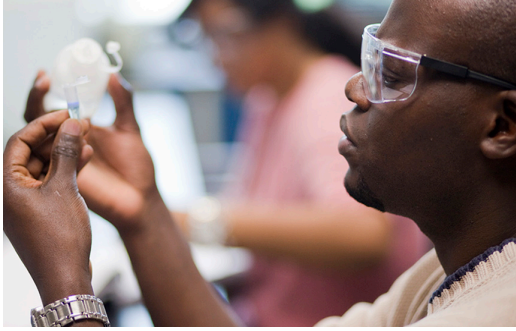
Master of Science in Chemistry

COLLEGE OF ARTS AND SCIENCES



Program Overview

From drug discovery to nanotechnology, exciting opportunities abound in the dynamic field of chemistry. To provide an effective learning experience, relevant classroom coursework is mixed with hands-on lab work that takes place in Sacred Heart University's (SHU) state-of-the-art facilities, which feature some of the most advanced instrumentation.

Our popular built-for-results program attracts students from all over the world who seek to obtain a competitive, advanced degree and take advantage of Sacred Heart's ideal location—a short distance from many of the country's top pharmaceutical and industrial companies. This degree also prepares students to pursue a Ph.D. program.

Many graduate students attending SHU are pursuing their degree while working, thus graduate courses are offered in the evening and on Saturdays. Full-time students will complete their degree in four semesters (two years).

In addition, SHU's graduate chemistry program allows students who have a B.S. in a scientific field other than chemistry to obtain an M.S. in chemistry. To do so, they must first complete prerequisite coursework as determined by the Chemistry Department.

LABS, FACILITIES AND EQUIPMENT

Eight state of the art chemistry laboratories serve the needs of biochemistry, analytical, organic and physical chemistry research.

COMPUTER FACILITIES

There are molecular modeling stations, and a chemistry server provides licensed software for the use of students.

Choose one of three concentrations

1. General Chemistry: Thesis or Non-Thesis Track
2. Molecular Biochemistry: Non-Thesis Track
3. Chem-Bioinformatics: Non-Thesis Track NEW!

1. General Chemistry: Thesis or Non-Thesis Track

Gain experience in modern experimental techniques and deepen your understanding of laboratory operations and computational computer modeling. In the thesis track, you will be working under the supervision of a faculty adviser, and you will craft a proposal for your thesis project. The non-thesis track is designed for students with relevant industry experience and individuals whose employment or other circumstances preclude them from doing a master's thesis. The thesis track requires a total of 30 credits and the non-thesis track requires a total of 34 credits.

GENERAL CHEMISTRY COURSEWORK

Some of the required courses for General Chemistry

* CH 521: Advanced Organic Chemistry (or CH 522: Organic Synthesis)	3
* CH 531: Advanced Physical Chemistry I: Molecular Structure (or CH 532: Advanced Physical Chemistry II: Molecular Dynamics)	3
* CH 551: Advanced Analytical Instrumentation I: Spectroscopy (or CH 552: Advanced Analytical Instrumentation II: Chromatography)	3
* CH 553: Advanced Inorganic Chemistry (or CH 555: Theoretical Inorganic Chemistry)	3

Some elective courses for General Chemistry

* CH 523: Organic Structure Determination	3
* CH 524: Special Topics in Organic Chemistry	3
* CH 525: Supramolecular Chemistry	3
* CH 530 Physical Chemistry	3

2. Molecular Biochemistry: Non-Thesis Track

In addition to gaining exposure to the major chemistry subdisciplines, you will learn the chemistry of biomolecules, including state-of-the-art bioanalytical methods. This program will prepare you to pursue a rewarding career in a variety of areas, including the pharmaceutical, chemical or biotechnology fields. This is a non-thesis track program that focuses on hands-on training in molecular biochemistry. The molecular biochemistry concentration requires a total of 34 credits.

MOLECULAR BIOCHEMISTRY COURSEWORK

Some of the required courses for Molecular Biochemistry

* CH 521: Advanced Organic Chemistry (or CH 522: Organic Synthesis)	3
* CH 533: Biophysical Chemistry	3
* CH 553: Advanced Inorganic Chemistry (or CH 555: Theoretical Inorganic)	3
* CH 563: Biochemical Analysis	3
* CH 597: Computational Bioanalytical Chemistry	2
* CH 597L: Computational Bioanalytical Chemistry Lab	1
* CH 598: Comprehensive Exam	1

Some elective courses for Molecular Biochemistry track

* CH 525: Supramolecular Chemistry	3
* CH 531: Advanced Physical Chemistry I: Molecular Structure	3
* CH 532: Advanced Physical Chemistry II: Molecular Dynamics	3
* CH 537: Microscale and Nanophase Materials: Chemical Process and Analysis	3
* CH 545: Bioinformatics	3
* CH 547: Computational Chemistry and Molecular Modeling	3
* CH 551: Advanced Analytical Instrumentation I: Spectroscopy	3

Sacred Heart UNIVERSITY

Sacred Heart University
Office of Graduate Admissions
5151 Park Avenue | Fairfield, CT 06825
www.sacredheart.edu/graduate

FOR MORE INFORMATION:
Visit www.sacredheart.edu/gradcounselor, or call 203-365-7619 to find the dedicated admissions representative in charge of your program.

NEW AT SHU

3. Chem-Bioinformatics: Non-Thesis Track

The 36-credit Master of Science in Chem-Bioinformatics is a hybrid of Chemistry and Computer Science, focusing on developing and applying computational methods to collect, store and organize chemical, biochemical, biophysical and biological data. Students in this program are prepared to solve "big" data problems, especially those in the pharmaceutical and chemical industries. Students will learn how to create databases, algorithms and other computational techniques to solve formal and practical problems and analyze relationships arising from massive chemical and biological data sets. An introductory course to computer programming using scripting is required. Students who do not meet this requirement will have the option of taking the course at SHU as part of the graduate program.

For more information, please visit: www.sacredheart.edu/graduate.

CHEM-BIOINFORMATICS COURSEWORK

Some of the required courses for Chem-Bioinformatics

* CH 522: Organic Synthesis	3
* CH 533: Biophysical Chemistry	3
* CH 553: Advanced Inorganic Chemistry (or CH 555: Theoretical Inorganic)	3
* CH 590: Cheminformatics and Lab	3
* CH 545: Bioinformatics and Lab	3
* CH 598: Comprehensive Exam	1

Some elective courses for Chem-Bioinformatics

* CH 525: Supramolecular Chemistry	3
* CH 547: Computational Chemistry and Molecular Modeling	3
* CS 551: Intro to object-oriented programming with Java	3
* CS 550: Dynamic Web Page Development	3

AT PROGRAM COMPLETION, STUDENTS WILL:

* Have knowledge in the basic areas of chemistry (inorganic, organic, physical, analytical and biochemistry) with extensive knowledge in at least one area.
* Complete an extensive research project.
* Have the ability to recognize scientific problems, formulate questions and carry out strategies for solving them.
* Understand, read and use scientific literature.
* Be able to communicate scientific information clearly and precisely, in both written and oral forms.
* Understand the principles and applications of modern instrumentation, computation, experimental design and data analysis.

SHU FAST FACTS

The Princeton Review includes SHU in its The Best 380 Colleges: 2015 and Best 296 Business Schools: 2014 and *U.S. News & World Report* ranks SHU 41 among the best regional universities in the North in its annual "America's Best Colleges" publication, making it one of the top New England liberal arts colleges.

Connecticut Campuses: Fairfield, Griswold and Stamford Graduate Center

Student Body: 3,030 total graduate students: 1,076 full-time and 1,954 part-time in Fall 2015

EMPLOYMENT OUTLOOK

An M.S. in chemistry will prepare you for a career in science, laboratories, pharmaceutical sales, development, education or government. You may also choose to continue your education in the fields of medicine, engineering or law. A master's in chemistry is associated with excellent analytical and mathematical skills. According to the latest figures reported by the American Chemical Society on September 23, 2013, between 2012 and 2013, the median salary for chemists with master's degrees was $85,000.

ADMISSION INFORMATION

Individuals who hold a bachelor's degree in any academic discipline from a regionally-accredited college or university will be considered for admission to the M.S. in chemistry program.

The following documents must be submitted and will be considered when applying:

* Completed online application for graduate study: http://apply.sacredheart.edu
* Official transcripts from all undergraduate institutions attended
* Nonrefundable application fee
* Two letters of recommendation
* Professional résumé

International students who require an F1 Student Visa must also submit:

* TOEFL or IELTS scorecard
* Bank statement/Affidavit of support
* Copy of passport

International students will also be required to take the American Chemical Society (ACS) test to prove basic knowledge in chemistry prior to enrollment.

ADMISSION DEADLINES

Applications are reviewed by the Admissions Committee on a rolling basis. The University recommends applying by March 1 for fall (September) admittance and by November 1 for spring (January).

FINANCIAL ASSISTANCE

A limited number of research and staff assistantships are available to full-time graduate students on a competitive basis. Student loans, deferred payment plans and a variety of other programs are available through the Office of Student Financial Assistance at 203-371-7980.

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