

# Chemistry MS

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COLLEGE OF SCIENCE AND TECHNOLOGY

Learn more about the Master of Science in Chemistry.

## About the Program

The Chemistry graduate program is designed to provide a solid background in the chosen area of specialization. It emphasizes the acquisition of skills that enable students to gain further knowledge in their research and professional careers. For this reason, the Chemistry graduate degree program is research oriented, and seminar attendance and familiarization with the chemical literature are considered integral. The course requirements are comparatively light, although a wide variety of intermediate and advanced courses in related areas are offered. Students are encouraged to take courses, according to their research interests, in related areas such as Biology, Computer Science and Physics.

**Time Limit for Degree Completion:** 3 years

**Campus Location:** Main

**Full-Time/Part-Time Status:** The degree program can be completed on a full- or part-time basis.

**Interdisciplinary Study:** A Chemical Physics program is offered jointly with the Department of Physics.

**Areas of Specialization:** The Department of Chemistry offers programs leading to the MS and PhD degrees in Analytical Chemistry, Biochemistry, Inorganic Chemistry, Organic Chemistry and Physical Chemistry. Areas of specialization include environmental chemistry, materials and polymers, medicinal, nanoscience, photonics and surface science. For the master's program, three options are offered:

- Thesis Track, which is designed for students who are not full-time. Students cannot receive financial support from the Chemistry Department when completing this option. Any student wanting to pursue this option must receive prior approval from the Chemistry Graduate Committee.
- Coursework Track, which is designed for students who already have extensive experience in the laboratory and are currently employed in the local chemical industry. Students must obtain permission from the Graduate Committee to pursue this option.
- Research Track, which facilitates earning a master's degree by PhD students who have passed their candidacy exam upon successful defense of their Original Research Proposal or who have completed sufficient coursework commensurate with a master's degree. This track is available to students in the PhD program with approvals from their research advisor and the Graduate Committee.

**Job Prospects:** The majority of students find employment in the chemical industry. Some go on to academic positions or positions in government laboratories.

**Non-Matriculated Student Policy:** Non-matriculated students are allowed to take up to 9 credits before admission into a degree program must be sought.

**Financing Opportunities:** The duties of a Teaching Assistant typically involve leading recitation sections and/or overseeing laboratories, as well as grading lab assignments, tests and quizzes, when applicable. After their first year, most students are supported by a research assistantship.

## Admission Requirements and Deadlines

**Application Deadline:**

*Fall Priority Deadline:* March 1

*Spring Priority Deadline:* October 30

Applications submitted after the priority deadline will be considered for admission on a rolling basis. Note that Spring admission is rare as coursework is designed to start in the Fall.

*APPLY ONLINE to this graduate program.*

**Letters of Reference:**

*Number Required:* 3

*From Whom:* Letters of recommendation should be obtained from faculty or people in industry who are familiar with the academic and/or research aptitude of the candidate.

**Bachelor's Degree in Discipline/Related Discipline:** A baccalaureate degree is required. Typically, the undergraduate degree has been earned in Chemistry, Biochemistry or a related field.

**Statement of Goals:** Identify your specific interest in Temple's program, research goals, future career 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: 88
- IELTS Academic: 6.5
- PTE Academic: 60
- Duolingo: 110

Regardless of score, all international students are required to take a SPEAK test upon arrival at Temple.

**Resume:** Current resume required.

**Transfer Credit:** All graduate credits earned by a student prior to matriculation in the Chemistry graduate program are subject to evaluation and approval by the Chemistry Graduate Committee. A "Request for Transfer of Graduate Credit" form, found in TUportal under the Tools tab within "University Forms," must be completed. It must be supplemented with an official transcript, sent directly by the Registrar of the institution where the credits were earned. All transfer credits must be "B" or higher and must be from an accredited institution. The maximum number of credits a student may transfer is 6.

## Program Requirements

### General Program Requirements:

*Number of Credits Required Beyond the Baccalaureate:* 30

*Required Courses:*

### Thesis Track <sup>1</sup>

Code	Title	Credit Hours
Six formal lecture courses		18
Literature seminar		2
One approved graduate course and/or research course		4
CHEM 9996	Master's Thesis Research	6
<b>Total Credit Hours</b>		<b>30</b>

### Coursework Track <sup>1</sup>

Code	Title	Credit Hours
Ten formal lecture courses		30
<b>Total Credit Hours</b>		<b>30</b>

### Research Track <sup>1,2</sup>

Code	Title	Credit Hours
Six or more formal lecture courses		18-21
CHEM 9900	Seminar	2
CHEM 9901 or CHEM 9991	Original Research Proposal Preparation Graduate Research Projects	6-10
<b>Total Credit Hours</b>		<b>30</b>

<sup>1</sup> In consultation with an academic advisor, students select coursework from the following approved courses: CHEM 5001-9800 (excluding CHEM 5901), and may include BCMS 5003 Fundamentals of Biochemistry or MEDS 5003 Fundamentals of Biochem, BMSC 8702 Enzymes and Proteins, EES 5625 Electron Optical Techniques, MEE 5205 Microscopy and Microanalysis of Materials, and/or PHYS 5000 Topical Seminar. Additional course substitutions may be made with approval of the Graduate Committee.

<sup>2</sup> Selecting the Research Track requires approval from the student's research advisor and the Chemistry Graduate Committee.

**Culminating Events:** In addition to successful completion of coursework, the Thesis Track and Coursework Track require the following:

*Thesis:*

The MS thesis is the culminating event for the Thesis Track. The thesis should be an original piece of research. Often, but not always, the research described in the MS thesis can be published in a peer-reviewed journal. The student coordinates the time for the defense with their Graduate Advisory Committee, which is responsible for evaluating the thesis and its defense. No thesis should go to defense unless it is ready for public scrutiny.

*Master's Examination:*

The master's examination is usually the last requirement to be fulfilled by students in the Coursework Track. Its purpose is to demonstrate a breadth and depth of knowledge in the core concepts of Chemistry. The exam is based on the student's major track in Chemistry. Faculty members in the student's track write the questions for the master's exam. The faculty members who write the questions grade the exam. Students schedule the exam with the department.

## Accelerated Programs

Undergraduate students may opt to pursue an accelerated +1 program, enabling them to complete both a bachelor's degree and master's degree in less time than the traditional route.

The accelerated pathway for the Chemistry MS is open to students pursuing the Chemistry BS.

Twelve (12) credits of graduate-level courses will satisfy six (6) credits of Advanced Science (2000+ level) and six (6) credits of Advanced Chemistry (4000+ level) within the undergraduate Chemistry requirements. Due to course availability, some options may not be available. Please see a Chemistry faculty advisor for appropriate graduate course selection.

**Cohort Code:** XMSCHEM

**Minimum Cumulative GPA:** 3.25

## Graduate Courses Approved to Count for Both Undergraduate and Graduate Degrees

Code	Title	Credit Hours	
Select four courses according to area of interest:			
<b>Biochemistry Area</b>			
CHEM 5201	Physical Methods in Organic Chemistry	12	
CHEM 5202	Organic Reaction Mechanisms		
CHEM 5401	Biochemistry I		
CHEM 5402	Chemical Biology		
CHEM 9996	Master's Thesis Research <sup>1</sup>		
<b>Organic Area</b>			
CHEM 5005	Organometallic Chemistry		
CHEM 5201	Physical Methods in Organic Chemistry		
CHEM 5202	Organic Reaction Mechanisms		
CHEM 5205	Organic Syntheses		
CHEM 5402	Chemical Biology		
CHEM 5505	Advanced Polymer Structure and Properties		
CHEM 9996	Master's Thesis Research <sup>1</sup>		
<b>Inorganic Area</b>			
CHEM 5001	Advanced Inorganic Chemistry I <sup>2</sup>		
CHEM 5005	Organometallic Chemistry		
CHEM 5201	Physical Methods in Organic Chemistry		
CHEM 5304	Nanomaterials Chemistry and Physics		
CHEM 5305	Chemical Kinetics		
CHEM 9996	Master's Thesis Research <sup>1</sup>		
<b>Physical Area</b>			
CHEM 5301	Quantum Chemistry		
CHEM 5302	Statistical Thermodynamics		
CHEM 5304	Nanomaterials Chemistry and Physics		
CHEM 5305	Chemical Kinetics		

CHEM 5505	Advanced Polymer Structure and Properties
CHEM 9996	Master's Thesis Research <sup>1</sup>

<sup>1</sup> If a student plans to earn a thesis-based master's degree, CHEM 9996 Master's Thesis Research (3 s.h.) may be selected to count as one Advanced Science course.

<sup>2</sup> Please note that CHEM 3001 must be taken before CHEM 5001.

## Suggested Academic Plan

Course	Title	Credit Hours
<b>Year 3</b>		
<b>Spring</b>		
CHEM 5000+ course		3
<b>Credit Hours</b>		<b>3</b>
<b>Year 4</b>		
<b>Fall</b>		
CHEM 5000+ course		3
CHEM 5000+ course		3
<b>Credit Hours</b>		<b>6</b>
<b>Spring</b>		
Select one of the following:		3
CHEM 5000+ course		
CHEM 9996	Master's Thesis Research	
<b>Credit Hours</b>		<b>3</b>
<b>Total Credit Hours</b>		<b>12</b>

## Admissions Criteria

Candidates for the +1 program must:

- apply during the spring semester of sophomore year or prior to the start of senior year.
- have a 3.25 undergraduate GPA before approval.
- have two faculty members submit a letter of recommendation to [cst.gi@temple.edu](mailto:cst.gi@temple.edu).
- complete the remaining credits for the master's in the year following undergraduate graduation.

**Application:** <https://cst.temple.edu/admissions/graduate-admissions>

## Contact Information

Vince Voelz

v ([voelz@temple.edu](mailto:voelz@temple.edu))oelz@temple.edu ([voelz@temple.edu](mailto:voelz@temple.edu))

Learn more about the accelerated program in Chemistry and other College of Science and Technology +1 programs.

## Contacts

### Program Web Address:

<https://www.temple.edu/academics/degree-programs/chemistry-ms-st-chem-ms>

### Department Information:

Dept. of Chemistry

130 Beury Hall

1901 N. 13th Street

Philadelphia, PA 19122-6014

[chemgrad@temple.edu](mailto:chemgrad@temple.edu)

215-204-7118

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

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

## **Department Contacts:**

*Admissions:*

Graduate Secretary  
chemgrad@temple.edu  
215-204-1980

*Department Chairperson:*

Ann M. Valentine, PhD  
ann.valentine@temple.edu  
215-204-7836