

# CHEMICAL BIOLOGY, M.A.

A master's degree in chemical biology from Saint Louis University provides advanced instruction and training in synthetic organic chemistry, biology and pharmacology.

Saint Louis University's M.A. in chemical biology provides excellent preparation for transitioning to or enhancing a professional career in the life sciences industry. Employment opportunities include a variety of jobs in the pharmaceutical, biotechnology and materials industries. The core of this degree will include organic and medicinal chemistry, molecular biology and pharmacology and can be tailored to match the student's particular interests within the field of chemical biology.

## Program Highlights

Saint Louis University's chemical biology M.A. program offers students:

- Coursework taught by faculty from the departments of chemistry (<https://www.slu.edu/science-and-engineering/academics/chemistry/>) and biology (<https://www.slu.edu/arts-and-sciences/biology/>) and pharmacology and physiology (<https://www.slu.edu/medicine/medical-education/graduate-programs/pharmacology-physiology/>) in the School of Medicine
- Small class sizes
- Can be completed in a part-time manner as many courses are offered in the evenings

## Curriculum Overview

The Master of Arts in Chemical Biology offers specialization in medicinal chemistry, molecular biology and pharmacology, with cross-disciplinary study strongly encouraged.

The requirements for the non-thesis M.A. degree include:

- A minimum of 30 credits of post-baccalaureate coursework
- A private oral examination

Required coursework includes medicinal chemistry, molecular biology and pharmacology taught by faculty from the corresponding departments. Electives are chosen to complement the student's interest.

Many graduate courses in chemistry are scheduled in the evening, allowing students to complete the degree as part-time students. This flexibility allows students to tailor a program of study to suit their needs.

Graduate Handbook (<https://www.slu.edu/science-and-engineering/academics/chemistry/pdfs/chemical-biology-masters-program-handbook.pdf>)

## Fieldwork and Research Opportunities

Graduate students are active in the research areas of medicinal chemistry, biochemistry, molecular biology, cell biology and pharmacology.

## Career Options

Chemical biology graduates are employed in various fields such as pharmaceuticals, biotechnology, patent law, biomedical engineering and academic research.

## Admission Requirements

Applicants should possess sufficient GPA and TOEFL (if applicable) scores and a bachelor's degree from an accredited college or university, usually in chemistry, biochemistry or biology, although other science majors will be considered.

Admission normally requires undergraduate coursework including (minimum credits in parentheses):

- Calculus (4)
- Organic chemistry with labs (8)
- Physics with labs (8)
- Physical chemistry (3)
- Biochemistry (3)
- Biology (6)

Students who do not meet these criteria may complete these prerequisites as part of their graduate program, though not for graduate credit.

## Application Requirements

- Application form
- Official transcripts
- Three letters of recommendation
- Résumé
- Goal statement
- Interview (desired)

## Requirements for International Students

All admission policies and requirements for domestic students apply to international students. International students must also meet the following additional requirements:

- Demonstrate English Language Proficiency (<https://catalog.slu.edu/academic-policies/office-admission/undergraduate/english-language-proficiency/>)
- Financial documents are required to complete an application for admission and be reviewed for admission and merit scholarships.
- Proof of financial support that must include:
  - A letter of financial support from the person(s) or sponsoring agency funding the student's time at Saint Louis University
  - A letter from the sponsor's bank verifying that the funds are available and will be so for the duration of the student's study at the University
- Academic records, in English translation, of students who have undertaken postsecondary studies outside the United States must include:
  - Courses taken and/or lectures attended
  - Practical laboratory work
  - The maximum and minimum grades attainable
  - The grades earned or the results of all end-of-term examinations
  - Any honors or degrees received.

WES and ECE transcripts are accepted.

## Application Deadlines

Students who want to be considered for the summer and fall semesters must submit their application by Jan. 15. Students who wish to be considered for the spring semester should apply by Oct. 15.

## Review Process

A three-person committee votes on whether to accept applicants.

## Tuition

Tuition	Cost Per Credit
Graduate Tuition	\$1,310

Additional charges may apply. Other resources are listed below:

Net Price Calculator (<https://www.slu.edu/financial-aid/tuition-and-costs/calculator.php>)

Information on Tuition and Fees (<https://catalog.slu.edu/academic-policies/student-financial-services/tuition/>)

Miscellaneous Fees (<https://catalog.slu.edu/academic-policies/student-financial-services/fees/>)

Information on Summer Tuition (<https://catalog.slu.edu/academic-policies/student-financial-services/tuition-summer/>)

## Scholarships, Assistantships and Financial Aid

For priority consideration for a graduate assistantship, apply by the program admission deadlines listed. Fellowships and assistantships provide a stipend and may include health insurance and a tuition scholarship for the duration of the award.

Explore Scholarships and Financial Aid Options (<https://www.slu.edu/financial-aid/>)

## Learning Outcomes

1. Graduates will be able to assess relevant literature in chemical biology.
2. Graduates will be able to apply chemistry principles to biology.
3. Graduates will be able to articulate arguments or explanations in both oral and written forms.
4. Graduates will be able to evidence scholarly and professional integrity in chemical biology.

## Requirements

Code	Title	Credits
<b>Required Courses</b>		
CHEM 5630	Introduction to Chemical Biology and Biotechnology	3
CHEB 5970	Research Topics	3
CHEB 5980	Graduate Reading Course	3
CHEM 5470	Principles of Medicinal Chemistry	3
BIOL 5700	Advanced Molecular Biology	3
PPY 5410	Molecular Pharmacology †	3
or PPY 5110 & PPY 5120	Introduction to Pharmacology and Systems Physiology and Pharmacology I	

Elective Courses	
Select 12 credits †	12
<b>Total Credits</b>	<b>30</b>

## Non-Course Requirements

A private oral examination.

## Continuation Standards

Students must maintain a cumulative grade point average (GPA) of 3.00 in all graduate/professional courses.

† Selected from 5000 level courses in consultation with student's research mentor. Electives should be selected from chemistry, biology, pharmacology, or biochemistry departments. Electives can also be fulfilled by taking 5000-level courses in other disciplines with approval by a program coordinator and the student's committee.

‡ PPY 5110 Introduction to Pharmacology (1 cr) and PPY 5120 Systems Physiology and Pharmacology I (2 cr) may be taken in place of PPY 5410 Molecular Pharmacology (3 cr).

## Roadmap

Roadmaps are recommended semester-by-semester plans of study for programs and assume full-time enrollment unless otherwise noted.

Courses and milestones designated as critical (marked with !) must be completed in the semester listed to ensure a timely graduation. Transfer credit may change the roadmap.

This roadmap should not be used in the place of regular academic advising appointments. All students are encouraged to meet with their advisor/mentor each semester. Requirements, course availability and sequencing are subject to change.

Students in the coursework M.A. program have will commonly take one to two courses a semester, which means the timeline will vary for each student.

Course	Title	Credits
<b>Year One</b>		
<b>Fall</b>		
BIOL 5700	Advanced Molecular Biology	3
CHEM 5630	Introduction to Chemical Biology and Biotechnology †	3
<b>Credits</b>		<b>6</b>
<b>Spring</b>		
CHEM 5470	Principles of Medicinal Chemistry	3
PPY 5410	Molecular Pharmacology	3
<b>Credits</b>		<b>6</b>
<b>Summer</b>		
CHEB 5970	Research Topics	3
<b>Credits</b>		<b>3</b>
<b>Year Two</b>		
<b>Fall</b>		
! Elective †		3
! Elective †		3
<b>Credits</b>		<b>6</b>

**Spring**

! Electives †	6
<b>Credits</b>	<b>6</b>

**Summer**

CHEB 5980	Graduate Reading Course	3
<b>Credits</b>		<b>3</b>

<b>Total Credits</b>	<b>30</b>
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† CHEM 5630 Introduction to Chemical Biology and Biotechnology (3 cr) is only offered every other fall.

‡ **Electives (must take at least four courses):** Electives can be fulfilled by taking 5000-level courses in chemistry, pharmacology or biology. Electives in other disciplines such as math, computer science, and engineering may be taken with approval by a program coordinator and the student's committee.

## Contact Us

For additional information about our program, please contact

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