

CS 5392/6392 Graduate Research Methods

Fall 2016 Syllabus

Schedule: 4:30-5:50 p.m., Mondays and Wednesdays, in QUIN 202

Instructor: Christopher Kiekintveld

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Office Hours: MW 1:30-3:00, T 11:00-12:00, or by appointment

Overview: This class is an introduction to research methods used in computer science at the graduate and undergraduate levels. It is a hands-on class: students will read research papers, learn to critique them, perform a literature review in their area, develop writing and presentation skills, and perform a replication study. It will be valuable for those in the early stages of research, for example PhD students beginning to work on identifying a research topic and planning their work. It will also be useful for anyone wanting to learn how scientific research is done in practice, especially those considering doctoral studies or a research career in the field of computer science.

Text: There is no textbook for the course, but there will be frequent readings assigned from a variety of sources. These will be handed out in hard copy, electronic resources from the web, or posted on blackboard.

Description/Requirements/Contact Hours

Introduction to research methods, including research paradigms and methodologies across computer science, research question formulation, design of research approach, literature search and presentation of related work, analysis of results, verbal and written presentation skills, and research ethics. Students prepare a literature review in an area of their choice, and will perform, document, and present a replication study. Class meets three hours per week, a total of 45 hours per semester.

Course Outcomes

Knowledge and Comprehension

- Know how to find literature relevant to a problem
- Know how to read and explain a research paper
- Know methods for finding and formulating research questions
- Know when to use the principal research methods common in computer science, such as formal proof, benchmarking, simulation, and experimentation
- Be aware of common ethical issues in research
- Know when to submit a research protocol for human subjects
- Know simple approaches to good writing for research papers, theses and

- dissertations
- Know how to use a style guide for theses and dissertations
- Know how to present a research talk

Application and Analysis

- Think critically about research questions and methods
- Answer questions about a research paper
- Find and formulate research questions

Synthesis and Evaluation

- Write a literature review
- Conduct and present a replication study

Academic Integrity

All graded assignments must be entirely the work of the individual student. "Plagiarism" means the appropriation, buying, receiving as a gift, or obtaining by any means another's work and the unacknowledged submission or incorporation of it in one's own academic work offered for credit, or using work in a paper or assignment for which the student had received credit in another course without direct permission of all involved instructors. Plagiarism is a serious violation of university policy and will not be tolerated. All cases of suspected plagiarism will be reported to the Dean of Student for further review. The Handbook of Operating Procedures: Student Conduct and Discipline can be accessed at the following link: <http://admin.utep.edu/Default.aspx?tabid=73922>.

Disabilities

If you have a disability and need classroom accommodations, please contact the Center for Accommodations and Support Services (CASS) at 747-5148, or by email to cass@utep.edu, or visit their office located in UTEP Union East, Room 106. For additional information, please visit the CASS website at www.sa.utep.edu/cass.

Grading

Your semester grade will be based on a combination of participation, homework assignments, presentations, and your final paper.

A rough breakdown of the components of your grade is as follows:

- 20% Preparation and participation in discussion and class activities
- 20% Paper responses/presentations
- 20% In-class presentations
- 20% Replication study
- 20% Final paper