MASTER OF SCIENCE IN THE FIELD OF BIOINFORMATICS AND MOLECULAR BIOCHEMISTRY

The science program in bioinformatics and molecular biochemistry is a unique program that integrates bioinformatics to research applications in genomics, biochemistry, and molecular medicine. The program is one of the first in the United States devoted exclusively to teaching important genome-wide approaches to medicine and biology.

Students in the program take a novel and focused approach to learning innovative bioinformatics technologies for analyzing high-throughput data from genomics and proteomics in a backdrop of biochemistry. Advanced biochemistry and molecular medicine courses provide strong foundational knowledge in biochemistry and biochemical genetics and medicine that paves the way for understanding the role of bioinformatics and utilizing bioinformatics-based approaches to research and clinical applications.

The course topics include leveraging genomic and other -omic data for biomedical knowledge discovery in the era of personalized medicine through large-scale data analysis, and the development of relevant algorithms and software.

Students gain real-world experience through numerous hands-on projects that solidify learning. Further, the program offers the option of preparing a thesis by completing a research project at George Washington University or other participating facilities at NIH, FDA, or Children’s National Medical Center. Alternatively, the non-thesis option requires a hands-on practicum at participating institutions.

Upon graduation, students are prepared for careers in fields such as advanced biomedical research, genomics, bioinformatics, medicine, public health to law, and policy.

Visit the School of Medicine and Health Sciences website for more information regarding the Bioinformatics and Molecular Biochemistry (https://biochemistry.smhs.gwu.edu/ms-bioinformatics-and-molecular-biochemistry/) program.

This is a STEM-designated program.

ADMISSIONS

Admission 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

English Language Requirements

- TOEFL: 550 on paper-based or 80 on Internet-based; or
- PTE Academic: 53

Minimum scores for the program are:
- Academic IELTS: an overall band score of 6.0 with no individual score below 5.0; or

Applicants to the program who do not meet minimum English language requirements may be eligible for our full-time Applied English Language program.

Recommendations

One (1) recommendation required:

Prerequisite requirements courses, or equivalent:
- CHEM 2122, 2151-52, 2153-54; PHYS 1011.
- BIOC 3261; BISC 1111, 1112;
- BIOC 3261; BISC 1111, 1112;
- CHEM 2122, 2151-52, 2153-54; PHYS 1011.

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:
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. For non-thesis option—11 credits in required courses, 6 credits in required track, and 13 credits of electives. For thesis option—11 credits in required courses, 6 credits in required track, 6 credits in Thesis and 7 credits of electives.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>Required</td>
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<tr>
<td>BIOC 6221</td>
<td>Proteins, Pathways, and Human Health</td>
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<tr>
<td>BIOC 6222</td>
<td>Biochemical Genetics and Medicine</td>
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<td>BIOC 6223</td>
<td>Bioinformatics</td>
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<tr>
<td>BIOC 6227</td>
<td>Biochemistry Seminar (taken twice for a total of 2 credits)</td>
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<tr>
<td>Thesis option</td>
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<tr>
<td>BIOC 6299</td>
<td>Thesis Research (repeated for total of 6 credits)</td>
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**Electives**

Non-thesis option: 13 credits in elective courses.

Thesis option: 7 credits in elective courses.

**Comprehensive examination**

All students must pass, or be exempted from, a comprehensive examination.

Students who wish to pursue the thesis option should contact the department for details.