Department of Chemical and Biological Engineering

Drexel University

Biological Engineering Concentration

What is it?

The Biological Engineering Concentration is a curriculum option offered by the Department of Chemical and Biological Engineering. The concentration comprises 24 credits of bio-intensive courses, including 19 core credits and 5 elective credits. A hallmark of the concentration is the signature Bioprocessing Principles course, which distinguishes it from any other curriculum. Students will constitute a next the generation of engineers that speak the language of biology yet remain true to the process-intensive nature of chemical engineering.

Why?

The concentration was implemented to satisfy two recently and rapidly growing trends: an increasing number of engineering students interested in biological sciences and an increasing demand by employers for students with training in the processing of biological compounds. It is designed to equip students with the knowledge and skills necessary to compete in bio-related fields, especially those involving processing.

Who is eligible?

Undergraduate students in the department of chemical and biological engineering are eligible to apply to the Biological Engineering Concentration.

How do I sign up?

To learn more about the Biological Engineering Concentration or to sign up, contact either:

Nily Dan
Associate Professor
dan@coe.drexel.edu

Katie Brumbelow
Director of Undergraduate Affairs
kms88@drexel.edu

Advantages:

- Preparation for growing trend of chemical engineers in bio-related careers
- Enhances traditional ChE program
- Excellent research opportunities
- High concentration of pharmaceuticals and biochemical firms in the Philadelphia area.

Visit us online at: www.drexel.edu/cbe/

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Ongoing research by professors involved in the Biological Engineering Concentration:

Nily Dan
Ph.D., University of Minnesota

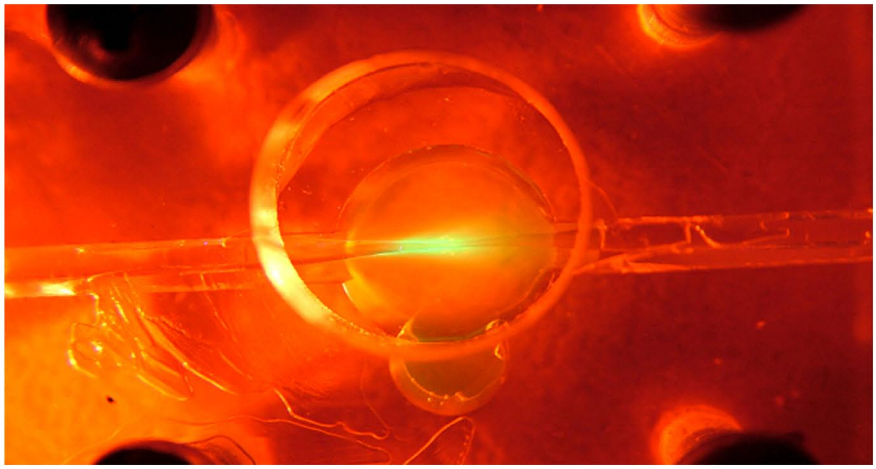
- Self assembly in amphiphilic and polymeric systems
- Controlled drug release from polymer-based carriers

Raj Mutharasan
Ph.D., Drexel University

- Biosensor based on optical, electromechanical (cantilevers, shear wave), and magnetoelastic phenomena. Applications include food, environment, biowarfare, and medical.
  Detection of cancer signatures, DNA hybridization, self assembled monolayer characterization
- Behavior of protein interfaces; antigen-antibody reaction in non-aqueous environment Mathematical modeling of biological phenomena

Steven P. Wrenn
Ph.D., University of Delaware

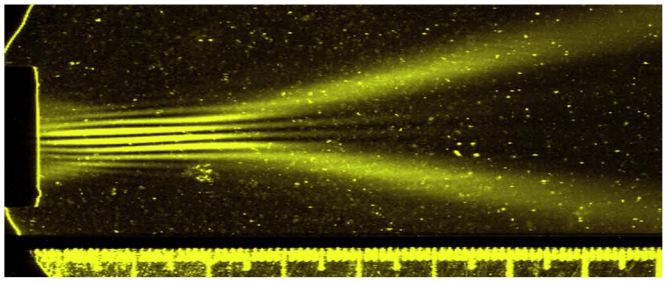
- Biological colloids (microstructures: vesicles, micelles, lipoproteins, aggregation, fusion)
  Phospholipid membranes (phase behavior, lipid rafts and nandomains, interactions with ultrasound)
- Cholesterol nucleation (in the contexts of gallstone pathogenesis and atherosclerosis, influence of proteins, enzymes, hormones)

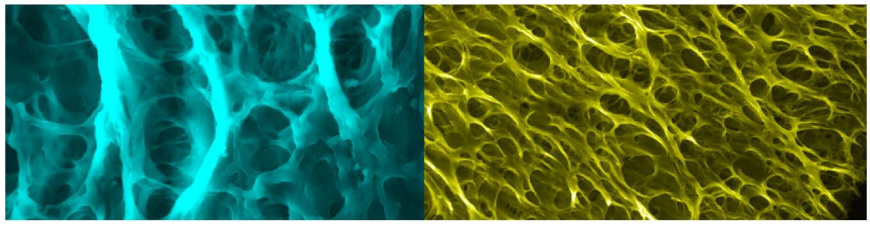


Here's what one student has to say about her participation in the Biological Engineering Concentration:

Lynn Covolo
BS
Biological Concentration

I decided to add the Biological Concentration to my major because pharmaceutical and other biological industries are growing. This decision has helped me broaden my career prospects. The courses on this track help students keep up-to-date on what is changing in the field so they have the proper preparation for co-op or a full time career. The diversity of classes also lets students have the opportunity to take classes in their fields of interest. In addition, the Biological Concentration provides valuable information on how courses in biology can be used with courses taken in chemical engineering.





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