60 hours (including transfer, advanced placement, advanced standing, and credit by examination), "satisfactory progress" towards a B.S. degree in Forest Resources and Environmental Conservation will include the following minimum criteria:
 - Having an in-major and overall grade point average (GPA) of at least 2.0.
 - Passing at least 24 semester credits that apply to Pathways for General Education
 - Passing the following courses, or their equivalents: BIOL 1105, 1106 and 1115, 1116; MATH 1025 or 1225.
- 2. Foreign Language Requirement:** A sequence of two (2) foreign language courses is required for graduation unless two (2) high school credits of the same foreign language or six (6) transfer credit hours of foreign language have been earned. These credits do not count toward graduation. See catalog section on "Graduation Requirements."
- 3. Policy on Student Exchanges:** Studying overseas or at another U.S. university is a wonderful opportunity to enhance your education. However, planning for an exchange should begin at least 9 months prior to leaving. This will allow time to determine what substitutions, if any, will be allowed and to arrange your schedule at Virginia Tech to ensure that all requirements for graduation are met. You must complete an Exchange Program checklist (available in 138 Cheatham Hall) and obtain the required signatures before beginning the exchange program.
- 4. In-major GPA Computation:** All degree core and Environmental Informatics major requirements will factor into the in-major GPA.
- 5. Curriculum Planning:** Students should plan early with their advisors to determine appropriate sequences for their courses. Some courses must be taken in sequence to satisfy prerequisites.
- 6. Degree Requirements:** An in-major and overall GPA of 2.0 is required for graduation. Minimum hours for degree is 120.
- 7.** In accordance with university guidelines, courses satisfying degree core requirements may not be double counted to satisfy other areas of a degree (e.g. Pathways requirements).
- 8. *Prerequisites:** Some of the listed courses have prerequisites. Be sure to consult with the University Catalog or check with your advisor.