Fiber and Polymer Science

Minor Program Requirements:

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<th>Course Description</th>
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<td>Fiber and Polymer Science</td>
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<td>Textiles and Clothing 6 or Engineering</td>
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<td>Courses selected from the following: Fiber and Polymer Science 100, 150, 161, 161L, 180A and 180B, and Textiles and Clothing 163 and 163L</td>
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Minor Adviser: Y. L. Hsieh

Courses in Fiber and Polymer Science (FPS)

Upper Division

100. Principles of Polymer Materials Science

Lecture—3 hours. Prerequisite: Chemistry 2A-2B, Chemistry 8A-8B or Engineering 45, introductory physics. The basic principles of polymer science are presented including polymer structure and synthesis; polymerization mechanisms, polymer classes, properties, and reactions; polymer morphology, rheology, and characterization; polymer processing. (Same course as Materials Science Engineering 147.) GE credit: SciEng | QL, SE, W, (W) Pan

110. Plastics in Society and the Environment

Lecture—3 hours; discussion—1 hour. Prerequisite: Chemistry 10 or introductory course in physical sciences. Basic concepts and methodologies in the study of plastics. Formation, classification, structure, properties, processing, and formulation. Their application to societal needs, and their impact on society and the environment. GE credit: SciEng or SocSci, Wrl | SE, SL, WC

150. Polymer Syntheses and Reactions (3)

Lecture—3 hours. Prerequisite: Chemistry 128B or 8B, and Chemistry 107A. Organic and physical chemistry aspects of polymer syntheses and reactions including polymerization mechanisms, kinetics and thermodynamics for major types of organic high polymers. GE credit: SciEng | QL, OL, SL, VL, WE. — F. (F.) Hsieh

161. Structure and Properties of Fibers (3)

Lecture—3 hours. Prerequisite: Textiles and Clothing 6 and Chemistry 88. The structure, properties and reactions of natural- and man-made fibers; the relations between molecular structure of fibers and their physical properties; interactions of fibers and detergents. GE credit: SciEng | OL, QL, SE, SL, VL, WE. — F. (F.) Hsieh

161L. Textile Chemical Analysis Laboratory

Laboratory—3 hours. Prerequisite: course 161 (may be taken concurrently). Laboratory methods and procedures employed in qualitative and quantitative analysis of textile fibers and auxiliaries. SciEng | GE credit: OL, QL, SL, VL, WE. — F. (F.) Hsieh

180A. Introduction to Research in Fiber and Polymer Science

Laboratory/discussion—6 hours. Prerequisite: senior standing in major related to Fiber and Polymer Science, and consent of instructor. Senior thesis on independent problems. Research begun in course 180A will be continued and completed in course 180B. (Deferred grading only, pending completion of sequence.) GE credit: SciEng | QL, SE, SL, VL, WE. — F. W. S. (F. W. S.)

180B. Introduction to Research in Fiber and Polymer Science

Laboratory/discussion—6 hours. Prerequisite: senior standing in major related to Fiber and Polymer Science, and consent of instructor. Senior thesis on independent problems. Research begun in course 180A will be continued and completed in course 180B. (Deferred grading only, pending completion of sequence.) GE credit: SciEng | QL, SE, SL, VL, WE. — F. W. S. (F. W. S.)

192. Internship in Fiber and Polymer Science

Internship—3.36 hours. Prerequisite: consent of instructor. Work experience off campus in a fiber and polymer science related area. Supervision by a member of the Textiles and Clothing faculty. (P/NP grading only.)

197T. Tutoring in Fiber and Polymer Science

Internship—3.36 hours. Prerequisite: upper division fiber and polymer science related major and consent of instructor. Tutoring of students in Fiber and Polymer Science courses. Assistance with discussion groups and laboratory sections under supervision of instructor. May be repeated for credit if tutoring in another Fiber and Polymer Science course. (P/NP grading only.)

198. Directed Group Study

Lecture—1 hour. Prerequisite: consent of instructor. (P/NP grading only.)

199. Special Study for Advanced Undergraduates

Lecture—1 hour. Prerequisite: upper division standing and consent of instructor. (P/NP grading only.)

Graduate

250A. Special Topics in Polymer and Fiber Science

Lecture—3 hours. Prerequisite: Fiber and Polymer Science 100 or consent of instructor. Selected topics of current interest in polymer and fiber science. Topics will vary each time the course is offered. (Same course as Materials Science and Engineering 250A.) — F. S. (F. S.) Hsieh, Pan, Sun

250B. Special Topics in Polymer and Fiber Science

Lecture—3 hours. Prerequisite: Fiber and Polymer Science 100 or consent of instructor. Selected topics of current interest in polymer and fiber science. Topics will vary each time the course is offered. (Same course as Materials Science and Engineering 250B.) — F. S. (F. S.) Hsieh, Pan, Sun

250C. Special Topics in Polymer and Fiber Science

Lecture—3 hours. Prerequisite: Fiber and Polymer Science 100 or consent of instructor. Selected topics of current interest in polymer and fiber science. Topics will vary each time the course is offered. (Same course as Materials Science and Engineering 250C.) — F. S. (F. S.) Hsieh, Pan, Sun

250D. Special Topics in Polymer and Fiber Science

Lecture—3 hours. Prerequisite: Fiber and Polymer Science 100 or consent of instructor. Selected topics of current interest in polymer and fiber science. Topics will vary each time the course is offered. (Same course as Materials Science and Engineering 250D.) — F. S. (F. S.) Hsieh, Pan, Sun

250E. Special Topics in Polymer and Fiber Science

Lecture—3 hours. Prerequisite: Fiber and Polymer Science 100 or consent of instructor. Selected topics of current interest in polymer and fiber science. Topics will vary each time the course is offered. (Same course as Materials Science and Engineering 250E.) — F. S. (F. S.) Hsieh, Pan, Sun

299. Research

Independent study—3.36 hours. (S/U grading only.)

Professional

396. Teaching Assistant Training Practicum

Prerequisite: graduate standing. May be repeated for credit. (S/U grading only.) — F. W. S. (F. W. S.)