BIOINFORMATICS AND COMPUTATIONAL BIOLOGY GRADUATE CERTIFICATE

Banner Code: SC-CERG-BCB

Academic Advising

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Science and Technology Campus

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This graduate certificate addresses the growing national and regional demand for trained computational biologists by combining a solid foundation in biotechnology with computational skills relevant to bioinformatics. With online and onsite courses, the flexibility of this certificate's structure permits students to custom design their curriculum under an advisor's guidance, making the graduate certificate especially relevant for students employed in today's diverse Northern Virginia high-technology workplace. Ideal candidates for this certificate are those who have a background in biological and computer sciences, and are currently working in or planning to enter the fields of biotechnology or bioinformatics. The certificate is also highly relevant for students who are interested in advancing their career goals but may not have adequate time available to undertake a graduate degree program.

All courses are also offered online, allowing students to participate in class without having to travel to campus. Further information can be found with Mason Online (http://masononline.gmu.edu/).

The certificate may be pursued on a part-time or full-time basis.

Admissions & Policies

Admissions

University-wide admissions policies can be found in the Graduate Admissions Policies (https://catalog.gmu.edu/admissions/graduate-policies/) section of this catalog. International students and students having earned international degrees should also refer to Admission of International Students (https://catalog.gmu.edu/admissions/international-students/) for additional requirements.

Eligibility

Applicants should hold a bachelor's degree from an institution of higher education accredited by a Mason-recognized U.S. institutional accrediting agency or international equivalent in biology, computer science, or a related field with a minimum GPA of 3.25.

In general, prior to admission, applicants are expected to have completed courses in biology, biochemistry, calculus, computer programming, and probability and statistics. Students admitted with course deficiencies in these areas may be required to take additional courses, some of which may not be applicable to the certificate's credit total.

Application Requirements

To apply, prospective students should submit the George Mason University Admissions Application (https://www2.gmu.edu/admissions-aid/apply-now/) and its required supplemental documentation.

The GRE is not required for admission into this certificate.

Policies

For policies governing all graduate certificates, see AP.6 Graduate Policies (https://catalog.gmu.edu/policies/academic/graduate-policies/).

Students may not pursue this certificate concurrently with any other graduate degree program or certificate.

Students may not apply previous credit hours into this certificate.

Premium Tuition

The certificate is a professional certification program that charges students at a differential (premium) tuition rate, with an additional $100 per credit added to the standard George Mason University graduate tuition rate for students who enroll in this certificate, regardless of in-state or out-of-state status. The differential tuition is used to fund continuing improvements in the College of Science's educational facilities used to support the certificate program.

Requirements

Certificate Requirements

Total credits: 15

This certificate may be pursued on a full-or part-time basis.

Students should refer to the Admissions & Policies tab for specific policies related to this certificate.

Required Courses

Code	Title	Credits
Students must complete the following coursework:		
BINF 630	Bioinformatics Methods	3
BINF 631	Molecular Cell Biology for Bioinformatics	3
Total Credits		**6**

Concentration in Systems Biology and Biotechnology (SBBT)

This concentration was largely created to build a "bridge" option for students who had not yet decided if they would like to pursue a wet lab career or enter into the field of computational biology. Once completed, these certificate graduates will be well prepared to enter into the Biology, MS (https://catalog.gmu.edu/colleges-schools/science/systems-biology/biology-ms/), the Bioinformatics and Computational Biology, MS (https://catalog.gmu.edu/colleges-schools/science/systems-biology/bioinformatics-computational-biology-ms/), or to pursue a career in biotechnology.

Code	Title	Credits
BINF 701	Systems Biology	3
BIOS 742	Biotechnology	3
or BIOS 743	Genomics, Proteomics, and Bioinformatics	
Choose one elective from the following:		3
BIOL 502	Adaptation in Biosystems	
BIOL 508	Selected Topics in Animal Biology	
BIOL 682	Advanced Eukaryotic Cell Biology	
BIOL 689	Interdisciplinary Tools in the Biosciences	
Total Credits		**9**

Electives

Code	Title	Credits
For students not choosing the Systems Biology and Biotechnology Concentration, select three courses from the following, or other courses as approved by the coordinator:		9
BINF 633	Molecular Biotechnology	
BINF 634	Bioinformatics Programming	
BINF 636	Microarray Methodology and Analysis	
BINF 639	Introduction to Biometrics	
BINF 730	Biological Sequence and Genome Analysis	
BINF 731	Protein Structure Analysis	
BINF 732	Genomics	
BINF 733	Gene Expression Analysis	
BINF 734	Advanced Bioinformatics Programming	
BINF 739	Topics in Bioinformatics	
Total Credits		**9**