

# MASTER OF SCIENCE IN THE FIELD OF CHEMISTRY (STEM)

GW's graduate chemistry program fosters active learning through a research-based curriculum. Beginning with advanced coursework and training in the discipline as a whole and one or more selected subdisciplines, our award-winning graduate students engage in cutting-edge research alongside expert faculty. Research areas include proteomics, and bioanalytical methods development, synthetic medicinal chemistry and drug design, combustion, battery chemistry and renewable energy sources, laser and molecular spectroscopies, nano- and biomaterials, modeling, coordination chemistry, and novel inorganic framework structures.

The MS program offers thesis and non-thesis tracks to prepare individuals for distinctive career or professional paths. All students take core courses and comprehensive examinations in the fields of analytical, inorganic, organic, and physical chemistry.

This is a STEM designated program.

Visit the program website (<https://chemistry.columbian.gwu.edu/ms-chemistry/>) for additional information.

## ADMISSIONS

Admission deadlines: Fall – April 1 (February 1 for fellowship consideration);

Spring – October 1

Standardized GRE is not required.

test scores:

The Test of English as a Foreign Language (TOEFL), the academic International English Language Testing System (IELTS), or the PTE Academic is required of all applicants except those who hold a bachelor's, master's, or doctoral degree from a college or university in the United States or from an institution located in a country in which English is the official language, provided English was the language of instruction.

Minimum scores for the program are:

- Academic IELTS: an overall band score of 6.0 with no individual score below 5.0; or

- TOEFL: 550 on paper-based or 80 on Internet-based; or

- PTE Academic: 53

Prerequisite requirements: A bachelors degree in chemistry or a related field.

Recommendations: One (1) recommendation required:

Prior academic records:

Transcripts are required from all colleges and universities attended, whether or not credit was earned, the program was completed, or the credit appears as transfer credit on another transcript. Unofficial transcripts from all colleges and universities attended must be uploaded to your online application. Official transcripts are required only of applicants who are offered admission. If transcripts are in a language other than English, English language translations must be provided. The English translation alone should be uploaded into your application.

**Statement of purpose:** In an essay of 250 – 500 words, state your purpose in undertaking graduate study in your chosen field. Include your academic objectives, research interests, and career plans. Also discuss your related qualifications, including collegiate, professional, and community activities, and any other substantial accomplishments not already mentioned on the application. If you are applying for an assistantship or fellowship, you should also describe any teaching experience you have had.

**International applicants only:** Please follow this link - <https://columbian.gwu.edu/international-graduate-applicants> (<https://columbian.gwu.edu/international-graduate-applicants/>) - to review the International Applicant Information carefully for details on required documents, earlier deadlines for applicants requiring an I-20 or DS-2019 from GW, and English language requirements.

Supporting documents not submitted online should be mailed to:

Columbian College of Arts and Sciences, Office of Graduate Studies  
The George Washington University  
801 22nd Street NW, Phillips Hall 107  
Washington DC 20052

For additional information about the admissions process visit the Columbian College of Arts and Sciences Frequently Asked Questions (<https://columbian.gwu.edu/graduate-admissions-faq/>) page.

Contact:

askccas@gwu.edu  
202-994-6210 (phone)

Hours: 9:00 am to 5:00 pm, Monday through Friday

## REQUIREMENTS

The following requirements must be fulfilled:

The general requirements stated under Columbian College of Arts and Sciences, Graduate Programs (<http://bulletin.gwu.edu/arts-sciences/#degreeregulationstext>).

Thesis option—30 credits, including 15 credits in required courses, 9 credits in elective courses, and 6 credits in thesis research; non-thesis option—30 credits, including 15 credits in required courses and 15 credits of electives, including up to 6 credits of research. All students must successfully complete a comprehensive examination covering foundational topics in the fields of analytical, inorganic, organic, and physical chemistry.

**Note:** All entering students in graduate chemistry programs are required to take the American Chemical Society graduate level placement examinations, given by the Department of Chemistry, prior to course registration. The four placement examinations (in the disciplines of analytical, organic, inorganic, and physical chemistry) are designed to evaluate student understanding of subject matter in the disciplines generally taught in undergraduate programs preparatory for graduate work in chemistry, and the results are used by the department to advise the individual student in planning a program of courses appropriate to the student's background. All graduate students are required to participate in the seminar and colloquium programs. Upon consultation with course instructors, specific course prerequisites may be waived.

Code	Title	Credits
<b>Required</b>		
15 credits, which must include at least three courses from the following core course list, and six additional credits in non-research CHEM courses taken at the 6000 level.:		
CHEM 6222	Biomedical Mass Spectrometry	
CHEM 6233	Organometallic Chemistry and Catalysis	
CHEM 6235	Advanced Inorganic Chemistry I	
CHEM 6238	Chemistry of Inorganic Materials	
CHEM 6251	Advanced Organic Chemistry I	
CHEM 6257	Physical-Organic Chemistry	
CHEM 6259	Polymer Chemistry	
CHEM 6273	Chemical Thermodynamics	
CHEM 6277	Chemical Bonding	
CHEM 6278	Molecular Spectroscopy	

#### Additional Requirements

Thesis option: Students are required to take 9 additional credits through a combination of coursework and Research (CHEM 6395), and 6 credits of Thesis Research (CHEM 6999). In addition, a 30 minute seminar based on the student's research must be given during their last semester in the program. Students must submit their MS thesis to a departmental committee (consisting of the student's advisor and at least one other departmental faculty member) for review and adherence to program standards, along with a satisfactory oral defense of its contents.

Non-thesis option: Students are required to take 15 credits through a combination of coursework and up to 6 credits of Research (CHEM 6395). Up to 9 credits may be taken in other departments related to the student's area of interest (e.g., Forensic Sciences), subject to the approval of the Department of Chemistry. Students who are or will be employed in organizations dealing with science and technology policy programs may select from specified courses offered by Information Systems and Technology Management, Political Science, Public Policy and Public Administration, and the Elliott School of International Affairs.

#### Comprehensive examination

All students must successfully complete a comprehensive examination covering foundational topics in the fields of analytical, inorganic, organic, and physical chemistry.