

Course C27

Empirical Research Methods for Human-Computer Interaction

2 units

Instructor: Scott MacKenzie, York University, Toronto

Benefits: This course will empower attendees to undertake a program of empirical research on a topic in HCI relevant to their interests. After attending this tutorial, attendees will have the specific skills necessary for the following: (1) discover and narrow in on topics suitable for research in HCI, (2) formulate "testable" research questions, (3) design and conduct an experiment to answer the research questions, (4) collect and analyse empirical data from an experiment, and (5) write a research paper based on the experiment.

Origins: Variations on this course have been given as part of a visiting professor lecture series at universities in Finland and England.

Features:

- * What is empirical research?
- * How to formulate "testable" research questions
- * Parts of an experiment: participants, apparatus, procedure, design, results and discussion
- * Variables: independent variables (factors), dependent variables (performance measures)
- * Detailed topics: Choosing between within subjects vs. between subjects factors, internal validity, external validity; other variables (control, confounding, random), choosing participants, ethics approval and participant consent, gathering and reporting demographic data on participants, assigning participants to test conditions, choosing levels of independent variables, choosing dependent variables, analyses for main effects and interaction effects, requirements to establish cause and effect relationships, outliers, models of interaction
- * Writing a research paper: Parts of, and suggestions for, preparing a research paper conforming to the CHI conference submission requirements

Intended Audience:

This course is intended for members of the CHI community who are interested in learning about, or refining their skills in, empirical research methods in human-computer interaction (HCI). Prior knowledge of statistical tests is not required.

Presentation Style:

Power point presentations augmented with demonstrations of tools to facilitate data organization, summarization, presentation, and analyses.

Instructor's Background:

Scott MacKenzie's research is in human-computer interaction with an emphasis on human performance measurement and modeling, experimental methods and evaluation, interaction devices and techniques, alphanumeric entry, language modeling, and mobile computing. He has more than 80 publications in the field of Human-Computer Interaction (including more than 25 from the ACM's annual SIGCHI conference) and has given numerous invited talks over the past 15 years. Since 1999, he has been Associate Professor of Computer Science and Engineering at York University, Canada.

See <http://www.yorku.ca/mack/CHI2007> for further details on this course (site available January 2007).