

MS Biotechnology

PROGRAM REQUIREMENTS

Students complete 7 Gateway courses (21 credits), followed by 4-5 elective courses (12-15 credits) chosen from one of 4 Biotechnology Tracks.

Biotechnology Gateway Courses: *All students complete 7 lecture and laboratory courses that provide solid groundwork in advanced principles from three different areas of Biotechnology - Industrial Biotechnology, Biological Sciences and Business Management.*

- BIO 600 Ethical Issues in Bio/Biotech
 - Previously: BEN 602 Ethical Issues in Engineering and Research
- BIO 667 Advances in Biotechnology Research
- BIO 674 Experimental Designs and Interpretations in Biology
- BIO 663 Molecular Biotechnology
- BIO 664 Applied Biotechnology
- BIO 621 Capstone Seminar in Biotechnology
- EEE 620 Foundations of Entrepreneurship

Upon completing the Gateway courses students personalize their curriculum, by choosing to follow one of 4 different Biotechnology Tracks:

General Biotechnology Track - 15 credits. Students select 15 credits of elective courses from any of the lists below.

Industrial Biotechnology Track - 15 credits. Students select *at least* 12 credits from this list. Additional credits can be selected from any list.

- BEN 500 Selected Topics
- BEN 521 Stem Cell Engineering
- BEN 541 Principles of Tissue Engineering
- BEN 568 Biomaterials & Medical Devices
- BEN 600 Selected topics
- BEN 621 Biochemical Engineering
- BEN 633 Drug Delivery
- BEN 635 Physical Cell Biology
- BEN 662 Biofuels, Bioproducts and Biorefining

Biotech/Medical Sciences Track - 15 credits. Students select *at least* 12 credits from this list. Additional credits can be selected from any list.

- BCM 678 Perspectives in Biochemistry
- BIO 501 Biology of Cancer
- BIO 503 Developmental Biology
- BIO 600 Selected Topics
- BIO 614 Brain & Behavioral Plasticity
- BIO 616 Biology of Aging
- BIO 644 Seminar in Neurotoxicology

- BIO 646 Epigenetics of Human Health and Disease
- BIO 652 Neurodegenerative Disease
- BIO 656 Seminar in Human Disease Genomics
- BIO 657 Principles of Human Toxicology
- BIO 659 Plants and People
- BIO 662 Molecular Genetics
- BIO 665 Molecular Biology Laboratory**
- BIO 668 Microbiomes in Biotechnology and Medicine
- BIO 669 Science of Countering Weapons of Mass Destruction
- BIO 671 Cell and Developmental Biology Lab
- BIO 673 Pharmaceuticals and Cells
- BIO 677 Personalized Medicine
- BIO 787 Graduate Seminar in Functional Genomics**
- CHE 614 Introduction to Medicinal Chemistry

BioBusiness Track- Students select *at least* 12 credits from this list. Additional credits can be selected from any list.

- EEE 600 Selected Topics
- EEE 625 Venture Capital
- EEE 640 Social Entrepreneurship
- EEE 644 Dilemmas and Debates in Entrepreneurship
- EEE 682 Entrepreneurial Marketing
- MBC 600 Selected Topics
- MBC 601 Economic Foundations of Business
- MBC 609 Accounting for Managerial Decisions
- MBC 610 Opportunity Recognition and Ideation
- MBC 631 Financial Accounting
- MBC 635 Operations and Supply Chain Management
- MBC 636 Marketing Management
- MBC 645 Strategic Management
- SCM 600 Selected Topics
- SCM 651 Business Analytics
- SCM 656 Project Management

Selected Topics courses in EEE, MBC and SCM vary by semester.

**course not currently offered