Introduction to Educational Research:  
Design and Analysis  
ED 506, Spring 2015  
Thursdays 5:00-8:00, BSB 219

Instructor: Dr. Theresa (Terri) Thorkildsen  
Office: 3549 ETMSW  
Hours: Before class or by appointment.  
E-mail: thork@uic.edu, Phone: 312-996-8138, Web: http://thork.people.uic.edu/fair/

Purpose  
This course will assist you in designing a research proposal in your area of interest once a question is fully justified. In the course of designing a proposal or reviewing existing research, you are asked to evaluate the quality of your own research questions and review the strengths and limitations of various research designs. Although you may have some experience with research design, you are likely to benefit from a review of how different research approaches can be tied directly to a research question in your program of study. You will have fully mastered the material of the course if you are able to identify and apply fundamental concepts for consideration in the design process and verify how this differs from measurement and analysis in the layout of a research proposal.

Objectives  
As the second in a two-course sequence required of all doctoral students in the College of Education, this course will offer you a foundation on which you can build specific and more in-depth skill in the use of particular research methodologies. Toward that end, we hope that by the end of the course sequence you will,

- Understand and demonstrate knowledge of the research process and the role of design in that process.
- Read and critically analyze published reports of research, demonstrating an ability to recognize threats to validity in qualitative and quantitative research.
- Read, analyze, and employ literature and literature reviews to identify research topics, problems, questions, and theoretical frameworks.
- Understand how to situate anticipated findings of particular research projects in broader empirical and theoretical knowledge.
- Understand and demonstrate knowledge of different types of research designs and analyses in education.
- Distinguish between research designs and analytic methodologies as well as how and why they may be used to answer different research questions.
• Use theoretical reasoning to evaluate the quality and efficacy of research designs, identifying their comparative strengths and weaknesses with regard to different philosophical and epistemological stances.
• Identify and consider ethical issues associated with different research designs and analyses.
• Identify and consider practical feasibility and resource issues in research design and analysis.
• Begin to design, explain, and propose independent research projects by including appropriate and defensible choices among different methodological, epistemological, and disciplinary stances.

Activities
I will be assigning you to work groups to help you achieve a number of important objectives. Weekly activities should help you achieve the following steps, even if you are designing a project you do not intend to execute.

• Early in the course, you will design a concept map of guiding theoretical assumptions, including the variables to be compared in your research design. Ideally, you will find at least one existing empirical study to defend your assumptions.
• By the midterm, you should be able to complete most of the information on the IRB templates addressing the treatment of human subjects and will have completed at least one form of IRB training.
• The final will consist of a formal research proposal that can be attached to an IRB submission as the “research protocol”. This proposal will be evaluated on your ability to use and defend your methodological stance by using design principles, measurement techniques and analysis plans. If you have been in a doctoral program for a year or more, you should attempt to design a study you might execute. If you are new to the research enterprise, you may want to start by looking at existing research, critique the designs of such studies, and propose an improvement or replication study. Your midterm evaluation will include preliminary feedback on this project and you will have time to share the details and receive oral feedback from the members of your research group.

As we progress through the semester, you will find the course syllabus that is online updated with activities and discussion questions that will direct your attention to specific parts of the research design process. I assume that you will be reading relevant course materials as we progress through these activities. I also assume that you will negotiate with group members different methods of comparing perspectives on the readings so that you may glean as much information as possible about a topic that is too broad to be fully covered by a single course.

Readings
Because most education outlets and those in the Social Sciences use the APA Publications manual as a guide to writing and preparing manuscripts for publication, everyone will want to purchase a copy of the following and use it when submitting course assignments.

Relying on a jigsaw method of learning, readings are selected from three textbooks and will include a self-designed bibliography in your area of interest. Important ideas from several books will be discussed. To purchase self-selected books you will want to use Amazon.com or a favorite textbook Website, but I did list these books with the UIC bookstore. Realize that because these books can serve as a valuable reference throughout a research career, it is better to purchase newer editions than older ones, even if the book seems overly expensive at this point.

Most of you will want to purchase and follow one of the two following texts. These textbooks offer a solid overview for anyone working on a research proposal, and newer editions do a great job of showing students where to include particular kinds of information in a research proposal.


If you are ready for more advanced methodological work, you are encouraged to purchase and follow both of the following texts.


If you are new to reading empirical research and/or have not taken advanced statistics courses, you will find two statistics guides to be essential. The content of these two books do not overlap, despite the similarity in names.


As you begin to work on your dissertation proposal, especially if you are new to graduate studies, you might also want to read the following books.

Assignments
As a student, you will be asked to complete one small-scale assignment each week to prepare for class. For the second and third classes, I will ask for a **statement of your goals** for the semester and a **review of at least one research study** in your area of interest. Both these tasks help me see what you hope to accomplish this semester. Because the evaluation across course activities will be adapted according to the demands of your overall academic program of study, it will be important to establish and clarify your research goals as you progress through the semester. Students who fall behind or do not try to associate weekly activities with their own project invariably tend to receive lower grades. In other words, we will engage in active rather than passive learning throughout the semester.

Later in the semester you will construct a **concept map** that outlines relations you see among key variables in your project. Then you will work from that map to design a study. This will include decisions on how to connect the parts of a concept map to a testable design, measure each variable, and evaluate your results. It will be important to pay particular attention to the validity of any conclusions that might be drawn from the research and potential threats to that validity.

In the middle of the semester, you will also look at the various design templates that are part of the Institutional Review Board (IRB) protocols and select the one that best matches your needs. If you are ready to conduct research, you will want to complete a draft of the template relevant to your proposal and **imagine how to enact the principles of benevolence, justice, and respect for persons** as you execute a project. **Final grades will include evidence that you have advanced your knowledge of the Human Subjects Protection Program in some meaningful way.**

Your final project should adhere to the content and format criteria outlined in the *Publication Manual of the American Psychological Association*. By the end of the semester, you will be asked to **write a research proposal** that might be submitted for possible funding.

Accessibility
UIC strives to ensure the accessibility of programs, classes, and services to students with disabilities. Reasonable accommodations can be arranged for students with various types of disabilities, such as documented learning disabilities, vision or hearing impairments, and emotional or physical disabilities. All students should know that the University of Illinois at Chicago is committed to maintaining a barrier-free environment so that individuals with disabilities can fully access programs, courses, services, and activities at UIC. Students with disabilities who require accommodations for full access and participation in UIC Programs must be registered with the Disability Resource Center (DRC). Please contact DRC at (312) 413-2183 (voice) or (312) 413-0123 (TDD).

UIC also offers a wide range of resources for students who need extra help. Doctoral students may want to pay particular attention to the resources available at the UIC Writing Center. It is essential that students get in the habit of writing at least something as often as possible, preferably every day. More details on support services can be found at: [http://tigger.uic.edu/depts/oaa/advising/student_midterm_list.html#improve](http://tigger.uic.edu/depts/oaa/advising/student_midterm_list.html#improve)
**Academic Integrity**

UIC’s Honor Code as well as the ethical standards of the American Educational Research Association, American Psychological Association, and Society for Research in Child Development governs all work in this and all other courses offered in the College of Education. Students are responsible for becoming familiar with these codes and standards which are available online. Especially important for doctoral courses, students should pay attention to the proper use and citations of others’ work, and avoid plagiarism. More information on UIC’s Disciplinary Policies can be found at: [http://www.uic.edu/depts/dos/conductforstudents.shtml](http://www.uic.edu/depts/dos/conductforstudents.shtml)

Two issues seem especially important to discuss as part of our course activities: plagiarism and the use of assignments for more than one course. First, your writing should always represent your version of the main information you were able to obtain from the readings. When writing using APA style, it is important to avoid quoting information from the articles and practice focusing on the quality of the data that support your conclusions. As a researcher you will be asked to support all your ideas with evidence. Rules for citing references properly are available in the *Publication Manual of the American Psychological Association*. Failure to cite your sources for borrowed ideas is an act of plagiarism. More information can be found at: [http://library.missouri.edu/guides/avoidplagiarism/](http://library.missouri.edu/guides/avoidplagiarism/)

Second, in this course, you are expected to use materials from other courses if that information helps you design and review research. That sort of sharing is very helpful among professionals. As a feature of the course, it will be important for you to share with group members the details you are reading in the textbooks as we progress through the semester. For the final paper, grading rubrics will offer an outline of how to meet the requirements of the assignments. We will also discuss academic dishonesty further as part of the course as we discuss research ethics. More information on issues related to student life can be found online at: [http://www.uic.edu/depts/dos/studentconduct.html](http://www.uic.edu/depts/dos/studentconduct.html)
### Tentative Schedule

<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
<th>Readings*</th>
</tr>
</thead>
</table>
| Jan. 15th| Differentiating research and practice  
**(Goals statement and article review tasks)** | Kerlinger & Lee, Ch. 1  
Mertens, Ch. 1-2,  
Creswell, Ch. 1-2  
*(Guiding issues)* |
| Jan. 22nd| Preparing to think about design  
**Simple problem statement**  
**Class Activity** | Kerlinger & Lee, Ch. 2-3, 18  
Mertens, Ch. 3,  
Creswell, Ch. 3-4  
Thorkildsen, Ch. 1  
*(Guiding issues)* |
| Jan. 29th| Preliminary ethics in research design and measurement  
**Finding the design**  
**(Goals statement and article review due)** | Kerlinger & Lee, Ch. 17  
Mertens pp., 335-349,  
Creswell 5-9  
Thorkildsen, Ch. 2  
*(Guiding issues)* |
| Feb. 5th | Essentials of design and measurement  
**Sample theory and concept maps**  
**Connecting concepts to theory** | Kerlinger & Lee, 19-20  
Mertens, Ch. 4-10,  
Creswell 5-9  
*(Guiding issues)* |
| Feb. 12th| Theoretical frameworks  
**Concept Maps (First draft due)**  
**Logic in theory construction** | Kerlinger & Lee, 4-6  
Thorkildsen, Ch. 3, 9, 13  
*(Guiding issues)* |
| Feb. 19th| Validity concerns and the puzzling qualities of design:  
**Experimental/Quasi-experimental designs**  
**Validity threats or a study’s target agenda?**  
**Identifying design features** | Kerlinger & Lee, Ch. 7-8, 29-31  
Mertens, Ch. 4, 11,  
Creswell 10  
*(Guiding issues)* |
| Feb. 26th| Defining and measuring variables: Closure on experimental and quasi-experimental designs  
**Comparing design and concepts**  
**Theory to hypotheses** | Mertens, Ch 5-7,  
Creswell 11-12  
Thorkildsen, Ch. 4-8, 10-12 or 14-16  
*(Guiding issues)* |
| Mar. 5th | NO FORMAL CLASS—Group Meetings  
**Proposal writing—early drafts** | Thorkildsen, Ch. 4-8, 10-12 or 14-16 |
| Mar. 12th| Defining and measuring variables: Closure on causal comparative, survey, and single subject designs— | Kerlinger, Ch. 8  
Creswell 5, 7, 13-15  
Mertens, Chs .7-9  
IRB forms  
*(Guiding issues)* |
<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
<th>Reading Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mar. 19th</td>
<td>Recruiting human subjects: Closure on case study, ethnographic,</td>
<td>Kerling, Ch. 21</td>
</tr>
<tr>
<td></td>
<td>historical, and other qualitative designs</td>
<td>Mertens, Ch. 11</td>
</tr>
<tr>
<td></td>
<td><strong><a href="#">Human Subjects Protection Site</a></strong></td>
<td>Creswell 6, 8, 16</td>
</tr>
<tr>
<td></td>
<td>Comparing sampling, performance sites, design</td>
<td>IRB forms</td>
</tr>
<tr>
<td></td>
<td>constraints, and the protection of human subjects <strong>(IRB proficiency task due)</strong></td>
<td><strong>(Guiding issues)</strong></td>
</tr>
<tr>
<td>Mar. 26th</td>
<td><strong>SPRING BREAK</strong></td>
<td><strong>No Class</strong></td>
</tr>
<tr>
<td>Apr. 2nd</td>
<td>Measuring variables in your design and additional elements of proposal writing.</td>
<td>Mertens, Appendix</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Creswell 2-3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Thorkildsen (entire textbook)</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>(Guiding issues)</strong></td>
</tr>
<tr>
<td>Apr. 9th</td>
<td>Designing an analysis plan</td>
<td>Kerling &amp; Lee, Ch. 9-12, 22-25, 32-35</td>
</tr>
<tr>
<td></td>
<td>Anticipating the results</td>
<td>Mertens Ch. 12-13</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Creswell 6, 8, &amp; 9</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Grimm books as needed</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>(Guiding issues)</strong></td>
</tr>
<tr>
<td>Apr. 16th</td>
<td>Visit AERA and watch for strong research designs</td>
<td>APA Publication Manual</td>
</tr>
<tr>
<td></td>
<td><strong>Submit a full proposal draft for review via email</strong></td>
<td><strong>No Class—attend AERA</strong></td>
</tr>
<tr>
<td>Apr. 23rd</td>
<td>The components of a strong design</td>
<td><em>(Guiding issues)</em></td>
</tr>
<tr>
<td></td>
<td><strong>A strong literature review</strong></td>
<td><em>(Guiding issues)</em></td>
</tr>
<tr>
<td></td>
<td><strong>Audience</strong></td>
<td><em>(Guiding issues)</em></td>
</tr>
<tr>
<td>Apr. 30th</td>
<td>Present and critique proposals</td>
<td><em>(Guiding issues)</em></td>
</tr>
<tr>
<td></td>
<td><strong>Prepare a PowerPoint conveying the scope of your proposal to present to your small group.</strong></td>
<td><em>(Guiding issues)</em></td>
</tr>
<tr>
<td>May 8th</td>
<td><strong>FINAL PAPERS DUE</strong></td>
<td><em>(Final projects due)</em></td>
</tr>
</tbody>
</table>

[Return to Terri's Home Page](#)