DOCTOR OF PHILOSOPHY IN THE FIELD OF GENOMICS AND BIOINFORMATICS

Specific admission requirements are shown on the Graduate Program Finder. [http://www.gwu.edu/all-graduateprograms](http://www.gwu.edu/all-graduateprograms)

Candidates must hold a bachelor’s degree in biological sciences, chemistry, or a related field.

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/#degreeregulationtext](http://bulletin.gwu.edu/arts-sciences/#degreeregulationtext).

The requirements for the Doctor of Philosophy program [http://bulletin.gwu.edu/arts-sciences/#doctoraltext](http://bulletin.gwu.edu/arts-sciences/#doctoraltext).

The following requirements must be fulfilled: 72 credits, including required core and elective courses. Successful completion of a grant-style qualifier examination is required for advancement to candidacy.

Students are advised to complete up to 48 credits comprising required interdisciplinary core courses, required genomics core courses, electives, and advanced readings and research in the first two years of PhD study. Upon successful completion of a grant-style qualifier, students then register for up to 24 credits of dissertation research through completion and successful oral defense of a written dissertation.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>BMSC 8210</td>
<td>Genes to Cells</td>
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<tr>
<td>BMSC 8212</td>
<td>Systems Physiology</td>
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<tr>
<td>BMSC 8215</td>
<td>Lab Rotations</td>
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<tr>
<td>BMSC 8216</td>
<td>Scientific Writing, Presentation Skills, and Seminar Planning</td>
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<td>BMSC 8217</td>
<td>Ethics and Grant Writing</td>
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<td>BMSC 8218</td>
<td>Career Options in the Biomedical Sciences</td>
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<td>BMSC 8230</td>
<td>Molecular Basis of Human Disease</td>
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<tr>
<td>BMSC 8235</td>
<td>Applied Biostatistics for Basic Research</td>
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**Required interdisciplinary core courses**

- BMSC 8210: Genes to Cells
- BMSC 8212: Systems Physiology
- BMSC 8215: Lab Rotations
- BMSC 8216: Scientific Writing, Presentation Skills, and Seminar Planning
- BMSC 8217: Ethics and Grant Writing
- BMSC 8218: Career Options in the Biomedical Sciences
- BMSC 8230: Molecular Basis of Human Disease
- BMSC 8235: Applied Biostatistics for Basic Research

**Required genomics core courses**

- BMSC 8231: Introduction to Genomics, Proteomics, and Bioinformatics
- BMSC 8234: Seminar in Systems Biology

**Electives**

24 credits elective courses selected in consultation with graduate program advisor:

- BIOC 6223: Bioinformatics
- BIOC 6236: Medical Genomics
- BIOC 6237: Proteomics and Biomarkers
- BIOC 6240: Next Generation Sequencing
- BIOC 6281: Topics
- MICR 6236: Fundamentals in Genomics and Proteomics I
- MICR 8210: Infection and Immunity
- MMED 8222: Molecular Oncology
- MMED 8998: Advanced Reading and Research
- MMED 8821: Basic Science of Oncology

**Dissertation research**

- BMSC 8999: Dissertation Research

Required courses may be waived at the discretion of the graduate program director based on written documentation of prior equivalent coursework. Any waiver increases the number of electives required, by the number of credits waived.