CS 5392 Graduate Research Methods

Fall 2013 Syllabus

Schedule: 4:30-5:50 p.m., Mondays and Wednesdays, in LART 211
Instructor: Christopher Kiekintveld
Email: cdkiekintveld@utep.edu
Office: CCS 3.0418
Office Hours: MW 1:30-3:00 and Th 4:00-5:00

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 develop a research proposal or paper in an area of their choice. As such it will be valuable for those in the early stages of research, for example Masters 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.

By the end of the semester each participant will have written an extended research paper or proposal (depending on the stage of their research), complete with motivation, review of relevant literature, research question, methods, and results (if applicable).

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 and defend a thesis proposal or project proposal in an area of their choice. 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 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 research proposal, including introduction, literature review, and methodology sections
- Prepare and present a research poster
- Defend a research proposal

Standards of Conduct

You are expected to conduct yourself in a professional and courteous manner, as prescribed by the UTEP Standards of Conduct. Graded work, such as homework and tests, is to be completed independently and should be unmistakably your own work, although you may discuss your project with other students in a general way. You may not represent as your own work material that is transcribed or copied from another person, book, or any other source, e.g., a Web page. The instructor is required to—and will—report academic dishonesty and any other violation of the Standards of Conduct to the Dean of Students.

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, quizzes, homework assignments, presentations, and your final paper.

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

20% Participation in discussion and in-class quizzes
20% Homework (paper review, bibliography, etc.)
15% In-class presentations
15% Topic and proposal rough draft
30% Final paper/proposal and final defense