Biotechnology, P.S.M.

COLLEGE OF SCIENCE AND TECHNOLOGY (http://cst.temple.edu)

About the Program

The Professional Science Master's (P.S.M.) program in Biotechnology is a two-year degree program hosted by the Department of Biology, with coursework taught by diverse faculty from Temple University, industry, and government. Students work directly with our research faculty on real-world projects, gaining hands-on skills necessary to solve emerging problems. The program culminates in an independent research project based at Temple or one of its industry and government partners in Philadelphia.

Time Limit for Degree Completion: 2 years

Campus Location: Main

Full-Time/Part-Time Status: The degree program can be completed on a full- or part-time basis. Most of the classes are offered in the evenings or on weekends to enable full-time working professionals to be enrolled in the program. International students are required to register as full-time students.

Interdisciplinary Study: The two-year program consists of a series of multi- and interdisciplinary core courses that include current topics in biotechnology, analytical biotechnology, bioethics/policy, bioinformatics, environmental biotechnology, and microbial biotechnology. Many of the courses are writing intensive and also provide students with opportunities to sharpen their oral presentation skills. All student research projects are developed with the cooperation of Temple faculty and members of our External Advisory Board under the guidance of the P.S.M. Steering Committee.

Accreditation: Temple University is fully accredited by the Middle States Commission on Higher Education.

Areas of Specialization: Three areas of concentration are offered:

- Bioinformatics in Biotechnology, which entails decision making based on data accession, as well as manipulation and analysis over a broad range of fields
- Biotechnology in Biomedicine and Drug Discovery, including target identification of disease to drug design, discovery, and optimization
- Biotechnology in Industrial and Environmental Engineering, in partnership with the College of Engineering

Job Prospects: Official job placement is not offered, but prospects are good. Philadelphia and the surrounding Delaware Valley constitute a primary hub for integrative biotechnology since the area is a major center for pharmaceutical companies, chemical industries, and the health sciences. Philadelphia has also exhibited an increasing leadership presence in the emerging Green City movement. Given recent growth in the Biotechnology sector, the demand for a highly trained workforce with a strong science background has soared.

Non-Matriculated Student Policy: Non-matriculated students may enroll in a total of three courses (9 credits) with permission of the instructor and the Biology Department.

Financing Opportunities: Financial assistance in the form of Research or Teaching Assistantships is not offered.

Admission Requirements and Deadlines

Application Deadline:

Fall: March 1; December 15 international
Spring: Open only to non-matriculated students who successfully completed P.S.M. coursework in the Fall term

Late applications may be considered for admission.

APPLY ONLINE to this graduate program.

Letters of Reference:

Number Required: 3

From Whom: Letters should be obtained from college/university faculty, preferably those in laboratory science areas, who are familiar with the applicant's academic and/or research abilities.

Coursework Required for Admission Consideration: Applicants should have a solid background in Biology, Chemistry, Engineering, or Physics. The Biology Department's Graduate Committee may allow departures from course requirements upon review.

Bachelor's Degree in Discipline/Related Discipline: A baccalaureate degree in a science or engineering field is required.
Statement of Goals: Approximately 500 to 1,000 words include your interest in Temple's program, your research goals, and your academic and research achievements.

Standardized Test Scores:
GRE: Combined minimum score of 305 on the quantitative and verbal reasoning sections
TOEFL: 90 iBT or 575 PBT minimum

Transfer Credit: Graduate credits from an accredited institution may be transferred into the Biotechnology P.S.M. program. The credits must be equivalent to coursework offered by the Biology Department at Temple University. A grade of "B" or better must have been earned for the credits to transfer. The Biology Department Graduate Committee makes recommendations to the Department Chair for transferring credit on an individual basis. The maximum number of credits a student may transfer is 6.

Program Requirements

General Program Requirements:
Number of Didactic Credits Required Beyond the Baccalaureate: 30

Required Courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 5479</td>
<td>Biotechnology</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 5501</td>
<td>Analytical Biotechnology</td>
<td>1.5</td>
</tr>
<tr>
<td>BIOL 5502</td>
<td>Microbial Biotechnology</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 5503</td>
<td>Biotechnology Laboratory I</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 5504</td>
<td>Biotechnology Laboratory II</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 5505</td>
<td>Ethics Regulation and Policy in Biotechnology</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 5506</td>
<td>Professional Development Seminar for PSM in Biotechnology</td>
<td>1</td>
</tr>
<tr>
<td>BIOL 5521</td>
<td>Nucleic Acid Technologies</td>
<td>1.5</td>
</tr>
<tr>
<td>BIOL 9995</td>
<td>Capstone Research Experience</td>
<td>2</td>
</tr>
<tr>
<td>CEE 5793</td>
<td>Environmental Biotechnology</td>
<td>3</td>
</tr>
<tr>
<td>Any Bioinformatics or Genomics 5000-level course</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Elective</td>
<td></td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credit Hours: 30

Students can take any elective relevant to their area of specialization, including coursework offered by the School of Pharmacy's QA/RA program. Approval from the P.S.M. Steering Committee is required.

Additional Requirements:
All graduate-level courses must be passed with a "B-" or better.

Attendance at scheduled departmental colloquia is required.

Culminating Events:
Independent Research Project:
The P.S.M. program in Biotechnology at Temple University offers technical and leadership training to address environmental priorities and human health. In this vein, students select an independent research project (BIOL 9995 Capstone Research Experience) by the end of their first year with mentors at Temple and/or approved co-mentors at any off-campus sites, including pharmaceutical companies and government agencies.

Project proposals, which are approved by the P.S.M. Steering Committee, foster technical and intellectual skill building. At the end of the program, the project is presented in written and oral formats to further develop communication skills. These features provide graduates with knowledge and leadership skills to help tackle real-world problems using Biotechnology.

Contacts

Program Web Address:
http://biotechpsm.cst.temple.edu/

Department Information:
Dept. of Biology
255 Biology-Life Sciences Building
1900 N. 12th Street
Philadelphia, PA 19122
Mailing Address for Application Materials:
Biotechnology P.S.M. Program
400 Carnell Hall (041-03)
1803 N. Broad Street
Philadelphia, PA 19122-6104

Mailing Address for Application Materials from International Applicants:
Biotechnology P.S.M. Program
ATTN: Jason Pfeffer
1803 N. Broad Street, 340 Carnell Hall (041-03)
Philadelphia, PA 19122-6104
jpfeffer@temple.edu
215-204-2149

Department Contacts:
Program Director:
Mark Feitelson
feitelson@temple.edu
215-204-8434

Assistant Program Director:
Seema Freer
sfreer@temple.edu
215-204-8842

Department Chairperson:
Allen Nicholson
allen.nicholson@temple.edu
215-204-8854