

FOREST AND SUSTAINABLE PRODUCTS (FSP)

FSP 100 Introduction to Forest and Sustainable Products **2 credits**

Examination of the forest and sustainable materials industries and bioenergy products. Discovery laboratory in the use of forest and sustainable materials, including waste streams, to create marketable products. One lecture and one three-hour lab per week.

FSP 203 (s) Workshop **Credit arranged**

FSP 204 (s) Special Topics **Credit arranged**

FSP 299 (s) Directed Study **Credit arranged**

FSP 321 Properties of Forest and Sustainable Products **3 credits**

Physiology, structure, and physical and mechanical properties of wood and other natural cellulosic fibers.

FSP 400 (s) Seminar **Credit arranged**

FSP 401 Undergraduate Research **1-3 credits**

Directed undergraduate research at the upper division level.
Prereq: Junior or Senior standing.

FSP 403 (s) Workshop **Credit arranged**

FSP 404 (s) Special Topics **Credit arranged**

FSP 405 (s) Professional Development **Credit Arranged**

Credit earned in this course will not be accepted toward graduate degree programs.
Prereq: Permission.

FSP 436 Biocomposites **3 credits**

Joint-listed with FSP 536
Raw material, processes, properties, and their applications for a number of natural fiber and wood composites made of veneers, particles, and fibers. Additional projects and assignments required for graduate credit. Two half-day field trips. Two lectures and one 3-hour lab per week. (Fall only)
Prereq: CHEM 101 and FSP 321; and CHEM 275 or CHEM 277.

FSP 438 Introduction to Lignocellulosic Chemistry **1 credit**

Joint-listed with FSP 538
The chemistry of lignocellulosic fiber (natural fiber and wood) formation and structure. Two lectures a week for the first half of the semester. (Spring only)
Prereq: CHEM 101 or CHEM 111; and CHEM 275 or CHEM 277

FSP 444 Primary Forest Products Manufacturing **3 credits**

Raw materials, procurement, production methods, drying product specifications, and grading for primary products made from wood and cellulosic fiber including lumber, plywood, poles, and energy products; plant layout, machines, and systems analysis; plant tours. Two lectures and one 5-hour lab per week.

Prereq: FSP 321

FSP 450 Biomaterials Deterioration and Protection **3 credits**

Biotic and abiotic agents that deteriorate biomaterials; biocidal and nonbiocidal methods used to protect biomaterials from deterioration; biodegradable materials and their applications. Two one-hour lectures and one three-hour lab per week. Recommended preparation: FSP 321.

FSP 473 Ecology and Conservation Biology Senior Thesis **1 credit**

Gen Ed: Senior Experience

Cross-listed with FISH 473, FOR 473, NRS 473, REM 473, and WLF 473
Reporting and presenting the senior project (thesis or internship); taken after or concurrently with 485 or 497. Serves as the senior capstone course for Ecology and Conservation Biology (ECB).

Prereq: Instructor Permission.

FSP 491 Biomaterial Product and Process Development Lab **2 credits**

Lab to accompany FSP 495. One 3-hour lab per week. (Spring only)
Prereq: ECON 201 or ECON 202; and FSP 495.

FSP 495 Product Development and Brand Management **3 credits**

Gen Ed: Senior Experience

Cross-listed with MKTG 495

This course examines product development strategy and the management of brands. Topics will include strategic intent of product development, the process of product development (ideation through post product launch evaluation), market and financial feasibility of product development, trends in product development, and managing brands (strategic brand management and managing brand equity).

Prereq: ECON 201 and ECON 202; or ECON 272

Coreq or Prereq: MKTG 321.

FSP 498 Forest and Sustainable Products Internship **Credit arranged**

Supervised field experience with an appropriate organization. Graded P/F.

FSP 499 (s) Directed Study **Credit arranged**

For the individual student; conferences, library, field, or lab work.
Prereq: Senior standing, GPA 2.5, or Permission.

FSP 500 Master's Research and Thesis **Credit arranged**

FSP 501 (s) Seminar **Credit arranged**

Major philosophy, management, and research problems of forest products industries; presentation of individual studies on assigned topics.

Prereq: Permission.

FSP 502 (s) Directed Study **Credit arranged**

FSP 503 (s) Workshop

Credit arranged

Selected topics in the conservation and management of natural resources.

Prereq: Permission.

FSP 504 (s) Special Topics

Credit arranged

FSP 505 (s) Professional Development

Credit arranged

Credit earned in this course will not be accepted toward graduate degree programs.

Prereq: Permission.

FSP 536 Biocomposites

3 credits

Joint-listed with FSP 436

Raw material, processes, properties, and their applications for a number of natural fiber and wood composites made of veneers, particles, and fibers. Additional projects and assignments required for graduate credit. Two half-day field trips. Two lectures and one 3-hour lab per week. (Fall only)

Prereq: CHEM 101 and FSP 321; and CHEM 275 or CHEM 277.

FSP 538 Lignocellulosic Biomass Chemistry

3 credits

Joint-listed with FSP 438

The chemistry of lignocellulosic fiber (natural fiber and wood) formation and structure. Two lectures a week for the first half of the semester. (Spring only)

Prereq: CHEM 101 or CHEM 111; and CHEM 275 or CHEM 277

FSP 598 (s) Internship

Credit arranged

FSP 599 (s) Research

Credit arranged

Research not directly related to a thesis or dissertation.

Prereq: Permission

FSP 600 Doctoral Research and Dissertation

Credit arranged

Prereq: Admission to the doctoral program in Natural Resources and Department Permission.