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# INLS 691H

## Research Methods

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### Description

An introduction to research methods used in information science. Includes the writing of a research proposal. This course must be successfully completed by any student wishing to register for INLS 692H Honors Thesis in Information Science.

### Goals

I want us to have fun while exploring and learning about research methods. I hope you will gain an understanding of the concepts and terminology used in ILS research and of the methods used to perform this research. I have organized this course around published research (as opposed to a research methods textbook) to better acquaint you with different research specialties and approaches in ILS. I want to help you improve your abilities to consume research and also establish a foundation for you to do your own research in the future.

### Requirements

Reading, thinking, discussing, listening, researching and writing.

- You are expected to read the assigned readings by the dates listed on the schedule. This is a very reading-intensive course, so please schedule accordingly.
- This is a small class so your participation is critical. Be prepared to ask questions and discuss the readings in class.
- You will be required to select and research a topic that interests you, pose a research question, design a study to investigate this question and write a proposal.
- Please let me know in advance if you will not be able to attend class.

### Evaluation

Your major assignment for this course is to prepare a research proposal. This will be divided into a series of assignments, which build on one another and provide you with an opportunity to refine your ideas through feedback and reflection.

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Fall 2015  
[MW, 12:20-1:35]  
Murphy Hall, RM 117

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Phone: 919.962.8065  
Office: Manning Hall, RM 10  
Office Hours: by appointment

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### Materials

Readings will be placed in the Sakai site or you will need to obtain them from UNC Library's online collections.

#### Required Textbooks:

Nardi, P. M. (2006). *Interpreting data: A guide to understanding research*. Pearson Education.

Punch, K. (2006). *Developing effective research proposals, 2<sup>nd</sup> edition*. Sage Press.

Wildemuth, B. M. (2009). *Applications of Social Research Methods to Questions in Information and Library Science*. Libraries Unlimited: Westport, CT.

### Milestones

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#### September 21, 2015

Initial Ideas

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#### October 14, 2015

Problem Statement and Annotated Bibliography

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#### November 9, 2015

Literature Review

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#### December 2, 2015

Final Proposal

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# Assignments

## General Instructions for Assignment Preparation & Submission

- Use the APA style guide to format your papers.
- Proofread and copyedit your papers.
- Submit a PDF to me via email on the date the assignment is due.

## Initial Ideas (0%)

This assignment is not worth any points, but it serves an important purpose: for you to formulate your initial ideas and plans for your research. You will submit a short paper (approximately 1-2 pages single spaced) to me on September 21st and we will meet in my office to discuss your ideas. **You are should schedule a 30-minute appointment to meet with me September 22-25.**

In your paper, you should identify the general topic of your research, list your ideas about what you might investigate regarding the topic (focus), describe how and why you selected the topic and focus, and identify potential databases and publications (e.g., journals, conferences) that you plan to search. You should also formulate at least one research question. It is okay if you identify several questions. We can discuss which are the most fruitful and realistic to pursue.

You are not required to provide references, but if there is a specific paper you have read that resembles what you would like to do, please include a reference to it.

## Problem Statement (4-5 pages) and Annotated Bibliography (6-8 pages) (30%)

- Introduce and describe the general area and the specific topic of your research.
- Identify and describe the problem that your research question will address. To do this, you should point out limitations of the current state of knowledge (i.e., published research) about your topic and/or some real-world issue your research is meant to address.
- State the purpose/objectives of the research and identify 1-3 research questions. If appropriate, include hypotheses.
- Provide preliminary definitions for the main concepts in your study.
- Review and discuss 5 studies from your annotated bibliography that are relevant to your research: summarize each study, point out limitations of each study and indicate how the study informs your research. (This should be a coherent narrative, not just a copy-and-paste job from your annotations in the bibliography.)
- Indicate the importance of your research, describe the potential implications of your research (i.e., how could your findings contribute to a better understanding of the topic) and describe the practical value of your research (e.g., how might your findings improve services or applications or user experience, etc.).
- Your annotated bibliography should contain 8-10 studies relevant to your research. These articles should be from scholarly, refereed publications.
- Each annotation should: summarize the purpose, method and findings of the study, identify limitations and open questions, and indicate how the study informs your research.
- Consult the following source for further guidance about how to construct and format your annotated bibliography:  
<http://owl.english.purdue.edu/owl/resource/614/1/>

## Literature Review (20%) (12-15 pages)

Now you will weave all of the studies from your annotated bibliography into a coherent and compelling narrative that contextualizes and motivates your proposed research. Your review should include at least 10-12 research articles.

You should provide Introduction and Conclusion sections. In the Introduction be sure to describe the topic, and state the problem and research question(s) *briefly*. State the goal of the literature review and an overview of what you'll present. In the conclusion, summarize what you found in the literature review. What are the major take-home messages, especially with respect to the problem you will address? One of the major objectives of writing the literature review is to establish a case that your research question is needed/important. After reading a good literature review, the reader should be completely convinced that a particular shortcoming

exists in the literature and that your study is needed. The reader should not get to the end of a literature review and still have to guess about what you will tackle in your research.

You are expected to identify major literature pertinent to your research question. A variety of techniques should be used, including (but not limited to) searching the appropriate disciplinary databases and the library catalog, searching the Web, consulting references of items already identified (to find older items), searching appropriate citation indexes (to find newer items), and scanning journal runs of particularly useful journals. My expectation is that most of the articles you include will be from journals or conference proceedings, as these are the key publication venues in information science.

You should select for inclusion only those items that inform your research question or its context in some important way. For example, you would include any similar empirical studies and any published literature reviews on the topic. You would not include brief popular articles that may be of questionable validity (it is okay to include popular press materials in your Introduction, however, to help demonstrate/establish the problem you will address).

When weaving the studies together into a coherent narrative you can take several approaches. Analyze the information you glean from the sources: areas of overlap or repetition indicate established approaches to the research; conflicting or differing perspectives indicate some manner of disagreement; equal representation among several perspectives may indicate competition or a lack of established research priorities. Use your analysis to group the literature into topical or thematic categories. Then use your categories to develop an outline for the review. DO NOT simply provide summaries of the articles or present an annotated bibliography. Find a broad way to functionally describe and relate the literature to your research question.

Making the distinction between what the literature says and what you know about a topic is extremely important in scientific writing. It is because scientists make this distinction that their writing is often filled with hedges - phrases like, "the data suggest," "it has been noted that," "researchers contend that," etc. Rarely will you see phrases like, "it's clear that," "this means," "it is a fact that," etc. in scientific writing, those claims are said to be too strong. Be careful about what you assume is the 'truth.' In general, science is about accumulating evidence that suggests particular things rather than establishing the final truth. Your writing should reflect this idea.

### Final Proposal and Presentation (50%) (25-30 pages)

This is your last step. You are almost there!

#### Research Proposal

Your Research Proposal consists of parts from your Problem Statement and Literature Review assignments, plus an additional section about your study method and several smaller, summary sections. For the research proposal, I expect you to revise your previous two assignments and incorporate them into the proposal, as well as write several new sections, the most important of which is the method section.

Don't let all of the detailed steps below intimidate you. If you've made it this far, you've already completed about 2/3 of this assignment! Your work for this assignment is primarily crafting the methods section, revising your previous work and putting everything together!

Your proposal should have eight major sections:

1. Title Page (1 page).
2. Abstract: this is a new section and should summarize the contents of your research proposal in 150 words (1 page).
3. Introduction: this consists of a revision of your Problem Statement assignment (Part 1). I expect that this section will be more informed than the one from your Problem Statement assignment since in the interim you've reviewed more literature (presumably your understanding of your topic and problem has changed and sharpened) (approximately 2-3 pages).
4. Literature Review: this consists of a revision of your Literature Review assignment (approximately 12-15 pages).
5. Method: this is a new section (see below for details) (approximately 7-10 pages).
6. Summary and Conclusions: this is a new section; summarize the contents of your proposal and write some concluding remarks (approximately 1-2 pages).

7. References: this consists of a revision of the reference page from your Literature Review assignment (variable length).
8. Appendices (variable length).

### Method Section

In preparation for conducting a research study, you will need to make many decisions related to the study design, the sample to be included, the methods you will use for data collection, and the methods you will use for data analysis. Your proposal should provide a detailed description of the methods you plan to use in conducting your study. It should provide enough detail so that a classmate could conduct your study in your absence, exactly as you intended, without having to ask you any questions about what to do. There is likely to be significant variability from person to person in how the methods section will be written up, because it will depend on the research question and study design.

Your method section you should include:

- Description of the sample, population and sampling technique. Description of how and where subjects will be identified and recruited. Indicate who will do the recruiting, and tell how subjects will be contacted (if appropriate). OR description of how artifacts will be sampled and obtained. Description of any inducement for participation and any costs borne by subjects (if appropriate).
- Description of variables and measurement techniques (if appropriate).
- Description of the data collection instruments and materials. You must include a draft of your instrument(s) as an Appendix. For instance, this might include a draft of a survey or questionnaire, an interview schedule, an interface mock-up or all three. In the body of your paper, you should describe and discuss the content of the instruments – for example, if you will conduct a survey, discuss what each of the questions will tell you, why you are asking them and how they relate to one another.
- Detailed, step-by-step, sequential description of your study procedures (i.e. what will happen in your study), including duration of subject participation and location of study (if appropriate).
- Discussion of any possible ethical issues (1-2 paragraphs).
- Preliminary plan for analyzing the data (about 1-2 paragraphs).
- Discussion of the advantages and disadvantages of your study method (this discussion should include general limitations of the method as well as limitations of your particular research study).
- Week-by-week timeline for completing the study. Include this in the Appendix, but refer to it within the text of your method section.

### Presentation

On the last day of class, you will orally present your proposed research. You should prepare slides and visuals (e.g., use Powerpoint or some other presentation tool) to accompany your presentation. Your presentation should be about 15 minutes. We will have a 15-minute discussion of your proposal afterwards. I will invite your advisor and other committee members to attend.

## Grading

Grade Range	Definition*
A = 94-100% A- = 90-93.9%	Mastery of course content at the highest level of attainment that can reasonably be expected of students at a given stage of development. The A grade states clearly that the student has shown such <u>outstanding</u> promise in the aspect of the discipline under study that he/she may be strongly encouraged to continue.
B+ = 87-89.9% B = 84-86.9% B- = 80-83.9%	Strong performance demonstrating a high level of attainment for a student at a given stage of development. The B grade states that the student has shown <u>solid</u> promise in the aspect of the discipline under study.
C+ = 77-79.9% C = 74-76.9% C- = 70-73.9%	A <u>totally acceptable</u> performance demonstrating an adequate level of attainment for a student at a given stage of development. The C grade states that, while not yet showing any unusual promise, the student may continue to study in the discipline with reasonable hope of intellectual development.
D+ = 67-69.9% D = 64-66.9% D- = 60-63.9%	A <u>marginal performance</u> in the required exercises demonstrating a minimal passing level of attainment for a student at a given stage of development. The D grade states that the student has given no evidence of prospective growth in the discipline; an accumulation of D grades should be taken to mean that the student would be well advised not to continue in the academic field.
F = 0-59.9%	For whatever reasons, an <u>unacceptable</u> performance. The F grade indicates that the student's performance in the required exercises has revealed almost no understanding of the course content. A grade of F should warrant an adviser's questioning whether the student may suitably register for further study in the discipline before remedial work is undertaken.

\*These definitions are from: <http://www.unc.edu/faculty/faccoun/reports/2000-01/R2001GradingStandardsAddendum.htm>

## Aug 19: Introductions and Course Overview

## Aug 24: Research Proposals and Undergraduate Theses

- Punch, Chapters 1-2, 6-7
- Browse SILS Undergraduate Theses (read one if you have time!)

## Aug 26: Research Questions

- Punch, Chapter 3
- Wildemuth, Chapters 2-6

## Aug 31: Dealing with the Literature (Guest Lecturer: Prof. Barbara Wildemuth)

- Punch, Chapter 4
- Mitchell, M. L. & Jolley, J. M. (2000). *Research Design Explained*. 3rd edition. Fort Worth, TX: Harcourt College Publishers.
  - Things to look for in a journal article [online handout, <http://www.jolley-mitchell.com/teachRDE/C04/Handout42.html>]
- **Bring laptops to class**

## Sept 2: Dealing with the Literature (Guest Lecturer: Prof. Barbara Wildemuth)

- Novak, J. D. (2010). *Learning, Creating, and Using Knowledge: Concept Maps As Facilitative Tools in Schools and Corporations*. 2nd edition. Mahwah, N.J. Lawrence Erlbaum. [SILS Reserve - LB1060 .N677 2020; or Electronic Book netLibrary]
  - Chapter 3, Section on Concept maps and knowledge organization, 32-38
  - Review all the example concept maps in Chapters 3 & 4
- Mind maps: a powerful approach to note taking. <http://www.mindtools.com/mindmaps.html>
- **Bring laptops to class and download cmap tool before class <http://cmap.ihmc.us/cmptools/>**

## Sept 7: Holiday

## Sept 9: Anatomy of a Research Paper

- Punch, Chapter 5
- Cyr, D., Head, M., & Larios, H. (2010). Colour appeal in website design within and across cultures: A multi-method evaluation. *International Journal of Human-Computer Studies*, 68, 1-21. **(UNC Journals)**
- Woelfer, J. P. & Hendry, D. G. (2012). Homeless young people on social network sites. *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems (CHI '12)*, Austin, TX, 2825-2834. **(ACM Digital Library)**

## Sept 14: Variables and Measurement I

- Neuman, W. L. (2005). *Social research methods: Qualitative and quantitative approaches (6<sup>th</sup> Edition)*. Allyn and Bacon Publishing, pgs. 160-166: The Language of Variables and Hypotheses; pgs. 181-188: Conceptualization and Operationalization; pgs. 198-200: Levels of Measurement. **(Course Directory)**

## Sept 16: Variables and Measurement II

- Wildemuth, Chapters 27-28
- Hornbæk, K. (2006). Current practice in measuring usability: Challenges to usability studies and research. *International Journal of Human-Computer Studies*, 64, 79-102. **(UNC Journals)**

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Sept 21: Data Analysis: Statistics I

- Wildemuth, Chapters 33-34
- Nardi, Introduction, Chapters 1-2
- **Initial Ideas Paper Due**
- **Schedule a meeting with me this week!**

Sept 23: Data Analysis: Statistics II

- Nardi, Chapter 3
  - Dell, N., Vaidyanathan, V., Medhi, I., Cutrell, E., & Thies, W. (2012). "Your's is better! Participant response bias in HCI. *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems (CHI '12)*, Austin, TX, 1321-1330. **(ACM Digital Library)**
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Sept 28, 30: No Class. Diane at *International Conference on the Theory of Information Retrieval*

Oct 5: Experimental Design

- Wildemuth, Chapters 11 and 12
- Arguello, J., Wu, W.C., Kelly, D., & Edwards, A. (2012). Task complexity, vertical display and user interaction in aggregated search. *Proceedings of the 35th Annual ACM International Conference on Research and Development in Information Retrieval (SIGIR '12)*, Portland, OR, 435-444. **(ACM Digital Library)**

Oct 7: Quantitative Data Analysis

- Wildemuth, Chapters 36 and 37
- Nardi, Chapter 4
- Kelly, D., Shah, C., Sugimoto, C. R., Bailey, E. W., Clemens, R. A., Irvine, A. K., Johnson, N. A., Ke, W., Oh, S., Poljakova, A., Rodriguez, M. A., van Noord, M. G., & Zhang, Y. (2008). Effects of performance feedback on users' evaluations of an interactive IR system. *Proceedings of the 2nd Symposium on Information Interaction in Context (IliX)*, London, UK, 75-82. **(ACM Digital Library)**

Oct 12: University Day (no class)

Oct 14: Quantitative Data Analysis

- Nardi, Chapter 5
- Bring laptop to class and make sure you can connect to SPSS through UNC's virtual lab
- **Problem Statement and Annotated Bibliography Due**

Oct 19: Log Analysis and Online Testing

- Wildemuth, Chapter 18
- Dumais, S., Jeffries, R., Russell, D. M., Tang, D. & Teevan, J. (2014). Understanding user behavior through log data and analysis. J.S. Olson and W. Kellogg (Eds.), *Human Computer Interaction Ways of Knowing*. New York: Springer. **(UNC resource – search for book title in library system)**

Oct 21: Log Analysis and Online Testing

- Kohavi, R., Henne, R. M., & Somerfield, D. (2007). Practical guide to controlled experiments on the Web: Listen to your customers not to the HiPPO. *Proceedings of the ACM Conference on Knowledge Discovery and Data Mining (KDD '07)*, 959-967. Available at author's website: <http://robotics.stanford.edu/~ronnyk/ronnyk-bib.html>
  - Bateman, S., Teevan, J., & White, R. W. (2012). The search dashboard: How reflection and comparison impact search behavior. *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems (CHI '12)*, Austin, TX, 1785-1794. **(ACM Digital Library)**
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#### Oct 26: Surveys

- Wildemuth, Chapter 26
- Dillman, D. A., Smyth, J. D., & Christian, L. M. (2009). *Internet, Mail and Mixed-Mode Surveys* (3<sup>rd</sup> Edition). John Wiley & Sons, Inc.: Hoboken, NJ, Chapters 1 and 2. **(Course Directory)**

#### Oct 28: Surveys

- Dillman, et al., Chapters 4 and 5 **(Course Directory)**
- Lampe, C., Vitak, J., Gray, R., Ellison, N. (2012). Perceptions of Facebook's value as an information source. *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems (CHI '12)*, Austin, TX, 3195-3204. **(ACM Digital Library)**

#### Nov 2: Interviews

- Wildemuth, Chapters 23-25
- Smith, J. A. (1995). Semi-structured interviewing and qualitative analysis (pgs. 1-27). In J. A. Smith, R. Harre, & L.V. Langenhove (Eds.) *Rethinking Methods in Psychology*. Sage Publications. **(UNC resource – search for book title in library system)**

#### Nov 4: Interviews

- Connaway, L. S., Dickey, T. J., & Radford, M. L. (2011). "If it is too inconvenient I'm not going after it:" Convenience as a critical factor in information-seeking behaviors. *Library & Information Science Research*, 33, 179-190.

#### Nov 9: Diaries

- Wildemuth, Chapter 22
- Sohn, T., Li, K. A., Griswold, W. G., & Hollan, J. D. (2008). A diary study of mobile information needs. *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems (CHI '08)*, Florence, Italy, 433-441. **(ACM Digital Library)**
- **Literature Review Due**

#### Nov 11: Think-aloud

- Wildemuth, Chapter 19
- Capra, R., Chen, A. T., McArthur, E., & Davis, N. (2013). Searcher actions and strategies in asynchronous collaborative search. *Proceedings of the ASIST Conference*, Montreal, Quebec, Canada. **(Course Directory)**

#### Nov 16: Content Analysis

- Wildemuth, Chapters 17 and 29
- Sood, S. O., Antin, J., & Churchill, E. F. (2012). Profanity use in online communities. *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems (CHI '12)*, Austin, TX, 1481-1490. **(ACM Digital Library)**
- Hughes-Hassell, S., Overberg, E., & Harris, S. (2013). Lesbian, gay, bisexual, transgender and questioning (LGBTQ) themed literature for teens: Are school libraries providing adequate collections? *School Library Research*, 16. Available online at: <http://files.eric.ed.gov/fulltext/EJ1012828.pdf>.

#### Nov 18: Qualitative Data Analysis

- Wildemuth, Chapter 30
- Corbin, J. M., & Strauss, A. (1990). Grounded theory research: Procedures, canons, and evaluative criteria. *Qualitative Sociology*, 13(1), 3-21. **(Course Directory)**

#### Nov 23: Sampling

- Wildemuth, Chapters 13-15
- Ross, J., Zaldivar, A., Irani, L., Tomlinson, B., & Silberman, M. S. (2010). Who are the Crowdworkers? Shifting demographics in Mechanical Turk. *Proceedings of the ACM SIGCHI Conference on Human Factors in Computing Systems (CHI '10) Extended Abstracts*, Atlanta, GA, 2863-2872. **(ACM Digital Library)**



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Nov 25: Thanksgiving Holiday

Nov 30: Ethics

- Evans, J. (2012). Ethics for research in psychology. *Your Psychology Project: The Essential Guide (Chapter 2)*. Sage Publications.  
**(UNC resource – search for book title in library system)**

Dec 2: **Proposal Due and Presentations**

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