

# BIOTECHNOLOGY

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## Courses

### **BIOT 5100. Introduction to the Science in Biotechnology. (3 Credits)**

This course covers the molecular foundations of biotechnology, receptor pharmacology, genomics, cell biology and signaling, immunology, molecular biology, virology, molecular microbiology, microarray analysis, proteomics, biosensing, and analytical methods in biotechnology.

### **BIOT 5200. The Biotechnology Enterprise. (3 Credits)**

This course exposes students to the “business of biotech” from scientific discovery startup through its product launch and subsequent organizational and scientific pipeline growth. Topics include scientific discovery, biotech-related funding and organizational structures, an introduction to regulatory and clinical trial considerations, biotech alliances, patient access, ethics and compliance, and commercialization and growth to meet consumer needs in this highly regulated industry. Students will experience what it means to be a professional in this industry with all its complexities.

### **BIOT 5300. Law and Regulation in Biotechnology. (3 Credits)**

This course introduces laws that govern the biotechnology industry and its processes. Students will receive an overview of early-stage research, the clinical trials process, good manufacturing practices, the FDA’s approval requirements, post-approval marketing and safety, and rules and testing requirements for generics and biosimilars. The course also surveys law related to the business and financing side of biotechnology, including intellectual property, funding for research, material transfer agreements and other contractual arrangements, and corporate structures.

### **BIOT 5400. Experimental Design, Biostatistics and Math for Data Science. (3 Credits)**

This course explores the principles of experimental design and statistical analysis. The class emphasizes research in the molecular and biological sciences and biotechnology. Topics include probability theory, sampling, hypothesis formulation and testing, parametric and nonparametric statistical methods, discrete and continuous random variables, vector spaces, linear algebra, and graph theory.

### **BIOT 6900. Biotechnology Capstone 1. (0 Credits)**

This course offers students an opportunity to integrate and apply the skills learned in earlier courses to an independent research project supervised by a faculty/industry mentor or an industry internship.

### **BIOT 6901. Biotechnology Capstone 2. (1 Credit)**

This course offers students an opportunity to integrate and apply the skills learned in earlier courses to an independent research project supervised by a faculty/industry mentor or an industry internship.

### **BIOT 6902. Biotechnology Capstone 3. (2 Credits)**

This course offers students an opportunity to integrate and apply the skills learned in earlier courses to an independent research project supervised by a faculty/industry mentor or an industry internship.