DOCTOR OF PHILOSOPHY IN THE FIELD OF NEUROSCIENCE

Neuroscience uses tools in a wide variety of disciplines—psychology, anatomy, electrophysiology, molecular biology, medicine, pharmacology, and biochemistry—to provide critical scientific breakthroughs for the millions of individuals affected by neurologic illnesses.

In the doctor of philosophy (PhD) in neuroscience program, the principal areas of research training include developmental neurobiology, molecular mechanisms of action of drugs of abuse, neural transplant, neurotransmitter systems, and the psychobiology of learning, memory, and communication.

The program begins with interdisciplinary coursework in genes, cells and systems in biomedical sciences, professional development in scientific communication and science careers, and laboratory rotations offered through GW’s Institute for Biomedical Sciences (https://smhs.gwu.edu/ibs/). After the first year of study, students work with their research advisor to complete remaining degree requirements, including the dissertation.

Program faculty are drawn largely from the GW School of Medicine and Health Sciences, including scientists from Children’s Research Institute of Children’s National Health System.

Students have access to extensive research facilities and libraries on campus and in the greater Washington, DC area. This includes the School of Medical and Health Sciences, GW’s Gelman Library and Himmelfarb Health Sciences Library, Children’s Research Institute, the National Institutes of Health, and numerous other research institutions.

This is a STEM-designated program.

Visit the program website (https://smhs.gwu.edu/ibs/program/molecular-medicine/neurosciences/) for additional information.

ADMISSIONS

Admission deadlines:
Fall – December 1

Standardized test scores:
The GRE general exam is not required.

Minimum scores for the program are:
- Academic IELTS: an overall band score of 7.0 with no individual score below 6.0; or
- TOEFL: 600 on paper-based or 100 on Internet-based; or
- PTE Academic: 68;

Recommendations:
Three (3) 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.

Prerequisite:
A bachelor’s degree in biological sciences, requirement chemistry, or a related field.

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.

Interview:
An interview is required.

Additional requirements:
A Curriculum Vitae is required.

International applicants only:
Please follow this link - https://columbian.gwu.edu/international-graduate-applicants/ - to review the International Applicant Information carefully for details on required documents and English language requirements.

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

Supporting documents not submitted online should be mailed to:
Columbian College of Arts and Sciences - Graduate Admissions Office
The George Washington University
801 22nd Street NW, Phillips Hall 215
Washington DC 20052

Contact:
askccas@gwu.edu

1 Doctor of Philosophy in the Field of Neuroscience
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).

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

72 credits, including required core and elective courses. Successful completion of a grant-style qualifier examination is required for advancement to candidacy. In addition, students perform full-time research in faculty laboratories for the duration of their program.

Students are advised to complete 45 credits in the first two years of PhD study comprising required interdisciplinary core courses, required neuroscience core courses, electives, and advanced readings and research. Upon successful completion of a grant-style qualifier, students register for up to 27 credits of dissertation research through completion and successful oral defense of a written dissertation.

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<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td><strong>Required interdisciplinary core</strong></td>
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<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 (Taken three times for a total of six credits)</td>
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<tr>
<td>BMSC 8216</td>
<td>Scientific Writing, Presentation Skills, and Seminar Planning</td>
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<tr>
<td>BMSC 8217</td>
<td>Ethics and Grant Writing</td>
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<tr>
<td>BMSC 8218</td>
<td>Career Options in the Biomedical Sciences</td>
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<tr>
<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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<tr>
<td><strong>Required neuroscience core</strong></td>
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<tr>
<td>NRSC 8283</td>
<td>Current Topics in Neuroscience (Taken two times for a total of four credits)</td>
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<tr>
<td>NRSC 8284</td>
<td>Foundations of Experimental Neuroscience I</td>
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18 credits in elective courses selected in consultation with graduate program advisor.

ANAT 6130 Clinically Oriented Human Embryology
ANAT 6150 Clinically Oriented Human Microscopic Anatomy
ANAT 6160 Human Clinical Neuroanatomy
ANAT 6182 Fundamentals of Translational Science
ANAT 6275 Advanced Studies in Translational Sciences
BIOC 6240 Next Generation Sequencing
BIOC 6242 Bioscience Big Data Statistics
BIOC 6281 Topics
BIOC 8225 Metabolism
BIOC 8232 Molecular and Cellular Signaling
BMSC 8219 Writing the Grant-Style Qualifier
BMSC 8220 IBS Research Practicum
CANC 8221 The Basic Science of Oncology
CANC 8222 Molecular Oncology and Cancer Epigenetics
CANC 8223 Immunology and Immunotherapy of Cancer
GENO 6223 Bioinformatics
GENO 6236 Medical Genomics
GENO 6237 Proteomics and Biomarkers
GENO 8231 Introduction to Genomics, Proteomics, and Bioinformatics
GENO 8232 Computational Biology and Bioinformatics: Principles and Practices
MICR 8210 Infection and Immunity
MICR 8230 Molecular and Cellular Immunology
MICR 8270 HIV Persistence, Comorbidities and Treatment
MICR 8271 HIV Persistence, Comorbidities, and Treatment
NRSC 8285 Foundations of Experimental Neuroscience II
NRSC 8998 Advanced Reading and Research

Doctor of Philosophy in the Field of Neuroscience
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<tr>
<th>Course Code</th>
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<tr>
<td>PHAR 6205</td>
<td>Pharmacology</td>
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<tr>
<td>PHAR 6206</td>
<td>Advanced Pharmacology</td>
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<tr>
<td>PHAR 6116</td>
<td>Pharmacogenomics and Personalized Medicine</td>
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<tr>
<td>PHAR 6322</td>
<td>Advanced Professional and Communication Skills</td>
</tr>
<tr>
<td>PHAR 8211</td>
<td>Physiology</td>
</tr>
<tr>
<td>PHAR 8281</td>
<td>Molecular Pharmacology and Neurobiology of Excitable Tissues</td>
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<tr>
<td>PUBH 6276</td>
<td>Public Health Microbiology</td>
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<tr>
<td>PUBH 6278</td>
<td>Public Health Virology</td>
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**Dissertation research (6-27 credits)**

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<tr>
<td>NRSC 8999</td>
<td>Dissertation research</td>
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*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.