

Department of Sustainable Bioproducts

Major Advisor: Dr. Mike Barnes

Office: Room 5102, Building 5 Sustainable Bioproducts Laboratory at 201 Locksley Way

The bioproducts industry is one of the largest economic contributors to Mississippi, as well as in the United States. Employment in the timber conversion, engineered composites, pulp and paper, logging, and furniture manufacturing is widely available. Mississippi's bioproducts industry recognizes the need for well-trained employees to help increase the conversion efficiencies and alter manufacturing processes to allow compatibility with a changing raw material base. The industry and its allied disciplines are large in terms of employment in Mississippi and nationwide.

The mission of the Department of Sustainable Bioproducts is to enhance the intellectual, cultural, social, and professional development of its students by providing them with knowledge and skills needed to utilize and conserve diverse forest and other resources effectively. In this regard, the Department's primary teaching responsibility is to provide high quality educational opportunities necessary to adequately prepare students for professional and scientific careers in sustainable bioproducts manufacturing, technology, business, and related fields.

The Department of Sustainable Bioproducts' physical plant consists of five laboratory/office buildings and other special purpose buildings and the Franklin Center for Furniture Manufacturing and Management, with a combined floor space in excess of 90,000 square feet. These buildings house the analytical and testing equipment, laboratories, pilot plants, and support facilities required for a comprehensive research program involving wood and biobased products.

Presently, students interested in a sustainable bioproducts curriculum have the option of the Sustainable Bioproducts undergraduate or graduate program.

Sustainable Bioproducts Major

Students majoring in sustainable bioproducts will develop a strong foundation in properties, manufacturing, environmental implications, sales, and trading of products derived from wood and non-wood materials that come from agricultural residues and other natural fibers. Besides structural materials, specialty chemicals such as polymers and adhesives from natural resources, and bio-based energy such as wood pellets, bio-oil and alcohols are increasingly important with respect to sustainable industrial production. In addition to utilizing timber and agricultural residues, the discipline seeks to make materials last longer and enhance sustainability via preservative treatments and improved design.

Sustainable Bioproducts Minor

A Sustainable Bioproducts minor is available to non-majors to provide students with the knowledge of wood products, and bio-based composites, polymers, chemicals and fuels. The courses focus on material properties, environmental issues, and manufacturing principles, as well as their marketing and sales. The topics complement many fields that deal with natural materials: construction, design, business and production management, and scientific fields such as chemistry, engineering and environmental and biotechnology. A minor in Sustainable Bioproducts will also provide non-major students an excellent background for entering a graduate degree program in Sustainable Bioproducts. Academic advising is available in the Department of Sustainable Bioproducts located at 201 Locksley Way. A total of 18 hours is required to obtain a Sustainable Bioproducts minor.

English (General Education)

| | | |
|------------|----------------------------|---|
| EN 1103 | English Composition I | 3 |
| or EN 1163 | Accelerated Composition I | |
| EN 1113 | English Composition II | 3 |
| or EN 1173 | Accelerated Composition II | |

Fine Arts (General Education)

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| Any General Education course | | 3 |
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Natural Sciences

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|----------|------------|---|
| BIO 1134 | Biology I | 4 |
| BIO 1144 | Biology II | 4 |

Additional Science

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| CH 1043 | Survey of Chemistry I | 3 |
| CH 1053 | Survey of Chemistry II | 3 |
| CH 1051 | Experimental Chemistry | 1 |

Math (General Education)

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|------------|---------------------------------------|---|
| MA 1313 | College Algebra | 3 |
| MA 1323 | Trigonometry | 3 |
| ST 2113 | Introduction to Statistics | 3 |
| or ST 3123 | Introduction to Statistical Inference | |

Humanities (General Education)

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|--------------------|---|
| Any Gen Ed courses | 6 |
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Social/Behavioral Sciences (General Education)

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| Any course from Gen Ed list | 3 |
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| Choose one of the following Economics courses: | 3 |
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| AEC 2713 | Introduction to Food and Resource Economics |
| or EC 2113 | Principles of Macroeconomics |
| or FO 4113 | Forest Resource Economics |

Oral Communicaton Requirement

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|---------|---------------------------------|---|
| CO 1003 | Fundamentals of Public Speaking | 3 |
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Writing Requirement

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| AELC 3203 | Professional Writing in Agriculture, Natural Resources, and Human Sciences | 3 |
| or MGT 3213 | Organizational Communications | |
| or BIO 3013 | Professional Writing for Biologists | |

Major Core Courses (Required)

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| SBP 1103 | Introduction to Sustainable Bioproducts | 3 |
| SBP 1203 | Anatomy of Wood and other Natural Materials | 3 |
| SBP 2012 | Introduction to Bioproduct Industries | 2 |
| SBP 2123 | Materials and Processing in Sustainable Bioproducts | 3 |
| SBP 3113 | Biomaterial Phys Mech | 3 |
| SBP 3123 | Biomass to Bioproducts | 3 |
| SBP 4253 | Quantitative Methods in Sustainable Bioproducts | 3 |
| SBP 4313 | Bioproducts and the Environment | 3 |
| SBP 4333 | Bioproducts and Environmental Biotechnology | 3 |
| SBP 4443 | Capstone Sustainable Bioproducts | 3 |

Major Courses Professional Electives

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| SBP 3143 | Biomass Characteristics and Production | 3 |
| SBP 4000 | Directed Individual Study | 6 |
| SBP 4023 | Lignocellulosic Biomass Chemistry | 3 |
| SBP 4113 | Adhesives and Biocomposites | 3 |
| SBP 4133 | Biorefinery Processes | 3 |
| SBP 4144 | Biocomposite Application and Manufacturing | 4 |
| SBP 4153 | Biological Conversion of Biomass | 3 |
| SBP 4213 | Deterioration and Preservation of Biomaterials | 3 |
| SBP 4243 | Sustainable Bioproducts | 3 |
| SBP 4450 | Undergraduate Research in Sustainable Bioproducts | 1-6 |

Professional Electives

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| Choose any class that is 3000 level or above from the following subjects: ABE, AEC, ARC 2713, BCH, BCS, BIO, BIS, BL, CE, CH, EC, EE, EG, EM, EPP, FIN, FO, GR, IE, TKI, LA, MGT, MKT, MA, ME, NREC, PH, PS, PSS, SBP, ST, WFA | 18 |
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| Free Electives | 8 |
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| Total Hours | 124 |
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