

COLLEGE OF NATURAL RESOURCES AND ENVIRONMENT
Department of Sustainable Biomaterials
Bachelor of Science in Sustainable Biomaterials
Major in Sustainable Biomaterials
For students entering under UG Catalog 2022 - 2023

Minimum credit hours required for graduation is 120.

Sustainable Biomaterials Degree Core Requirements - 25 credit hours

- SBIO 1234 Introduction to Wood, Design, and Craftsmanship (3)
- SBIO 2124 Structure and Properties of Sustainable Biomaterials (3) (Pre: BIOL 1005, CHEM 1035)
- SBIO 3004 Sustainable Nature-based Enterprise (3)
- SBIO 3314 Mechanics of Sustainable Biomaterials and Packaging (4) (Pre: PHYS 2205 or PHYS 2305)
- SBIO 3524 Manufacture of Sustainable Biomaterials for Structures (3) (Pre:2124)
- STAT 2004 Introductory Statistics (3) (Pre: MATH 1014 or MATH 1025 or MATH 1225 or MATH 1524 or MATH 1525)

Choose one:

- SBIO 1114 A Sustainable Future Through Circular Economy (3)
- SBIO 2614 Introduction to Forest Products Marketing (3)
- SBIO 3454 Society, Sustainable Biomaterials and Energy (3)
- SBIO 3464 Sustainable Operations Management (3) (Pre: STAT 2004 or STAT 3615)

Choose one:

- SBIO 3445 Entrepreneurial Wood Design and Innovation (3)
- SBIO 3954 Study Abroad (3)
- SBIO 3964 Field Study (3)
- SBIO 4994 Undergraduate Research (3)

Creating Sustainable Society Track Requirements - 21 credit hours

- AAEC 3314 Environmental Law (3)
- PHYS 2205 General Physics (3) (Pre: MATH 1016 or MATH 1016H or MATH 1025 or MATH 2015 or MATH 1026 or MATH 1205 or MATH 1205H or MATH 1525 or MATH 1535 or MATH 1225 or MATH 1225H)
- SBIO 3324 Green Building Systems (3)
- SBIO 3554 Sustainable Biomaterials Enterprises (3) (Pre: 1234)
- SBIO 4714 Performance of Sustainable Biomaterials in Buildings (3) (Pre: 2124)

Choose either the following 2 ENGR courses or the following 2 NR courses (6 credit hours)

- ENGR 3124 Introduction to Green Engineering (3) (Pre: CHEM 1035 or CHEM 1074, ENGE 1216 or ENGE 1104 or ENGE 1114, PHYS 2306)
 - ENGR 4134 Environmental Life Cycle Assessment (3) (Pre: ENGR 3124)
- or
- GEOG/NR 1115 Seeking Sustainability (3)
 - GEOG/NR 1116 Seeking Sustainability (3) (Pre: GEOG/NR 1115)

Free electives - 28 credit hours

_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

Sustainable Biomaterials Business Track Requirements – 30 credit hours

- ___ ACIS 2115 Principles of Accounting (3)
- ___ PHYS 2205 General Physics (3) (Pre: MATH 1016 or MATH 1016H or MATH 1025 or MATH 2015 or MATH 1026 or MATH 1205 or MATH 1205H or MATH 1525 or MATH 1535 or MATH 1225 or MATH 1225H)
- ___ MGT 3064 Cornerstones of Entrepreneurship and Innovation (3)
- ___ MGT 3304 Management Theory and Leadership Practice (3) (Pre: Sophomore standing)
- ___ SBIO 2614 Introduction to Forest Products Marketing (3)
- ___ SBIO 3445 - 3446 Entrepreneurial Wood Design and Innovation (3, 3)
- ___ SBIO 3464 Sustainable Operations Management (3) (Pre: STAT 2004 or STAT 3615)
- ___ SBIO 3554 Sustainable Biomaterials Enterprises (3) (Pre: 1234)
- ___ SBIO 4714 Performance of Sustainable Biomaterials in Buildings (3) (Pre: 2124)

Free electives – 19 credit hours

Sustainable Biomaterials Science Track Requirements - 36 credit hours

- ___ BCHM 3114 Biochemistry for Biotechnology and the Life Sciences (3) (Pre: CHEM 2536 or CHEM 2566)
- ___ CHEM 1036 General Chemistry (3) (Pre: CHEM 1035 or CHEM 1055 or CHEM 1055H. Co: MATH 1025 or MATH 1225)
- ___ CHEM 2114 Analytical Chemistry (3) (Pre: CHEM 1036 or CHEM 1056 or CHEM 1056H. Co: CHEM 2124)
- ___ CHEM 2124 Analytical Chemistry Laboratory Techniques and Practice (1) (Pre: CHEM 1046 or CHEM 1066. Co: CHEM 2114)
- ___ CHEM 2535 Organic Chemistry (3) (Pre: CHEM 1036 or CHEM 1056 or 1056H or ISC 1106 or ISC 1106H)
- ___ CHEM 2536 Organic Chemistry (3) (Pre: CHEM 2535 or CHEM 2565 or CHEM 2565H)
- ___ CHEM 2545 Organic Chemistry Laboratory (1) (Pre: CHEM 1046 or CHEM 1066 or ISC 1116. Co:CHEM 2565, CHEM 2535)
- ___ CHEM 2546 Organic Chemistry Laboratory (1) (Pre: CHEM 2545. Co: CHEM 2536)
- ___ CHEM 4615 Physical Chemistry for the Life Sciences (3) (Pre: CHEM 1036 or CHEM 1056 or CHEM 1056H, MATH 1026 or MATH 1226, PHYS 2206 or PHYS 2306)
- ___ PHYS 2205 General Physics (3) (Pre: MATH 1016 or MATH 1016H or MATH 1025 or MATH 2015 or MATH 1026 or MATH 1205 or MATH 1205H or MATH 1525 or MATH 1535 or MATH 1225 or MATH 1225H)
- ___ PHYS 2206 General Physics (3) (Pre: PHYS 2205 or PHYS 2305)
- ___ SBIO 3434 Chemistry and Conversion of Sustainable Biomaterials (3) (Pre: CHEM 1036)
- ___ SBIO 4444 Plant Polymers and Biocomposites (3) (Pre: CHEM 2514 or CHEM 2536)

Choose one:

- ___ SBIO 3444 Sustainable Biomaterials and Bioenergy (3) (Pre: CHEM 2514 or CHEM 2535, CHEM 3615 or CHEM 4615)
- ___ SBIO 4424 (CHEM 4424)/SBIO 5424G (CHEM 5424G) Polysaccharide Chemistry (3) (Pre: CHEM 2536 or CHEM 2566)

Free electives - 13 credit hours

Sustainable Residential Structures Track Requirements - 21 credit hours

- ___ CHEM 1036 General Chemistry (3) (Pre: CHEM 1035 or CHEM 1055 or CHEM 1055H. Co: MATH 1025 or MATH 1225)
- ___ PHYS 2205 General Physics (3) (Pre: MATH 1016 or MATH 1016H or MATH 1025 or MATH 2015 or MATH 1026 or MATH 1205 or MATH 1205H or MATH 1525 or MATH 1535 or MATH 1225 or MATH 1225H)
- ___ RED 2604 Residential Design (3)
- ___ SBIO 2314 Building Information Modeling for Wood-based Construction (3)
- ___ SBIO 3324 Green Building Systems (3)
- ___ SBIO 4314 (CEM 4314) (CNST 4314) Design of Wood Structures (3) (Pre: SBIO 3314 or CEE 3404)
- ___ SBIO 4714 Performance of Sustainable Biomaterials in Buildings (3) (Pre: SBIO 2124)

Free electives - 28 credit hours

Pathways Requirements – 46 credit hours

Pathways Concept 1: Discourse (6 foundational credits, 3 applied/advanced credit hours required)

- ___ ENGL 1105 First-year Writing (3)
- ___ ENGL 1106 First-year Writing (3) (Pre: ENGL 1105)
- ___ Concept 1 applied/advanced course: _____

Pathways Concept 2: Critical Thinking in the Humanities (6 credit hours required)

- ___ Concept 2 course: _____
- ___ Concept 2 course: _____

Pathways Concept 3: Reasoning in the Social Sciences (6 credit hours required)

- ___ ECON 2005 Principles of Economics (3)
- ___ ECON 2006 Principles of Economics (3) (Pre: ECON 2005 or 2116 or 2126 or 2025H)

Pathways Concept 4: Reasoning in the Natural Sciences (7 credit hours required)

- ___ BIOL 1105 Principles of Biology (3)
- ___ CHEM 1035 General Chemistry (3)
- ___ CHEM 1045 General Chemistry Laboratory (1) (Co: CHEM 1035)

Pathways Concept 5: Quantitative and Computational Thinking (6 foundational credits, 3 applied/advanced credit hours required)

- ___ MATH 1025 Elementary Calculus (3)
- ___ MATH 1026 Elementary Calculus (3) (Pre: MATH 1025)
- ___ SBIO 2504 Circular Economy Analytics for Sustainable Systems (3) (Pre: MATH 1025 or MATH 1225 or MATH 1524 or MATH 1535 or MATH 1525)

Pathways Concept 6: Critique and Practice in Design and the Arts (6 credit hours required)

___ Choose a 3-credit DESIGN or INTEGRATED course from the approved list

___ Choose a 3-credit ART or INTEGRATED course from the approved list

Pathways Concept 7: Critical Analysis of Identity and Equity in the United States (3 credit hours required, may be double-counted with another core outcome or major requirement)

___ Concept 7 course: _____

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 the College of Natural Resources and Environment will include the following minimum criteria:

- Having a grade point average of at least 2.0
- Passing at least 24 semester credits that apply to Pathways for General Education
- Passing the required 1000-level courses in Biology, Chemistry, English, and Math

Foreign Language Requirement

__ 2 years of one language in high school or __ FL 1105 and 1106 if less than two years of one language in high school

Sequencing

Courses should be taken in a sequence that ensures that prerequisite or co-requisite requirements are met. Free elective courses may also have prerequisite requirements. Students should plan ahead and ensure that they have completed prerequisites or are enrolled in co-requisite courses. If a student chooses to take CHEM 2114 Analytical Chemistry Laboratory Techniques and Practice, then they must also complete CHEM 1046 or CHEM 1066 in addition to the co-requisite for this course. Prerequisite: Some courses required for this major have prerequisites. Please refer to Undergraduate Course Catalog or consult your advisor for information about prerequisite requirements.

In-major GPA computation

Includes all courses designated SBIO. The acceptable cumulative minimum is 2.0