Standardized Syllabus for the College of Engineering

CAP 4930/6930 144E/144F/119F/12DG
Research Methods for Human-Centered Computing
Revised Nov 19 2014

1. Catalog Description (including credit hours)
Introduces the fundamental methods and techniques to collect data from humans for building and evaluating technologies, including experimental design, types of variables, types of errors, hypothesis testing, survey design, behavioral and psychophysical methods.

3 credits

2. Pre-requisites and Co-requisites: STA 3032, COP 3530

3. Course Objectives
Students will learn the fundamental methods and techniques to conduct research into questions that involve data collected from humans. The class will involve learning through mini-assignments, projects, and active participation.

The class is well-suited for PhD students starting on research work involving experimental design, hypothesis testing, or human-centered research, and Masters students interested in pursuing graduate research.

The class is well-suited for undergraduate students who will work on a research project that will require these skills (e.g. senior thesis, or an independent research study). They should talk to the instructor before registering.

By the end of this course, students will be able to
- design a hypothesis
- design a human subjects experiment
- collect a variety of data from human subjects
- analyze data via statistical methods

4. Instructor: Eakta Jain
   a. Office location: E540
   b. Telephone: 352 562 0979
   c. E-mail address: ejain@cise.ufl.edu
   d. Office hours: TBD
   e.

5. Teaching Assistant (TBD)
   a. Office location
   b. Telephone
   c. E-mail address
d. Office hours

7. Meeting Location: CSE E221
8. Material and Supply Fees: None
9. Textbooks and Software Required: The primary textbook is “Human-Computer Interaction: An Empirical Research Perspective” by I. Scott MacKenzie. Additional readings for this class may be taken from “Doing Psychology Experiments” by David Martin, “Qualitative Research & Evaluation Methods” by Michael Quinn Patton, Students are required to bring a laptop to class. The following software may be needed:
   MATLAB (available through the university)
   R (free)

13. Recommended Reading: TBD

14. Attendance and Expectations:
Please see University of Florida policies at
https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx
and
http://www.graduateschool.ufl.edu/files/handbook.pdf

15. Course Outline: The tentative topics list is shown below. This list may change based on student interests.

<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
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<tbody>
<tr>
<td>Jan 6 and 8</td>
<td>Introduction: What is research</td>
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<tr>
<td>Jan 13 and 15</td>
<td>Ethics in Human Subjects Experiments</td>
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<td>Research methods: observational, experimental, correlational</td>
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<tr>
<td>Jan 20 and 22</td>
<td>Types of data</td>
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<td>Internal and external validity</td>
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<td>Jan 27 and 29</td>
<td>Independent and Dependent Variables</td>
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<td>Designing a task</td>
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<td>Recruiting participants</td>
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<td>Feb 3 and 5</td>
<td>Within subjects and between subjects design</td>
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<td></td>
<td>Order effects, counterbalancing, latin squares</td>
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<tr>
<td>Feb 10 and 12</td>
<td>Mid-term exam</td>
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<tr>
<td>Feb 17 and 19</td>
<td>Self-report data: Questionnaire design</td>
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<tr>
<td>Feb 24 and 26</td>
<td>Behavioral data: eyetracking, reaction times</td>
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16. Grading:
The grading will be based on homeworks, class assignments, projects, exams, and participation. The grading criterion will be clearly communicated to the students.

Course letter grades will be determined at the end of the semester, based, in part, on the difficulty of the projects and exams.

“A C- will not be a qualifying grade for critical tracking courses. In order to graduate, students must have an overall GPA and an upper-division GPA of 2.0 or better (C or better). Note: a C- average is equivalent to a GPA of 1.67, and therefore, it does not satisfy this graduation requirement. For more information on grades and grading policies, please visit: https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx

“Graduate students need an overall GPA of 3.00 truncated and a 3.00 truncated GPA in their major (and in the minor, if a minor is declared) at graduation.” For more information on grades and grading policies, please visit: http://gradcatalog.ufl.edu/content.php?catoid=4&navoid=907#grades

Expectations for graduate vs undergraduate students: Graduate students can expect to have extra questions in the homework/exams compared to undergraduate students. Undergraduate students will do the project in larger groups.

18. Requirements for class attendance and make-up exams, assignments, and other work are consistent with university policies that can be found at: https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx

19. Honesty Policy – UF students are bound by The Honor Pledge which states, “We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: ‘On my honor, I have neither given nor received unauthorized
aid in doing this assignment.” The Honor Code (http://www.dso.ufl.edu/scr/process/student-conduct-honor-code/) specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor or TAs in this class.

Note that failure to comply with this commitment will result in disciplinary action compliant with the UF Student Honor Code Procedures. See http://www.dso.ufl.edu/scr/procedures/honorcode.php

20. Accommodation for Students with Disabilities – Students Requesting classroom accommodation must first register with the Dean of Students Office. That office will provide the student with documentation that he/she must provide to the course instructor when requesting accommodation.

21. UF Counseling Services – Resources are available on-campus for students having personal problems or lacking clear career and academic goals. The resources include:
   · UF Counseling & Wellness Center, 3190 Radio Rd, 392-1575, http://www.counseling.ufl.edu/cwc/Default.aspx, counseling services and mental health services.
   · Career Resource Center, Reitz Union, 392-1601, career and job search services.
   · University Police Department 392-1111

22. Software Use – All faculty, staff and student of the University are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against University policies and rules, disciplinary action will be taken as appropriate. We, the members of the University of Florida community, pledge to uphold ourselves and our peers to the highest standards of honesty and integrity.

23. Students are expected to provide feedback on the quality of instruction in this course by completing online evaluations at https://evaluations.ufl.edu. Evaluations are typically open during the last two or three weeks of the semester, but students will be given specific times when they are open. Summary results of these assessments are available to students at https://evaluations.ufl.edu/results/.

Note: Statements in items 19-23, should be included as is.