### Core Courses and Course Tracks

Eleven credits make up the Masters of Biotechnology degree. The core courses make up six of those in biochemistry, cellular/molecular biology, engineering biotechnology, statistics, biotechnology genetic engineering laboratory, and one “free elective.”

Suggested core courses include (pick one course for each):

- **Biochemistry**
  - BIOL 404: Immunobiology or BIOL 448: Principles of Drug Actions
- **Biotechnology I:** Cellular/Molecular Biology
  - BE 553: Tissue Engineering or BIOL 447: The Science & Art of Biotechnology
- **Biotechnology II:** Engineering Biotechnology
  - CBE 554: Engineering Biotechnology
- **Biotechnology Lab**
  - CBE 580: Biotechnology Laboratory
- **Statistics**
  - ENM 503: Introduction to Probability and Statistics
- **Free Elective**
  - HCMG863/899: Management and Economics of Pharmaceutical, Biotech and Medical Device Industries or EAS 545: Engineering Entrepreneurship I

Three parallel curriculum tracks give students the flexibility to tailor their degree to their background, interests, and current career or goals. These tracks make up the final five credits of the degree and in combination with the core courses, it insures that students get a uniquely broad exposure to the entire field of biotechnology.

- **Molecular Biology**
  - BIOT 599: Independent Study (mandatory 2 credits)
  - Choose three elective courses:
    - CBE 562: Drug Discovery & Development, CBE 540: Biomolecular and Cellular Engineering, BIOL 537: Advanced Computational Biology, BIOL 540: Genetic Analysis

- **Biopharmaceutical/Engineering Biotech**
  - Choose five elective courses:

- **Biomedical Technologies**
  - Choose five elective courses:

Please visit our curriculum page to learn more about our classes and see sample syllabi.

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### A Cross-Disciplinary Approach

The Professional Master Program, in the emerging field of biotechnology, is under the direction of Dr. Scott Diamond. Using Penn's well-established tradition of interdisciplinary teaching and the unmatched breadth of its faculty, the Masters of Biotechnology draws its strengths from the biology, chemical and biomolecular engineering, and bioengineering departments, along with other classes through the Perelman School of Medicine, Wharton School of Business and other various courses in different programs. This cross-disciplinary approach gives students a uniquely broad exposure to the entire field of biotechnology.

Beyond physical classes, students can carry out research in one of the many labs on campus through the school or other campus resources including the Hospital of the University of Pennsylvania (HUP), Children's Hospital of Philadelphia (CHOP), Veterans Hospital and important science centers such as the Wistar Institute, Monell Chemical Senses Center, and the Robert Wood Johnson Foundation. Another resource is the University of Pennsylvania's own biomedical research center, the Institute for Medicine and Engineering (IME), which includes the Center for Bioinformatics and the Penn Center for Molecular Discovery.

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### Highlights

#### Biotechnology Student Association (BSA)

The BSA is the coordinating student body representing all students enrolled in the program. BSA monitors issues of importance to the student community; sponsors academic, cultural, and social events; and organizes events to enhance the quality of student life. [Webpage](#) [Facebook](#)

#### Penn Biotechnology Group (PBG)

A student-run, cross-disciplinary club with the mission of promoting education and awareness regarding the many facets of biotechnology spanning both grad and undergrad programs at Penn with multiple schools/programs.

Students complete consulting projects for real clients during a specific term. [Website](#)

Applications for the Master of Biotechnology open in October the prior year before matriculation. All deadlines, instructions, and the application itself can be found on our [admissions website](#). All questions can be directed to [biotech@seas.upenn.edu](mailto:biotech@seas.upenn.edu).

See what our students are saying about the program on our [Student Testimonials page](#). View and follow us on social media: [Facebook](#) [Twitter](#)