**IS ( Inf?)  765 Methods for Information Systems Research**
Course syllabus
Spring 2018   Prof. Roxanne Hiltz
(Draft November 2017)

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Course Web Site:  NJIT Moodle <http://moodle.njit.edu/>

*Required background*-Prerequisite: A statistics course, such as Math 661. Ability to read and understand IS scientific journal articles in English.

## COURSE OBJECTIVES:

1. To give you enough background about information systems theory and both qualitative and quantitative research methods so that you can critically read and understand the research articles that appear in leading IS journals such as MISQ, JMIS, Information Systems Research, ACM publications, and the human-computer interaction journals. This will enable you to keep up in the field after you graduate, as well as to carry out the first step of any future research project, the "literature search."

2. To give you enough skills in information systems research techniques to be able to design and carry out a research project involving human subjects, including the foundation for doing publishable research on information systems. This includes:

   Knowledge about how to design and conduct interviews, observational studies, surveys and experiments, and how to analyze and present the results. This includes knowledge of ethical issues and IRB requirements.

   Understanding of the most common statistical tests used in IS research, when to use which statistical procedure, and how to interpret and report the results.

   Become familiar with and demonstrate ability to use computer-based analytic tools (In this case, SPSS) to analyze quantitative data.
   
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   *Text*

   Research Methods for the Behavioral Sciences 2nd Edition by Gregory J. Privitera   ISBN-13: 978-1506326573 Sage 2017. Ordered through the bookstore.

Note: This text is overly simple; you will be responsible for topics such as multiple regression and factor analysis that are covered in lecture notes but not in this text.

*Lectures:* There are selected Powerpoint plus audio lectures from the previous course number of IS 675. Some Powerpoint "e-lectures" will also be posted on Moodle (just the slides); and some new recordings will be provided.

Research Articles
These are listed in the syllabus. All are either available through the library's databases or will be made available to you through Moodle. You may choose to post a summary/ review of some of them online to share with the rest of the class as part of your participation; thus you should not have to read most of the ones labelled "skim" or "optional."

Honor Code
Any evidence of cheating in any form, including plagiarism, will be dealt with according to the honor code of NJIT (course failure and suspension or expulsion). Please note: There will be no warnings or chances with regard to cheating. Any discovered case of cheating will be immediately passed to the Dean of Students for further investigation. You may not only fail this course but also be suspended from NJIT. The full text of the NJIT Honor Code is available for your review at http://www.njit.edu/academics/honorcode.php

Moodle and Class participation: Try to sign on every day and post things at least twice a week. I plan to sign on and respond to posts every day except Sundays, which is my "day of rest."

**YOU ARE EXPECTED TO PARTICIPATE IN THE CLASS DISCUSSIONS AND ACTIVITIES ONLINE, EVERY WEEK. THIS WILL CONSTITUTE 25% OF YOUR GRADE.** For this purpose, the grading week will run from Monday morning through Sunday night. Some weeks there will be specific activities (such as reviews of journal articles or questions for discussion) and other weeks there will be only the ongoing assignment to make comments and ask questions about the readings and the lectures. Discussions will be due 11:59 pm on the Sunday that ends the week. For each day late, two points are deducted, and after Wednesday of the following week, you will not receive credit. The maximum point score for participation is 120/ 100 (which would mean an extra credit score). For full credit, discussion postings must be thoughtful, substantive, and add to the discussion. For example, a response to a classmate of just "I agree" is not substantive and will not receive any credit.

Note on "weeks"- "Week one" will be the first week of the spring semester, January16-21, even though Monday is a face to face holiday; Week 2 starts Monday Jan. 22. All students are expected to have signed online and begun participation by Jan16; the Moodle course materials for the first module and request to "introduce yourself" will be up and available well before that.

Note 2: This course requires approximately 10-15 hours a week of work, depending on your reading speed, including the time to listen to the lectures and do the assignments and participate in discussions.

Grading
Class participation 25%
Data analysis project 20%
Exam 1 25%
Exam  2 30%
Final project: optional, can be used to replace the lowest of exam 1 or exam 2 or data analysis grades.

Exams: will cover all lecture material, required readings (no detailed questions on selections marked "skim, " or "optional" but you may choose to use them to answer essay questions); and online electures and class contributions by others.


## Unit I. Basics of Information Systems Research:  – weeks 1 and 2 (Jan15-28)

Topics: Philosophical perspectives, Concepts, Theories, Ethics

(note: much of this should be review of things you have encountered previously)

Text Reading: Chapts 1-4

The following two articles covered in lecture: You may choose to also skim them but all you need know is in the lecture notes:

Goodwin, Nancy C., "Functionality and Usability," CACM March 1987, 229-233.

DeSanctis, G. and Gallupe, B. "A Foundation for the Study of Group Decision Support Systems," Management Science, 33 (1987), 589-609        (note: an example of conceptual structure or typology)

Theoretical models (the example of UTAUT):

Venkatesh, V. "Determinants of Perceived Ease of Use: Integrating Control, Intrinsic Motivation, and Emotion into the Technology Acceptance Model," Information Systems Research, 11,4 (Dec 2000)—for now read Introduction and Theoretical Framework, pages 342- 352 only and just skim briefly the rest- we will cover them when you have the skills to understand things like factor analysis.

Lectures:

675 Lectures 1 and 2 will have a link to view them… they are from an offering of the previous version of this course, CIS 675, plus a couple of new ones. Also recommended, from Kaltura library, Publish or perish 1- An overview of structure and process for IS Research Journals. This should help you in reading and understanding IS research articles and eventually drafting your own.

Lee and Hubona, A Scientific Basis for Rigor In Information Systems Research, *MISQ* 2009.(skim)

Straub, Boudreau and Gefen, Validation Guidelines for IS Positivist Research, *CAIS* 2004. (OPTIONAL)

Hoehle, H. and Venkatesh, V., (2015). Mobile application usability: Conceptualization and instrument development. MIS Quarterly, 39, 2, pp. 435- 472. (read carefully)

Optional: three variable relationships/ hypotheses- "mediators and moderators"- Baron, R.M. and Kenny, D.A., The Moderator-Mediator Variable Distinction in Social Psychological Research: Conceptual, Strategic, and Statistical Considerations. Journal of Personality and Social Psychology 1986, Vol. 51, No. 6, 1173-1182.

II. **Qualitative Research Methods**: A Brief Overview - weeks 3 and 4 (Jan 29- Feb 11)

Topics: Protocol Analysis, semi-structured interviews, coding and grounded theory

Lectures: 3 and 4

Week 3 readings:

Text Reading: Chapt. 7

Boren, M. Ted and Ramey, Judith. Thinking Aloud: Reconciling theory and practice. IEEE Transactions on Professional Communication, 43, 3, Sept. 2000, 261- 278.

readings: to skim

Wanda J. Orlikowski CASE Tools as Organizational Change: Investigating Incremental and Radical Changes in Systems Development MISQ, Vol 17, No. 3, September, 1993 .

Myers, M.D. "Investigating information systems with ethnographic research," Communications of the Association for Information Systems, December 1999.

Wiesche, M., Jurisch, M.C., Yetto, P.w. and Krcmar, H.  Grounded Theory Methodology in Information Systems Research.  MISQ, Sept. 2017 ( optional)


**Weeks 5-6 The sample survey** (scaling and questionnaire construction, sampling and distributing surveys) (Feb12- 25)

 Text: Chapts 5 and 8

Venkatesh, V. "Determinants of Perceived Ease of Use: Integrating Control, Intrinsic Motivation, and Emotion into the Technology Acceptance Model," Information Systems Research, 11,4 (Dec 2000)—for now read  "Method" (pp. 352- 354) and Appendix 2 (pp. 360- 361) only.

Optional: Stanton, J.M., Snar, E.F., Galzer, W.K. and Smith, P.C. Issues and strategies for reducing the length of self-report scales.  Personnel Psychology, vol 55 (2002), pp. 167-  194.


Lecture: 5, several parts

Week  7: exam 1 on material through week 6, 2 hours, to be scheduled at NJIT week of Feb. 26


**IV. Weeks  7-8-9  Statistical methods and Data Analysis**- (Feb 26- March 25- (week of March 12  is spring break)

Text:   Chapts 13 and 14

Venkatesh, V. "Determinants of Perceived Ease of Use: Integrating Control, Intrinsic Motivation, and Emotion into the Technology Acceptance Model," Information Systems Research, 11,4 (Dec 2000)—"results" and rest of article (354- 365).

Barki & Hartwick, "Measuring User Participation, User Involvement, and User Attitude," MIS Quarterly, March 1994, 59-82.  Skim

Liu, Y., Venkatanathan, J., Goncalves, J., Karapanos, E., and Kostakos, V. (2014). Modeling what friendship patterns on Facebook reveal about personality and social capital. ACM TOCHI, 21, 3, article 17. (look over this recent publication for the flow/ completeness of concepts> measures> model> analysis).

Maruping, L.M., and Magni, M. (2015). Motivating employees to explore collaboration technology in team contexts. MISQ 39, 1, pp 1-16.( Skim and see/discuss what you understand and what puzzles you).

Lectures: 675 lecture 6 for week 7 slides 1-61; For weeks 8 and 9, Lecture 7 (all parts)

***Assignment: Data Analysis with SPSS- due by middle of week 10- Wed. March 28)***

**V. Weeks 10 and 11 and 12 Experimental Methods** (March 27- April 15)

Text: Chapters 6, 9, 10, 11, 12

Connolly, Jessup and Valacich, "Effects of Anonymity and Evaluative Tone on Idea Generation in Computer-Mediated Groups," Management Science, June 1990 (skim- example of a simple factorial design) .

Ellen Hoadley, Investigating the effects of color," CACM, 33, 2 (February 1990), 120-125. Skim for the manipulation and experimental design.

Dickson, DeSanctis, and McBride , "Understanding the Effectiveness of Computer Graphics for Decision Support," CACM, January 1986, 40- 47. (optional- but will be covered in lecture)

N. Tractinsky & J. Meyer, "Chartjunk or Goldgraph?" *MIS Quarterly, Sept. 1999, 397-420. Skim for experimental manipulation and design.*

Bartelt, V.L., and Dennis, A.R. (2014). Nature and nurture: The impact of automaticity and the structuration of communication on virtual team behavior and performance. MISQ, 38, 2, 521-538.

Park. I., Sharman, R., and Rao, H.R. (2015). Disaster experience and hospital information systems: An examination of perceived information assurance, risk, resilience, and HIS usefulness. MIS Quarterly, 39, 2, pp. 317-344. (skim/ review for a recent example of a field experiment, also called a "quasi-experiment".)

Hu, P. J., Hu, H., and Fang, X. 2017. Examining the Mediating roles of cognitive load and performance outcomes in user satisfaction with a website: A Field Quasi-Experiment. MISQ 41,, 975- 987. Optional- another example of a quasi experiment.

Lectures: 675 L 8, for week 10; L 9 (2006) for week 11; plus L 10

***Week 13: Exam 2 on topics from weeks 7- 12- (About April 18)***

**Week 13- Group Methods for data collection- Focus groups etc.** April 16- 22

Lecture 12

This module will not be on exams for this course but may be useful in your future research. These are basically qualitative methods but they have quantitative elements too.

**Week 14: Designing a Complete Research Proposal OR Drafting a Conference paper** (April 23- May 1)

(Optional final project. It is due by the last day of classes, May 1 if you are to receive a grade on time, and your summary or overview for feedback needs to be posted by then, perhaps in Powerpoint plus audio, on Moodle.  Otherwise you may receive an I but must complete by July 16.

Basically, a research proposal includes all the parts of a "paper" or thesis except the findings. Also-  Review and we will discuss this recent article with concentration on the parts that would have been in the "proposal."

Tsai, H.T., and Bagozzi, R.P. (2014). Contribution behavior in virtual communities: Cognitive, emotional, and social influences.  MISQ, 38, 1, pp. 143- 163.

Text: Chapt. 15; or just the lectures…

 Lecture: Look at or read recorded lectures or slides for the rest of the "publish or perish" material, if you have not already done so

Theoretical Update

Maruping, L.M., Bala, H., Venkatesh, V., and Brown, S.A. "Going Beyond Intention: Integrating Behavioral Expectation into the Unified Theory of Acceptance and Use of Technology," *Journal of the Association for Information Science and Technology*, (68:3), 2017, 623-637.

Rai, A.  Avoiding Type III Errors: Formulating IS Research Problems that Matter.  MISQ 41, 2: June 2017.