

**Software Engineering Program
EE382c - Empirical Studies in SWE
Syllabi**

Instructor:

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Course Title and Description:

EE 382c - Empirical Studies in Software Engineering
Software Engineering is of necessity an empirical enterprise. We will look at different kinds of empirical evaluation from related fields such as behavioral sciences and see how we can adapt those techniques to the service of software engineering. We will then evaluate current empirical studies in software engineering to see where there are strengths and weaknesses in the current state of the art.

Textbooks:

Essentials of Behavioral Research: Methods and Data Analysis. Rosenthal and Rosnow, Second edition. McGraw Hill (Series in Psychology) 1981, 1994.

Critical Thinking about Research. Psychology and Related Fields by Meltzoff, American Psychological Association

Course Expectations:

Some software experience is needed but it is not a programming course. We will have several texts to read and will look at software engineering empirical papers to assess and classify them. The workload will be medium to heavy (it is a grad course).

The goal of the course is to have a deep understanding of the principles of empirical studies - what kinds of empirical studies are appropriate for swe and what the problems are in constructing and implementing them, etc.

The emphasis will be twofold: first, gaining an understanding of the problems and pitfalls, intent and goals of experimental work and second, the evaluation and understanding of the current state of the art in swe by looking at and discussing empirical SWE papers as found in the main journals and conference proceedings.

Course Outline:

- 1 **Introduction – First weekend**
 RR 1.1, M 1
 RR 1.2, M 2

 RR 1.3, M 3
 RR 2.4, M 4
 RR 2.5, M 5

- 2 **Second Weekend**
 RR 2.6, M 6
 RR 3.7, M 7
 RR 3.8, 3.9

RR 4.10
RR 4.11, M 9
RR 4.12, M 8

- 3 **Third Weekend**
Mid-Term [one hour, t/f; multiple choice; essay]
RR 5.13, 5.14 M: papers
RR 5.15

RR 6.16, 6.17
RR 6.18
RR 7.19, 7.20

- 4 **Fourth Weekend**
RR 7.21, 8.22
RR 8.23, 8.24
Evaluate SWE Papers (4 - 20 minutes each)

Evaluate SWE Papers (10 - 20 minutes each)

- 5 **Fifth Weekend**
Evaluate SWE Papers (10 - 20 minutes each)

Evaluate SWE Papers (10 - 20 minutes each)

Grading:

35% - Mid-Term [one hour, t/f; multiple choice; essay]
65% - Class presentation and written report of paper evaluation