BIOINFORMATICS AND COMPUTATIONAL BIOLOGY, MS

Banner Code: SC-MS-BCB

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In the field of bioinformatics and computational biology, specialists collect, store, analyze and present complex biological data. Through this work, critical contributions are made to basic biology, disease detection, drug design, modeling biosystems, forensics, agriculture, and environmental sciences through the combination of biological analysis and high-performance computing. This degree addresses the growing national and regional demand for trained computational biologists. It combines a solid foundation in biotechnology with the computational skills required for bioinformatics. The flexibility of the degree structure permits students to custom design their curriculum under an advisor's guidance, making the program especially relevant for students employed in today's diverse biotechnology workplace. Students completing the program are qualified to pursue careers that require knowledge of current bioinformatics methods and applications, and the ability to develop and/or use new bioinformatics software.

Courses are generally offered in the late afternoon or early evening to accommodate students with full-time employment outside the university. Students employed at area biotechnology organizations may take up to 6 credits (out of 31) for bioinformatics work done on the job, under the guidance of a faculty member. This work-related project may be applied as either a 3-credit research project or a 6-credit master's thesis.

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

Admissions & Policies

Admissions

University-wide admissions policies can be found in the Graduate Admissions Policies section of this catalog.

To apply for this program, please complete the George Mason University Admissions Application (https://www2.gmu.edu/admissions-aid/apply-now).

Eligibility

Applicants should have a bachelor's degree in biology, computer science, or a related field, with a GPA of at least 3.00 in their last 60 credits of study. Applicants should have taken courses in biology, computer science, calculus, physical chemistry, and statistics. Students with deficiencies in one or more of these areas may be required to take additional courses from the undergraduate curriculum.

Application Requirements

To apply, prospective students should complete a George Mason University Admissions Application (https://www2.gmu.edu/admissions-aid/apply-now), supply two copies of official transcripts from each college and graduate institution attended, a current résumé, and an expanded goals statement. Applicants should also include three letters of recommendation and official scores obtained on the GRE general exam. The GRE requirement will be waived if the student holds a master's degree from a regionally accredited U.S. institution. TOEFL scores are required for all international applicants.

Policies

For policies governing all graduate programs, see AP.6 Graduate Policies.

Requirements

Degree Requirements

Total credits: 31

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

Bioinformatics Core Courses

Code	Title	Credits
BINF 630	Bioinformatics Methods	3
BINF 631	Molecular Cell Biology for Bioinformatics	3
BINF 634	Bioinformatics Programming	3
BINF 701	Systems Biology	3
Total Credits		12

Advanced Bioinformatics

Code	Title	Credits
Advanced bioinformatics courses numbered BINF 730 and above		3
Total Credits		3

Bioinformatics Seminar

Code	Title	Credits
BINF 704	Colloquium in Bioinformatics	1
Total Credits		1

Research Project or Thesis and Electives

Select either a research project or a master's thesis and electives courses.

Research Project

Code	Title	Credits
BINF 798	Research Project	3
Select 12 credits of elective in bioinformatics and computational biology, biology and biotechnology, or computational sciences, as approved by the advisor		12
Total Credits		15

Thesis

Code	Title	Credits
BINF 799	Master's Thesis	6
Select 9 credits of electives in bioinformatics and computational biology, biology and biotechnology, or computational sciences, as approved by the advisor		9
Total Credits		15