# Introduction to Research in Computer Science

# Syllabus

- Course Title: **Introduction to Research in Computer Science**
- Instructor: Dean F. Hougen, DEH 242, 405-325-3150, <hougen@ou.edu>
- Office Hours: M 11:00-12:00, W 9:30-10:30, R 11:00-12:30, F 9:00-10:00
- Class Hours: M W 4:30-5:45
- Location: SEC M204
- Required Textbook:
  - Writing for Computer Science, Second Edition, Justin Zobel, 2005, Springer. (ISBN 1-85233-802-4)
  - The Craft of Research, Third Edition, Wayne C. Booth, Gregory G. Colomb, and Joseph M. Williams, University Of Chicago Press, 2008. (ISBN 978-0226065663)
- Required Readings:
  - "Research Methods in Computer Science," Serge Demeyer, IEEE International Conference on Software Maintenance, 2011.
  - "You and Your Research," Richard W. Hamming, Bell Communications Research, Colloquium Seminar, March 7, 1986.
- Supplementary Textbooks:
  - Empirical Methods for Artificial Intelligence, Paul R. Cohen, MIT Press, 1995. (ISBN 0-26-20322-52)
  - Experimentation in Software Engineering, Claes Wohlin, Per Runeson, Martin Höst, Magnus C. Ohlsson, Björn Regnell,Anders Wesslén, 2012, Springer. (ISBN 978-3-642-29043-5)
- Additional Readings:
  - Students will be assigned and will select additional readings based on their research areas.
- Expectations and Goals:
  - This course is intended for computer science graduate students beginning their graduate careers or undergraduate students considering graduate school or research careers. Students need graduate standing or instructor permission to take this course.
  - This course will provide students with a broad background in computer science research and dissemination.

- Topics Covered:
  - Computer Science as a Discipline
  - Research Philosophy, Goals, and Methods
  - Types of Research
  - Research Life Cycle
  - Research Ethics
  - Research Proposals
  - Literature Search
  - Evaluating Sources
  - Critical Analysis of Technical Literature
  - Comparisons of Approaches/Methods
  - Developing Research Questions
  - Developing Manageable Units
  - Conducting Research
  - Evaluating Research Results
  - Making and Supporting Claims
  - Communicating Evidence Visually
  - Assessment Reports
  - Writing Technical Papers
  - Publication Process
  - Presenting Technical Material
  - Attending Conferences
  - Technology Transfer
  - Financial Issues
  - Professional Development

- Requirements:
  - The graded assignments in the course and their contributions to student grades are given in the table below.

| **Item** | **Quantity** | **Contribution to Grade** |
|---|:---:|---:|
| Homeworks | 10 | 10% |
| Exam | 2 | 30% |
| Literature Search | 1 | 10% |
| Paper Summaries and Reviews | 2 | 10% |
| Paper Presentations | 4 | 10% |
| Research Proposal | 1 | 10% |
| Research Report | 1 | 10% |
| Class Participation | | 10% |