



THE OHIO STATE UNIVERSITY
COLLEGE OF ENGINEERING

Capstone Design: Research-Focused Projects

CSE 5916

Credit Hours:

4.00

Course Levels:

Undergraduate (1000-5000 level)

Graduate (5000-8000 level)

Course Components:

Lecture

Lab

Course Description:

Capstone design project; convergent and scalable research formulation and development, computational solutions to open-ended research problems, teamwork, written and oral communication skills.

Prerequisites and Co-requisites:

Prereq: 2501 or Philos 1338, and CSE 3901 or 3902 or 3903, and second writing course; or Grad standing.

Course Goals / Objectives:

- Master synthesizing and applying prior knowledge to identify research directions for addressing open-ended research questions while considering multiple realistic constraints
 - Master deadline-driven research in a team setting for addressing an open-ended problem
 - Be competent in evaluating alternative research approaches
 - Be competent with issues of teamwork, project scheduling, individual and group time management
 - Be competent with presenting work to an audience of peers
 - Be competent with techniques for effective oral and written communication for a range of purposes, including professional and formal presentations and communications to a varied set of stakeholders.
 - Master principles of agile research methods, consisting of both qualitative and quantitative components
-

Course Topics:

- Course overview and project guidelines
 - Project selection and team formation
 - The scientific method; theory-guided data science; the data science life-cycle; literature reviews; hypothesis formulation and testing; data analysis.
 - In class research design and research work
 - Midterm presentation
 - Final presentation
 - Technical research report and poster
-

Designation:

Elective