Biological Data Science (Graduate Certificate)

ASBDSGRCT

Are you a life scientist who needs a better grasp of large data sets, or a data scientist who needs additional insight into the life sciences? Learn from faculty who are passionate about bridging the gap between biology and data science.

Program description

Degree awarded: Certificate Biological Data Science (Certificate)
This biological data science graduate certificate program sits at the intersection of biology, computing, mathematics and statistics, providing students in any of these disciplines with the valuable opportunity to develop an integrative toolkit that is in high demand for the analysis of data in the context of biological applications. The program provides students with hands-on 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 tool sets. Students can use their analytical skills in ecological, environmental, toxicological and other biological applications, and they 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 Valley or Online

Degree requirements

15 credit hours

Required Core (3 credit hours)
LSC 540 Statistics for Biological Data Science I (3)

Other Requirements (3 credit hours)
ACO 501 Database Systems and Problem Solving in Python (3) or
ACO 580 Practicum (3)

Restricted Electives (9 credit hours)
ACO 501 Database Systems and Problem Solving in Python (3)
ACO 580 Topic: Intro to Python Programming for Problem Solving (3)
FOR 540 Advanced Topics in Human Forensic DNA Typing (3)
LSC 541 Statistics for Biological Data Science II (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 field 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 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 their current residency.

The statement of purpose should address the following requests in 250 words or less:

1. Applicants should describe their career goals and how a graduate certificate in biological data science will help them achieve those goals.
2. Biological data science is a discipline that spans a broad range of biological topics, from molecular biology to ecology, and it uses a variety of computational methods. Applicants are asked to briefly describe two aspects of biological data science that most interest them, and explain why.
3. Optional: Applicants are asked to explain any extenuating circumstances that affected their undergraduate performance or that affect them now. This is not necessary if the applicant feels their application meets all the program's admission requirements.

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

Tuition information

When it comes to paying for higher education, everyone's situation is different. Students can learn about ASU tuition and financial aid options to find out which will work best for them.

Attend online

ASU Online

ASU offers this program in an online format with multiple enrollment sessions throughout the year. Applicants may view the program's ASU Online page for program descriptions and to request more information.

Career opportunities

With the multiple levels of experiential learning in the program, graduates who hold the biological data science certificate are ready to enter one of the fastest-growing job markets. They have the foundation they need for a wide variety of careers that require skills in analytical reasoning, computer programming and database design in such areas as consulting firms, government agencies and nongovernmental organizations. 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

Graduates are also prepared for pursuing advanced professional or graduate degrees.

Contact information

School of Mathematical and Natural Sciences | FAB N101

ncgradadmissions@asu.edu | 602-543-3000

Admission deadlines