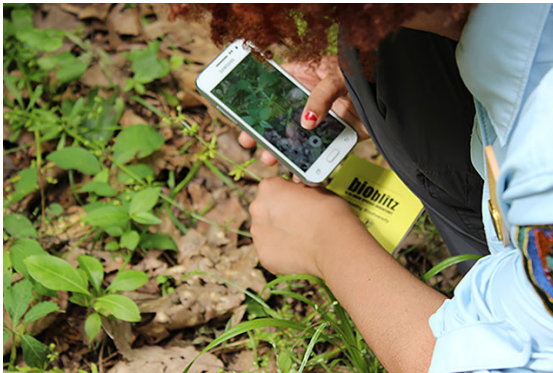


Data Science + Environmental Science

“These days, the “data problem” for environmental scientists is less about having enough of it and more about figuring out what to do with all of it – and to do it efficiently. Environmental data science is a burgeoning field representing the skills, tools, and techniques for organizing and analyzing large amounts of data to answer the increasingly complex questions environmental scientists are facing.”

~ Jenny Seifert and Kathryn Meyer

<https://www.nceas.ucsb.edu/news/next-generation-environmental-scientists-are-data-scientists>



WHY DATA SCIENCE?

“Data science can have an...impact in the area of earth and environmental sciences, offering a rich tapestry of new techniques to support both a deeper understanding of the natural environment in all its complexities, as well as the development of well-founded mitigation and adaptation strategies in the face of climate change.” (Blair et al., 2019)

<https://www.frontiersin.org/articles/10.3389/fenvs.2019.00121/full>

“The combination of societal needs and “corporate social responsibility” programs have generated an unprecedented need for individuals with backgrounds in environmental sciences...as well as the need for individuals with training in analytics and data science.”

<https://www.discoverdatascience.org/resources/data-science-and-sustainability/>

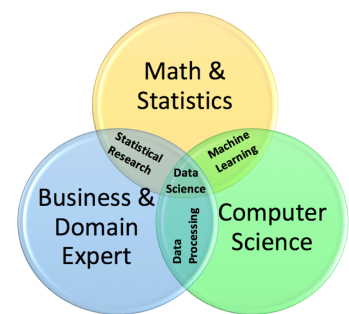
ADD A DATA SCIENCE CERTIFICATE TO YOUR AA/AS DEGREE IN:

- **Natural Resources**
- **Environmental Science**
- **Environmental Biology**

DATA SCIENCE FACULTY ADVISOR

Crystal Wiggins

cwiggins@nwcc.edu



DATA SCIENCE CERTIFICATE

Description

The Certificate in Data Science provides exposure to key elements of data science including data structures and data sources, programming languages, statistical principles, computing and analytics, data management, machine learning tools, and data science applications. This certificate must be paired with a transfer associates degree in any field (recommended fields include natural resources, biology, mathematics, applied sciences, computer science, computer programming, business, marketing, and web design).

Outcomes

Upon successful completion of all program requirements, graduates should be able to:

1. Master key facets of data investigation, including data wrangling, cleaning, sampling, management, exploratory analysis, regression and classification, prediction, and data communication
2. Implement foundational concepts of data computation, such as data structure, algorithms, simulation, and analysis.
3. Utilize various technologies to organize, analyze, explore, and visualize data
4. Execute data organization, exploration, and develop proficiency in the programming language of R
5. Apply advanced statistical techniques
6. Understand machine learning models and their applications

Coursework

Semester 1

CSA*135 Spreadsheet Applications – 3 credits

MAT*167 Principles of Statistics – 3 credits

Semester 2

MAT*222 Statistics II with Technology Apps – 3 credits

DTS*201 Data Science in R – 3 credits

Semester 3

DTS*220 Intro to Machine Learning – 3 credits

**Directed Elective – 3/4 credits

Total Credits 18 (19)

** Directed Elective (*see faculty advisor*)

