Biorenewable Chemicals

Administered by the Center for Biorenewable Chemicals (CBiRC)

The core mission of the NSF Engineering Research Center for Biorenewable Chemicals (CBiRC) is to transform the chemical industry by integrating biological and chemical catalysis systems to create a generalized framework for producing biorenewable chemicals. The minor in Biorenewable Chemicals allows students from a variety of allied disciplines to understand the opportunities for developing biorenewable chemicals via a combination of biocatalytic and chemical catalysis steps. In addition to coursework in core technical areas, students in the minor get explicit entrepreneurial training, a background in the general issues related to production and processing of biorenewable resources, exposure to the economic and environmental realities of the chemical industry. Students in the minor are disciplinary experts (in programs such as Chemical Engineering, Chemistry, and Biochemistry, Biophysics, and Molecular Biology) who are interdisciplinary trained to become globally competitive graduates capable of developing integrated chemical/biological processing systems.

Courses primarily for graduate students, open to qualified undergraduates:

BR C 506. The Evolving Chemical Industry.
(1-0) Cr. 1.
An overview of the chemical industry including structure and its evolution. Discussion of the dynamics of recent introduction of biorenewable chemicals to the chemical industry.

BR C 507. Entrepreneurship in Biorenewables.
(Cross-listed with BRT). (1-0) Cr. 1. S. *Prereq: Graduate Standing or Permission of Instructor.*
Develop an understanding of the relationship between discovery research entrepreneurship and innovation in biorenewables. Understand critical techno-commercial analyses and intellectual property. Learn critical skills needed to found a company, including how to define key assets, write a business plan, leverage local resources, and secure funding.

Courses for graduate students:

BR C 688. Catalysis and Catalytic Processes.
(Cross-listed with CH E). (3-0) Cr. 3. *Prereq: CH E 382*
Principles and applications of heterogeneous and homogeneous catalysis. Adsorption. Reaction kinetics and mass transfer effects. Catalyst characterization. Industrial catalytic processes.