

# Biotechnology, P.S.M.

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## COLLEGE OF SCIENCE AND TECHNOLOGY

Learn more about the Professional Science Master's in Biotechnology.

### 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:* October 30

Late applications may be considered for admission.

*APPLY ONLINE to this graduate program.*

#### Letters of Reference:

*Number Required:* 2

*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:** In approximately 500 to 1,000 words, describe your interest in Temple's program, research goals, and academic and research achievements.

**Standardized Test Scores:**

GRE: Optional

Applicants who earned their baccalaureate degree from an institution where the language of instruction was other than English, with the exception of those who subsequently earned a master's degree at a U.S. institution, must report scores for a standardized test of English that meet these minimums:

- TOEFL iBT: 90
- IELTS Academic: 6.5
- Duolingo: 110
- PTE Academic: 61

**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 Required Beyond the Baccalaureate:* 30

*Required Courses:*

Code	Title	Credit Hours
<b>Core Courses</b>		
BIOL 5479	Biotechnology	3
BIOL 5501	Analytical Biotechnology	1.5
BIOL 5502	Microbial Biotechnology	3
BIOL 5503	Biotechnology Laboratory I	3
BIOL 5504	Biotechnology Laboratory II	3
BIOL 5505	Ethics Regulation and Policy in Biotechnology	3
BIOL 5506	Professional Development Seminar for PSM in Biotechnology	1
BIOL 5521	Nucleic Acid Technologies	1.5
Any Bioinformatics or Genomics 5000-level course		3
<b>Electives</b> <sup>1</sup>		<b>6</b>
<b>Capstone Course</b>		
BIOL 9995	Capstone Project	2
<b>Total Credit Hours</b>		<b>30</b>

<sup>1</sup> Students may elect to take any course relevant to their area of specialization, including coursework offered by the School of Pharmacy's RA/QA program. Approval from the P.S.M. Steering Committee 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 Project) 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:**

<https://www.temple.edu/academics/degree-programs/biotechnology-psm-st-biot-psm>

## **Department Information:**

Dept. of Biology  
255 Biology-Life Sciences Building  
1900 N. 12th Street  
Philadelphia, PA 19122-6078  
cst.psm@temple.edu  
215-204-8842

## **Submission Address for Application Materials:**

<https://cst.temple.edu/academics/graduate-programs/apply-now>

## **Department Contacts:**

*Program Director:*

Shohreh Amini  
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215-204-0604

*Assistant Program Director:*

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