AOE 3984: Solving Big Problems with Big Data
CRN92322, Fall 2021, Virginia Tech

Background

This collaborative, multi-university course will focus on solving big problems with big data. The course will be driven by the needs of stakeholders from agriculture, conservation, search and rescue, water quality, transportation in inclement weather, and global health and emergency relief. Teams of students will work together to identify relevant broad social, global, economic, cultural and technical needs and constraints, and determine the ways in which their complementary technical skills contribute to addressing complex data science grand challenges. Student teams will submit their data science challenge ideas, with the potential to win a paid summer 2022 data sciences research experience. Following their participation in this course, students will formulate a vision of interdisciplinary research and education in data sciences. Course content will cover key issues such as collecting, visualizing, and analyzing data, communication within and among disciplines, ethics in interdisciplinary research, effective mentoring, teamwork and project management, and translation of research to the benefit of society. A student must have a basic understanding of biology, physics, and/or engineering. (2 hours (2H), 2 credits (2C), I (Fall semester)).

Highlights

- Interdisciplinary research and the importance of teamwork to address grand challenge problems.
- Writing at the interface of science and engineering, and delivering effective research presentations.
- Methods for collecting, storing, and visualizing large data sets.
- Sensor-based assets and computational-based assets.
- Unanswered questions and research needs from key stakeholders.
- Communicating with stakeholders and knowing your audience.
- Building a winning proposal.
- Designing and executing a successful research project.

Contact Information

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