Biological Data Science (Graduate Certificate)

This program is designed for life scientists who need a better grasp of large data sets, and data scientists who need additional insight into the life sciences. You'll learn from faculty who are passionate to bridge the gap between biology and data science.

Program Description

**Degree Awarded: Certificate Biological Data Science (Certificate)**

This biological data science certificate program sits at the intersection of biology, computing, mathematics and statistics, providing students in any of these disciplines the unique opportunity to develop an integrative tool set that is in high demand for the analysis of data in the context of biological applications. It 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 can use their analytical skills in ecological, environmental, toxicological and other biological applications and are prepared to work in emerging areas of interdisciplinary and transdisciplinary research.

At a Glance

- **College/School:** [New College of Interdisciplinary Arts and Sciences](#)
- **Location:** [West](#) or [Online](#)

Degree Requirements

15 credit hours
Required Core (3 credit hours)
ACO 501 Database Systems and Problem Solving in Python (3)

Other Requirements (6 credit hours)
LSC 598 Topic: Statistics for Biological Data Science I (3)
LSC 598 Topic: Statistics for Biological Data Science II (3)

Restricted Electives (6 credit hours)
FOR 540 Advanced Topics in Human Forensic DNA Typing (3)
LSC 555 Integrative Biology I (3)
LSC 556 Integrative Biology II (3)
LSC 562 Applied Mathematics Techniques in Biology (3)
STC 510 Data Wrangling (3)

Additional Curriculum Information
Other requirement and restricted elective coursework may be substituted with approval of the academic unit.

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 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 they 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. personal statement
4. 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.

The statement of purpose should respond directly to questions one and two below. Responses to each prompt should be limited to 250 words or less.
1. Describe your career goals and how a graduate certificate in biological data science will help you achieve those goals.

2. Biological data science is a discipline that spans a broad range of biological topics from molecular biology to ecology, and uses a variety of computational methods. Briefly describe two aspects of biological data science that you are most interested in and why.

3. (Optional) If there are any extenuating circumstances that affected your undergraduate performance, or that affect you now, you may use this space to explain your situation. You do not need to complete this section if you feel that your application meets all requirements for admission into the program.

A professional resume may be included in the application materials, but is optional.

**Attend Online**

**ASU Online**

ASU offers this program in an online format with multiple enrollment sessions throughout the year. Applicants may view the program description and request more information [here](#).

**Application Deadlines**

**Fall**

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**Career Opportunities**

With the multiple levels of experiential learning in the program, graduates of the biological data science certificate are ready to enter one of the fastest-growing job markets; work with consulting firms, government agencies as well as non-governmental organizations; or go on to seek advanced professional or graduate degrees. Students completing this graduate certificate have the foundation to enter a broad range of careers that require skills in analytical reasoning, computer programming and database design.

Career fields relevant to the certificate program include:

- bioinformatics
- data management and databases
- data processing, hosting and related services
- environmental consulting
- marketing or advertising for companies with large consumer data sets
- research data analysis
- work in health care industries that involves dealing with patient data

**Contact Information**
Admission Deadlines