

# School of Data Science

The School of Data Science is designed to organize data science academic and research activities (with degrees and certificates tailored to regional workforce needs) while leveraging research partnerships with nearby national labs (Jefferson Lab, NASA Langley, and Wallops Flight Facility) to develop a targeted scientific focus in data science. The School's objectives include developing high-impact, cross-disciplinary research initiatives that center on data science and conducting outreach and community engagement, being a source of data science expertise to the community, the Hampton Roads region, the Commonwealth of Virginia, and the nation.

## Programs

### Minor Program

- Data Science Minor (<http://catalog.odu.edu/undergraduate/data-science/data-science-minor/>)

## Courses

### Data Science (DASC)

#### DASC 205S Data, Technology, Society (3 Credit Hours)

This course investigates how data science is transforming not only our sense of science and scientific knowledge, but our sense of ourselves and our communities and our commitments concerning human affairs and institutions generally. Social implications of the digital revolution, including ethical issues associated with algorithmic design and privacy will be examined. Students will use a sociological lens to explore how our increasingly digital lifestyle changes institutions and social relations.

#### DASC 300 Foundations of Data Science (3 Credit Hours)

This course provides an interdisciplinary overview of data sciences drawing on key elementary topics related to data analytics. A specific focus is given to the way that decisions made about data from those disciplinary pursuits inform policy, product development, and humanity. Topics addressed include elements of data, data collection, the connections between machine learning and data, survey research, programming with Python and R, statistical learning, model evaluations, digital engineering, and ethical uses of data.

**Prerequisites:** junior standing

#### DASC 357E Ethics and Data (3 Credit Hours)

This course explores, from a philosophical perspective, ethical questions arising from collecting, drawing inferences from, and acting on data, especially when these activities are automated and on a large scale. This course will provide students a framework for considering the ethical implications of data usage. Emphasis will be placed on discussing how historic and contemporary examples of potentially unethical practice could be altered to reduce harm and increase equity. Topics to be covered may include, but are not limited to, systematic approaches to assessing ethical issues; privacy and confidentiality; defining research and the responsibilities associated with conducting ethical research; implicit and structural biases in data collection and analysis; freedom of speech; and consent to data collection.

**Prerequisites:** ENGL 110C

#### DASC 368 Data Science Internship (1-6 Credit Hours)

This course allows students to work for an employer in a position related to data science. Students must work for 50 hours per course credit and complete course assignments.

**Prerequisites:** approval by the program coordinator

#### DASC 436W Data Science Capstone Project (3 Credit Hours)

Students work individually or in groups to plan, design, and carry out a research project demonstrating expertise with data science. Final papers that report the results for the study are presented in a formal research seminar. The projects reflect knowledge gained from undergraduate work and training received in discipline-specific research methods and statistics courses. This is a writing intensive course.

**Prerequisites:** ENGL 211C/ENGL 221C/ENGL 231C with a grade of C or better and senior standing

#### DASC 494 Entrepreneurship in Data Science (3 Credit Hours)

This course is designed to help students enhance their personal and professional development through innovation guided by faculty members and professionals. It offers students an opportunity to integrate disciplinary theory and knowledge through developing a nonprofit program, product, business, or other initiative. The real-world experiences that entrepreneurs provide will help students understand how academic knowledge leads to transformations, innovations, and solutions to different types of problems. The course can be delivered either as an independent project for individual students or as group projects similar to those sometimes offered in topics courses.

**Prerequisites:** junior standing

#### DASC 496/596 Topics in Data Science (3 Credit Hours)

The advanced study of selected topics designed to permit small groups of qualified students to work on subjects of mutual interest which, due to their specialized nature, may not be offered regularly. These courses will appear in the course schedule, and will be more fully described in information distributed to academic advisors.

**Prerequisites:** junior standing

#### DASC 497/597 Independent Study (1-3 Credit Hours)

Independent reading and study on a topic to be selected under the direction of an instructor. Conferences and papers as appropriate.

**Prerequisites:** senior standing and approval of the program coordinator