MASTER OF SCIENCE IN THE FIELD OF ENVIRONMENTAL AND GREEN CHEMISTRY (STEM)

Growing public awareness about the state of the environment, chemical product safety, and new chemical regulatory policies is driving demand for leaders who are able to understand the science underlying environmental challenges and thus develop innovative solutions. The master of science in environmental and green chemistry, offered through GW’s Department of Chemistry, develops the experts needed with an interdisciplinary curriculum that fosters proficiency in evaluating the state of the environment and designing greener technologies.

Unlike many other graduate programs in environmental chemistry, GW’s unique program places emphasis on green chemistry—the design of new chemicals and chemical processes with minimal environmental impact. Students pursue five core focus areas: energy, environmental analytical chemistry, air/water chemistry, green chemical processing, and chemical toxicology. For a broader perspective, the curriculum can be tailored to students’ interests, and courses in public health, science policy, and business are encouraged. A capstone project enables students to apply the knowledge gained from other coursework and develop the interpersonal and communication skills needed to collaborate with scientists and laypeople alike.

Being in Washington, DC, allows for unique opportunities, including proximity to a hotspot for green careers and potential capstone partners such as the Environmental Protection Agency, Department of Energy, and Food and Drug Administration. Graduates find employment as well-rounded chemists in government and the private sector, in roles such as environmental and sustainability consultants, health professionals, new product developers, engineers, or project managers across industries and business sectors.

This is a STEM designated program.

ADMISSIONS

Admission requirements:
- Standardized GRE general test recommended, but not required. (ETS institution code 5246)
- Prerequisite: Two semesters of general chemistry, two semesters of organic chemistry, one semester of inorganic chemistry, and one semester of quantitative and/or instrumental analysis.
- Deadlines:
  - Fall - February 1: Priority consideration for admission and funding; April 1: Guaranteed review for admission and consideration for funding, if available. (Applications for admission will continue to be accepted after April 1, when space remains available in the program.)
  - Spring - October 1

Requirements:
- Minimum scores for the program are:
  - Academic IELTS: an overall band score of 6.0 with no individual score below 5.0; or
  - TOEFL: 600 on paper-based or 100 on Internet-based; or
  - PTE Academic: 53

Two (2) recommendations required.

Supporting documents not submitted online should be mailed to:

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Recommendations:
- Two (2) recommendations 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 accomplishments, including collegiate, professional, and community activities, and any other substantial 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.

Additional requirement:
- A writing sample is required. The writing sample should be a science-related original work, of which you are the sole or primary author. The sample should be one to five pages in length and may be an excerpt from a longer document.

International applicants:
- 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.

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 (https://bulletin.gwu.edu/arts-sciences/#degreeregulationstext).

30 credits, including 18 credits in required courses and 12 credits in elective courses.

Note: ACS placement examinations are administered at the start of the program of study to ensure competency in key areas of chemistry.

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<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td><strong>Required</strong></td>
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<tr>
<td>CHEM 6280</td>
<td>Energy and the Environment</td>
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<td>CHEM 6281</td>
<td>Environmental Chemistry: Air, Water, and Soil</td>
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<td>CHEM 6282</td>
<td>Green Industrial Chemistry</td>
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<td>CHEM 6283</td>
<td>Chemical Toxicology and Rational Design of Safer Chemicals</td>
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<tr>
<td>CHEM 6284</td>
<td>Environmental Analytical Chemistry</td>
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<tr>
<td>CHEM 6298 or 6198</td>
<td>Capstone Seminar in Environmental and Green Chemistry</td>
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<tr>
<td>or PPPA 6198</td>
<td>Environmental Resource Policy Capstone</td>
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<tr>
<th><strong>Electives</strong></th>
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<td>12 credits in elective courses selected from the following*:</td>
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<tr>
<td>CHEM 6238</td>
<td>Chemistry of Inorganic Materials</td>
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<tr>
<td>CHEM 6251</td>
<td>Advanced Organic Chemistry I</td>
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CHM 6257 | Physical-Organic Chemistry

CHM 6278 | Molecular Spectroscopy

CHM 6320 | Selected Topics in Analytical Chemistry

CHM 6350 | Selected Topics in Organic Chemistry

ECON 6237 | Economics of the Environment and Natural Resources

EMSE 6200 | Policy Factors in Environmental and Energy Management

ENRP 6101 | Environmental Sciences I: Physical Sciences

ENRP 6102 | Environmental Sciences II: Life Sciences

IAFF 6141 | International Science and Technology Policy Cornerstone

IAFF 6142 | Technology Creation/Diffusion

IAFF 6151 | Environmental Policy

IAFF 6153 | Science, Technology, and National Security

IAFF 6158 | Special Topics in International Science and Technology Policy **

PPPA 6066 | U.S. Environmental Policy

PUBH 6002 | Biostatistical Applications for Public Health

PUBH 6126 | Assessment and Control of Environmental Hazards

SMPP 6290 | Special Topics **

STAT 6202 | Mathematical Statistics II

*Alternate elective courses may be selected subject to the program director’s approval.

**Approved topics only. Consult the Schedule of Classes for current semester offerings. Permission of the advisor must be received prior to enrollment.