COLLEGE OF NATURAL RESOURCES AND ENVIRONMENT
Department of Sustainable Biomaterials
Bachelor of Science in Sustainable Biomaterials
Major in Sustainable Biomaterials
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.

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 1105, CHEM 1035)
____ SBIO 3004 Sustainable Nature-based Enterprise (3)
____ SBIO 3314 Mechanics of Sustainable Biomaterials and Packaging (4) (Pre: MATH 1016, PHYS 2205)
____ SBIO 3524 Manufacture of Sustainable Biomaterials for Structures (3)
____ STAT 2004 Introductory Statistics (3) (Pre: MATH 1014 or MATH 1025 or MATH 1225 or MATH 1524 or MATH 1525)

Choose one:
____ SBIO 2614 Introduction to Forest Products Marketing (3)
____ SBIO 3454 Society, Sustainable Biomaterials, and Energy (3)
____ SBIO 3464 Forest Products Business Systems (3) (Pre: SBIO 2614)

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: SBIO 1234)
____ SBIO 4714 Performance of Sustainable Biomaterials in Buildings (3) (Pre: SBIO 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 1116)

Free electives - 28 credit hours

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Forest Products 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 Forest Products Business Systems (3) (Pre: SBIO 2614)
____ SBIO 3554 Sustainable Biomaterials Enterprises (3) (Pre: SBIO 1234)
____ SBIO 4714 Performance of Sustainable Biomaterials in Buildings (3) (Pre: SBIO 2124)

Free electives – 19 credit hours

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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

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Sustainable Residential Structures Track Requirements - 18 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 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 - 31 credit hours

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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) (Co: BIOL 1115)
____ 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)
____ Concept 5 applied/advanced course: _____

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