

# SUSTAINABLE BIOMATERIALS

## Fall/Spring Semester *Forest Products Business, Sustainable Residential Structures, Creating Sustainable Society and Sustainable Biomaterials Science* Introductory Courses

Students to view the timetable for any of the classes follow:

<https://banweb.banner.vt.edu/ssb/prod/HZSKVTSC.P.DispRequest>

Set the "Subject" box to "SBIO" and click "FIND class sections" for the desired semester.

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To help you explore your interest in the **Department of Sustainable Biomaterials**, we recommend the following courses for the fall and spring semesters, depending on your area of interest.

### Fall Recommendations

#### Introduction to Wood, Design, and Craftsmanship (SBIO 1234)

Always had an interest in learning about and using wood? This course combines lecture and hands-on activities to teach you about the special characteristics of wood and how it is used and processed into great numbers of products. Learn about majoring in wood science, and about the diverse career opportunities available in the of forest products sector. There are no pre-requisites.

#### Global Forest Sustainability (SBIO 2784/FREC 2784)

This course offers a socio-economic approach to examining the management and use of the world's forests, enhance knowledge of global forest resources and products, and understand the roles and relationships of key stakeholders. This is a CLE core curriculum course (Core Area 7: Critical Issues in a Global Context). Cross listed as FOR 2784, CRN 93195. There are no pre-requisites.

#### Sustainable Nature-based Enterprises (SBIO 3004)

This green business class is recommended for all students at the sophomore or higher level who are interested in the concepts of sustainability, decisions related to developing green business strategies and action plans, and current product certification, eco-labeling and chain of custody programs. Open to all majors. There are no pre-requisites.

#### Entrepreneurial Design and Innovation (SBIO 3446)

Gain "hands-on" learning that only comes by leading and managing real day-to-day production business operations. Apply team-based work to develop your own business plan to be implemented. Keep score in terms of business and financial metrics to help manage operations efficiently. In this course you will become successful problem solvers and leaders to help improve and sustain a business. The pre-requisite for SBIO 3446 is SBIO 3445.

#### Green Building Systems (SBIO 3324)

This class reviews the concepts of sustainability and the basis for decisions made related to green building applied to residential housing, which is largely composed of wood structures. Popular green building certification system programs, including LEEDS, National Green Building Standard and Earthcraft Virginia will be discussed. There are no pre-requisites.

#### Principles of Packaging (SBIO 2104)

Are you interested in learning about the third largest industry in the world? The packaging industry is a global multimillion dollar industry. The course will cover the major aspects of this multidisciplinary field including introduction about packaging systems, materials, requirements of global societies, environmental aspects of packaging, international marking principles, and laws and regulations. There are no pre-requisites.

#### Structure and Properties of Biomaterials (SBIO 2124)

Learn about the macroscopic and microscopic structure and chemical composition of wood and other biomaterials such as grasses, bamboo, corn stover, and bagasse. Study and experiment with relationships between anatomical structure and physical/mechanical behavior of materials. Learn how to identify commercially important biomaterials. Prepare and analyze microscope slides and scanning electron micrographs. Weekly lab. The pre-requisites for this course are CHEM 1035 and BIOL 1005.

### Spring Recommendations

#### Introduction to Forest Products Marketing (SBIO 2614)

Study of marketing systems and methods used by North American primary and secondary forest product industries. Emphasis on wood product industries. Marketing of hardwood lumber, softwood lumber, panels, composites, furniture, and paper products. Role of North American industries and markets in world trade of forest products. (3H,3C)

#### Introduction to Wood, Design, and Craftsmanship (SBIO 1234)

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#### Society, Sustainable Biomaterials and Energy (SBIO 3454)

Sustainability, raw materials and energy needs of society. Use of sustainable biomaterials to meet society's needs and reduce impact on environment. Methods to evaluate and certify the sustainability of materials and consumer goods. Carbon sequestration and the use biomass for energy. (3H,3C). No prerequisites.

#### Behavior of Sustainable Biomaterials (SBIO 2384)

Physical properties of plant-derived materials and biobased polymer composites. Measurement techniques. Structure and influence on transport properties, response to heat, moisture, electricity, and light. The pre-requisites for this course are CHEM1035 and PHYS 2205.

#### Society, Sustainable Biomaterials and Energy (SBIO 3454)

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For more information, contact us at [sbio@vt.edu](mailto:sbio@vt.edu).