Biological Data Science, MS

Are you the data scientist who wants to learn more about biology? The biologist who needs a better grasp of the large data sets generated in the life sciences? You'll work with faculty who are passionate to bridge the gap between biology and data science.

Program Description

Degree Awarded: MS Biological Data Science
The MS program in biological data science provides students with real-world training at the interface of the natural and mathematical sciences.

Students learn to manipulate big data, including the generation and analysis of data using statistical and computational toolsets. Students use their analytical skills in ecological, environmental, toxicological and other biological applications. The program incorporates multiple levels of experiential learning to ensure students gain critical thinking skills on top of core competencies.

At a Glance

- **College/School:** New College of Interdisciplinary Arts and Sciences
- **Location:** West campus

Accelerated Program Options

This program allows students to obtain both a bachelor's and master's degree in as little as five years. It is offered as an accelerated bachelor's and master's degree with:

- Applied Computing, BS
- Applied Mathematics, BS
- Biology, BA
Acceptance to the graduate program requires a separate application. During their junior year, eligible students are advised by their academic departments to apply.

**Degree Requirements**

32 credit hours and a thesis, or
32 credit hours including the required applied project course (ACO 593, BIO 593 or MAT 593)

**Required Core (12 credit hours)**

- ACO 501 Database Systems and Problem Solving in Python (3)
- BIO 514 Statistical Models for Biology (4)
- LSC 519 Applied Learning Lab (1)
- LSC 547 Wet Laboratory Experience (1)
- STP 560 Experimental Statistics in Biology (3)

**Other Requirements (9 credit hours)**

- LSC 555 Integrative Biology I (3)
- LSC 556 Integrative Biology II (3)
- LSC 562 Applied Mathematics Techniques in Biology (3)

**Electives or Research (5 credit hours)**

**Culminating Experience (6 credit hours)**

- ACO 593 Applied Project (6)
- BIO 593 Applied Project (6)
- MAT 593 Applied Project (6)
- ACO 599 Thesis (6)
- BIO 599 Thesis (6)
- MAT 599 Thesis (6)

**Additional Curriculum Information**

Other requirement, elective and research coursework may be substituted with approval of the academic unit. Students should see the academic unit for the approved electives and research course list.

Students choose one culminating experience option based on their emphasis area in biological data science.

**Admission Requirements**
Applicants must fulfill the requirements of both the Graduate College and the New College of Interdisciplinary Arts and Sciences.

Applicants are eligible to apply to the program if they have earned a bachelor's or master's degree in a related field such as biology, mathematics, statistics or computing, as well as unrelated fields, from a regionally accredited institution.

Applicants must have a minimum cumulative GPA of 3.00 (scale is 4.00 = "A") in the last 60 hours of their first bachelor's degree program, or applicants must have a minimum cumulative GPA of 3.00 (scale is 4.00 = "A") in an applicable master's degree program.

All applicants must submit:

1. graduate admission application and application fee
2. official transcripts
3. statement of purpose
4. two letters of recommendation
5. professional resume
6. proof of English proficiency

Additional Application Information
An applicant whose native language is not English must provide proof of English proficiency regardless of current residency.

It is preferred that letters of recommendation be from faculty members who know the applicant's work well; if these are not available, letters of recommendation from individuals in supervisory or professional roles will be accepted.

The statement of purpose should describe one's educational background, scholarly interests, and academic and professional goals.

Depending on student's educational background, deficiency courses may be required.

Application Deadlines

Fall

Career Opportunities

The proliferation of big data sets generated in biological science fields has dramatically increased the demand for individuals with the solid skill sets they need to manipulate and interpret this data.

Graduates are ready to enter one of the fastest-growing job markets to work with consulting firms, government agencies as well as nongovernmental organizations, in data science, informatics, data analytics, database development and mathematical modeling of biological systems that are relevant to a variety of industries. They are well suited to employment in positions such as:
• biomedical researcher
• bioinformatics data scientist
• chemical biology data scientist
• clinical data analyst
• computational biologist
• data engineer, data mining engineer
• database developer
• fisheries scientist, dairy scientist, animal scientist
• genomic scientist
• natural resources data scientist
• programmer
• pharmaceutical scientist
• visualization specialist

Graduates also are ready to seek advanced professional or graduate degrees, such as in medical, dental, veterinary and public health fields.

Contact Information

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