

SUSTAINABLE BIOMATERIALS SCIENCE MAJOR OPTION

Program Curriculum

Minimum credit hours required for graduation is 120.

Code	Title	Credits
Degree Core Requirements (24 credit hours)		
SBIO 1024	Systems Thinking in a Bioeconomy	3
SBIO 1114	A Sustainable Future through Circular Economy	3
SBIO 2124	Structure and Properties of Sustainable Biomaterials	3
SBIO 3454	Society, Sustainability Biomaterials and Energy	3
SBIO 3524	Manufacture of Sustainable Biomaterials for Structures	3
SBIO 4164	Sustainability Performance and Assessments	3
STAT 3615	Biological Statistics	3
STAT 3616	Biological Statistics	3
Subtotal		24
Sustainable Biomaterials Science Option Required Courses (35 credit hours)		
CHEM 1036	General Chemistry	3
CHEM 1046	General Chemistry Laboratory	1
CHEM 2114	Analytical Chemistry	3
CHEM 2124	Analytical Chemistry Laboratory Techniques and Practice	1
CHEM 2535	Organic Chemistry	3
CHEM 2536	Organic Chemistry	3
CHEM 2545	Organic Chemistry Laboratory	1
CHEM 2546	Organic Chemistry Laboratory	1
CHEM 4615	Physical Chemistry for the Life Sciences	3
PHYS 2205	General Physics	3
PHYS 2206	General Physics	3
SBIO 3314	Mechanics of Sustainable Biomaterials and Packaging	4
SBIO 3434	Chemistry and Conversion of Sustainable Biomaterials	3
SBIO 3444	Sustainable Biomaterials and Bioenergy	3
or SBIO 4424	Polysaccharide Chemistry	
Subtotal		35
Restricted Electives (3 credit hours)		
Select one of the following:		3
SBIO 2614	Introduction to Forest Products Marketing	
SBIO 3464	Sustainable Operations Management	
SBIO 4384	Biorefinery Science	
Subtotal		3
Additional Course Requirements (3 credit hours)		
Select one of the following:		3
SBIO 3445	Entrepreneurial Wood Design and Innovation	
SBIO 3446	Entrepreneurial Wood Design and Innovation	
SBIO 3954	Study Abroad	
SBIO 3964	Field Study	

SBIO 2994	Undergraduate Research	
SBIO 3994	Undergraduate Research	
SBIO 4994	Undergraduate Research	
Subtotal		3
Free Electives (9 credit hours)		
Choose nine (9) credit hours		9
Subtotal		9
Pathways to General Education Requirements (46 credit hours)		
Pathways Concept 1 - Discourse		
ENGL 1105	First-Year Writing	3
or COMM 1015	Communication Skills	
ENGL 1106	First-Year Writing	3
or COMM 1016	Communication Skills	
Select three (3) credits in Pathway 1a (https://catalog.vt.edu/course-search/?attrs_pathways=attrs_pathways_G01A)		3
Pathways Concept 2 - Critical Thinking in the Humanities		
Select six (6) credits in Pathway 2 (https://catalog.vt.edu/course-search/?attrs_pathways=attrs_pathways_G02)		6
Pathways Concept 3 - Reasoning in the Social Sciences		
ECON 2005	Principles of Economics	3
ECON 2006	Principles of Economics	3
Pathways Concept 4 - Reasoning in the Natural Sciences		
BIOL 1105	Principles of Biology	3
CHEM 1035	General Chemistry	3
CHEM 1045	General Chemistry Laboratory	1
Pathways Concept 5 - Quantitative and Computational Thinking		
MATH 1025	Elementary Calculus (5F)	3
MATH 1026	Elementary Calculus (5F)	3
SBIO 2504	Circular Economy Analytics for Sustainable Systems (5A)	3
Pathways Concept 6 - Critique and Practice in Design and the Arts		
Select three (3) credits in Pathway 6d (https://catalog.vt.edu/course-search/?attrs_pathways=attrs_pathways_G06D)		3
Select three (3) hours in Pathway 6a (https://catalog.vt.edu/course-search/?attrs_pathways=attrs_pathways_G06A)		3
Pathways Concept 7 - Critical Analysis of Identity and Equity in the United States		
Select three (3) credits in Pathway 7 (https://catalog.vt.edu/course-search/?attrs_pathways=attrs_pathways_G07) that may be double-counted with another core outcome or major requirement		3
Subtotal		46
Total Credits		120

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

Graduation Requirements

In-major GPA Computation

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

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. Some courses required for this major have prerequisites. Please refer to Undergraduate Course Catalog or consult your advisor for information about prerequisite requirements.

Foreign Language Requirement

2 years of one language in high school or an 1105-1106 foreign language (e.g., FR, GR, SPAN) grouping if less than two years of one language in high school.