Psychology 636: Developmental Methodology  
Spring 2011

Instructor: Rebecca Shearer, Ph.D.  
Class meeting time: Monday 12:15-2:45pm, Flipse 402  
Instructor phone: (305) 284-8439  
Office: Flipse 341  
Email: rshearer@miami.edu  
Office Hours: Monday 3:00-5:00, Tuesday 12-1pm (or by appointment)

I. Course Description and Purpose:  
This course is designed to provide students with a background in the importance of and challenges of engaging in developmental research. We will discuss issues of research design, data management and quality, measurement, research ethics, and dissemination of findings, in addition to how different research strategies are applied to the study of developmental stages and domains. In general, the first half of the class period will cover content, theory, or methodology and the second half of the class period will apply this to recent empirical research, current issues in the field, or will involve hands-on analytic examples. This is a graduate level course in which I will highlight methodological issues which are directly relevant to the research that you are currently engaged in and will be conducting in the future. As such, there may be some variation in the special topics covered, depending on students’ needs. My approach is largely conceptual and applied, and whenever possible I will encourage you to share with the class particular methodological issues as they arise in your research, as well as share analytic examples with real data. We will also spend some time reviewing the important elements of disseminating your research findings via written and oral presentation.

II. Course Objectives:  
By the completion of this course, students will:

- Understand the importance of a scientific approach to study development.
- Read, think, and write critically about developmental research.
- Understand ethical considerations involved when conducting research with children.
- Identify methodological tensions arising in the study of developmental processes across developmental periods and across developmental domains.
- Consider the nature of development and how developmental theories may or may not comport with our current methodological approaches.
- Apply current issues related to research design, measurement, and analytic approaches to the study of development and to a research project of their own choosing.

III. Course Requirements:  
Class participation (20%) = Active learning: To accomplish the goals and objectives of this course, you must take responsibility for your own learning and participate as an active learner. To take charge of your own education, you must be willing to read (“Reading maketh a full [person]” according to Francis Bacon). Each week we will discuss a number of assigned readings. I expect you all to read the assigned materials prior to coming to class. You should demonstrate critical thinking as a researcher by coming prepared for each class ready to discuss the main points of assigned articles or chapters, and to come prepared to discuss strengths and
weaknesses of assigned empirical studies. You are expected to actively participate in these discussions – this participation will count towards 20% of your grade.

**In class presentations (2 @25% for a total of 50%):** This will involve summarizing and presenting on two assigned topics (one related to research designs; one related to a special applied topic that students will choose), which will be arranged with the professor during the first week of class. Both a written summary (handouts should be emailed to the class Sunday evening before class and copies brought to class for all students) and an oral presentation (25-30 minutes of leading the class discussion).

**Research proposal & presentation (30%):** You will be required to write a proposal on any project that you have not yet completed (maximum 10 pages). The purpose is to provide you with the experience of writing a research proposal applying the concepts we have learned in class (what is the methodology you employ, what are the strengths & limitations of these methods, future directions etc). You will present your paper (20 minute maximum, using no more than 12 power point slides) to the class during the last few weeks of the semester. More details to follow.

- Proposal idea cleared with instructor (by 2/14/11)
- Part 1 (due 2/21/11) - 1 page description & brief class presentation on your intended research proposal of the following:
  - Statement of the problem & empirical rational
  - Research questions & hypotheses
  - Brief description of sample & measures
- Final presentation (due 4/25/2011)
- Final paper (due 4/29/2011)

**IV. Class Attendance:**
Class attendance is mandatory and is reflected in the class participation portion of your grade.

**V. Honor Code:**
The University of Miami’s Honor code regarding cheating and plagiarism will be strictly enforced. Academic dishonesty can be reason for a failing grade in this course, as detailed at: [http://www6.miami.edu/dean-students/pdf/graduate_honorcode.pdf](http://www6.miami.edu/dean-students/pdf/graduate_honorcode.pdf)

**VI. Course Materials**
1. **Required readings and resources (available at the UM bookstore)**


2. **Suggested readings (available at the UM bookstore)**


3. Access to the following resources:

American Educational Research Association, American Psychological Association, National Council on Measurement in Education. (1999). *Standards for educational and psychological testing*. Washington, DC: Author. (Note: A revision is currently underway to be published soon so you may want to wait for this one to come out http://www.teststandards.net/)


Course Schedule and Readings:
Note: Due to the amount of material and depending on the needs of the students, it is possible that the schedule will deviate from the dates below and adaptations to readings and/or assignments may be made. Notice of changes will be announced in class.

**January 24th, 2011**
**Class 1: Course Overview, General Principles, & Ways of Knowing**

**Required readings:**


**Supplemental readings:**


**January 31st, 2011**
**Class 2: Developmental Research Designs**

**Required reading:**


February 7, 2011
Class 3: “The Battle of the Research Designs –I” (pre-experimental & true experimental designs); experiments and causal inference; threats to validity; Group A & B Presentations
Required readings (all):
Shadish, Cook, & Campbell (2002). Threats to internal validity (pp54—63); External validity & threats to external validity (pp 83—93).

**Group A: Pre-experimental designs** (One shot case study & One group pretest-posttest design)
Campbell & Stanley (1966) pp 6-13
Shadish, Cook, & Campbell (2002). *Experimental and quasi-experimental designs*. Chapter 4: Quasi-experimental designs that either lack a control group or lack pretest observations on the outcome. (pp 103-111).

**Group B: True experimental designs** (Pretest posttest control group design)
Campbell & Stanley (1966) pp 13-31
Shadish, Cook, & Campbell (2002). *Experimental and quasi-experimental designs*. Chapter 8 (Randomized experiments: rationale, designs, and conditions conducive for doing them); pp 246-277.

February 14, 2011
Class 4: “The Battle of the Research Designs-II” (special issues/practical considerations with experimental designs; Group C & D presentation)
Required readings (all):

**Group C: Quasi-experimental designs** (Regression-discontinuity designs with Gormley study as example of one type of quasi-experimental design)

**Group D: Controlling for selection effects in observational (correlational) designs**
February 21, 2011
Class 5: Data Management & Missing Data
*DRAFT PART 1 RESEARCH PROJECT DUE & share with class
Required reading:

February 28, 2011
Class 6: Measurement Issues & Psychometric Methods; special topic presentations
*Bring test review of one of the measures you use in your research to discuss in class
Required reading:

*Special Topics (Student Presentation TBA)
1) Measurement with culturally & linguistically diverse populations (Veronica)

2) Use of parents as reporters (Irena)

3) Use of children as reporters (Stefano)

4) Use of internet: measurement and design challenges (Ryan)


March 7, 2011
Class 7: Qualitative Approaches to Research
Guest speaker Dr. Josh Diem
*What is research? Who decides? What is truth? Who decides?*

Required reading:


March 14, 2011- Spring Break NO CLASS

March 21, 2011
Class 8: Variable-oriented vs. Person-centered, & Microgenetic Approaches

Required reading:


Microgenetic models (Rebecca)


March 28, 2011
Class 9: Statistical considerations in developmental research; special topics

Guest speaker on the topic of measurement equivalence over time (Dr. Craig Marker)

Required reading:

*Special Topics
Effects sizes in psychological/educational research: (Corinne)

Estimating power in multilevel models (Whit)

Modeling dependence in data (dyadic analyses) (Olga)

Monday April 4, 2011

Class 10A: Ethics in Developmental Research
Class 10B: Disseminating the practical importance of findings
*bring copy of informed consent you used for your research project to discuss in class

Required reading:
Society for Research in Child Development Ethical Standards. www.srcd.org/ethicalstandards.html

Monday April 11, 2011
AERA NO CLASS
Monday April 18, 2011
Class 11: Epidemiologic Methods & Application of Research to Practice, Policy
Guest speaker for epidemiologic methods beginning of class: Dr. Heather Rouse

Required reading:

Monday April 25, 2011
Class 12: **Student Presentations**

Friday April 29, 2011
**Final Research Paper due**
A typed copy of your research proposal (in APA format) must be delivered to me by 5pm Friday 4/29/11.
In-Class Presentation Assignments:

**Assignment 1: (25%) Research Design Presentation/Debate** “The Battle of the Research Designs” (2/7 & 2/14- you will be assigned to present in pairs; while you will be asked to consider the both the strengths & weaknesses of this design, when presenting your design you will be asked to defend why researchers should choose this design amongst all the others.)

- Describe in words and pictures the research design.
- What are the strengths and weaknesses of this design?
- What are threats to the internal and external validity for this design (sources of invalidity)?
- How has this design been used in psychology or education? Try to find a good applied example to share with the class to illustrate the design.
- What analytic strategy is recommended for this design?
- Thoughts/reflections regarding the use of this design in developmental research and any questions you may want to discuss with the class. Please be certain to email these questions ahead of time to the class.

**Assignment 2: (25%) Special Topic Reading (TBD)**

- Overall contribution of the topic to the study of development
- Main point(s) of the reading(s)
- Key issues or questions raised in the reading(s)
- What you felt were the most important, interesting, compelling issues as they relate to research methodology in psychology or education.
- Questions to guide discussion and as they apply to your or others’ research should be emailed to the class with the written summary.
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<thead>
<tr>
<th>Class Date</th>
<th>Topic</th>
<th>Assignment</th>
<th>Assigned Student(s)</th>
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<tbody>
<tr>
<td>Class 1 1/24/2011</td>
<td>Course Overview</td>
<td>Assigned readings; topic assignments; discuss what hope to learn this semester</td>
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<td>Class 2 1/31/2011</td>
<td>Developmental research designs</td>
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<td>Class 3 2/7/2011</td>
<td>Pre-experimental &amp; experimental research designs</td>
<td>Battle of the Research Designs 1: Teams A &amp; B</td>
<td>Team A (Whit) Team B (Corinne, Irena)</td>
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<td>Class 4 2/14/2011</td>
<td>Issues with experimental designs &amp; quasi-experimental designs</td>
<td>Battle of the Research Designs 2: Teams C &amp; D *clear research proposal idea with Rebecca</td>
<td>Team C (Olga, Stefano) Team D (Vero, Ryan)</td>
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<td>Class 5 2/21/2011</td>
<td>Data management &amp; missingness</td>
<td>*Draft 1 Research Project Due *Brief (5-10min) students present ideas to class In class analyses of missing data</td>
<td>All</td>
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<td>Class 7 3/7/2011</td>
<td>Variable, person-centered approaches</td>
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<td>3/14/2011</td>
<td>SPRING BREAK NO CLASS</td>
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<td>Class 8 3/21/2011</td>
<td>Qualitative approaches</td>
<td>Guest speaker Dr. Josh Diem</td>
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<td>Class 10 4/4/2011</td>
<td>Ethics &amp; disseminating findings</td>
<td>*In class IRB activity (bring copy of your IRB protocol)</td>
<td>Final Class Presentation: Olga</td>
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<td>4/11/2011</td>
<td>AERA NO CLASS</td>
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<tr>
<td>Class 11 4/18/2011</td>
<td>Epidemiologic approaches &amp; application of research to policy and practice</td>
<td>Guest Lecturer for beginning of class on epidemiologic methods: Dr. Heather Rouse</td>
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<tr>
<td>Class 12 4/25/2011</td>
<td>*Student Presentations</td>
<td></td>
<td>Whit, Corinne, Irena, Stefano, Vero, Ryan</td>
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Psychology 636: Developmental Methodology
Spring 2011
Research Proposal & Presentation

Research proposal & presentation (30%): You will be required to write a proposal on any project that you have not yet completed (maximum 10-12 pages not including references). The purpose is to provide you with the experience of writing a research proposal akin to a Masters, dissertation, or small grant proposal through NIH or ACF, applying the concepts we have learned in class. APA format is required. You will present your paper (20 minute maximum, using no more than 12 power point slides) to the class during the last few weeks of the semester.

Step 1: Proposal idea cleared with instructor (by 2/14/11)
Step 2: 1 page maximum description & brief 5-10 minute class presentation (due 2/21/11) on your intended research proposal of the following:
- Title of Project
- Statement of the problem
- Empirical rationale
- Research questions, hypotheses, & theoretical model or conceptualization (you can show in pictures)
- Brief description of sample (proposed N size, demographic characteristics)
- What are your constructs (variables) of interest, how will you operationalize them, specifically what measures do you plan to use?
- Procedures to be used and how do you plan to ensure that participants will be treated ethically?
- Planned data analyses if known and how you feel this will allow you to answer your research questions
- Please be prepared to discuss with the class any thoughts or questions you have regarding the proposed methodology of your project (e.g., could be with regard to sampling, recruitment, procedures, measurement, analytic strategies etc)

Step 3: First draft of proposal due (3/21/2011) to solicit feedback from professor
Step 4: Final in class presentation (4/25/2011) (worth 10% of project grade- details TBA)
Step 5: Final paper (due 4/29/2011) (worth 20% of project grade)
Research Proposal (Suggested Format)

- Part 1- Introduction (Significance) (Justify the need for your proposed study in the broader field, how, and why your study will make a significant contribution to the knowledge base. If this were a grant proposal you would need to make a strong case for why your study is critically needed – why your study addresses an important problem, how it will advance scientific knowledge, and why the funders should fund you.)
  - Statement of the problem
  - Theoretical model (you can describe and show in pictures; develop your conceptual argument that is theory based and make sure that your research questions and hypotheses tie into this model)
  - Empirical rationale (literature review which is current, clearly written, and justifies the need for your study)
  - Research questions (clearly articulated, clearly linked to your empirical rationale, constructs and analytic plan below; are these sufficient to address the statement of the problem or the need as stated above?)
  - Hypotheses (based on prior research and your theoretical model, what do you hypothesize and why?)

- Part 2- Method (Approach) (Justify the scientific rigor of your approach to answering these critical questions via design, methods, and analytic approach; consider alternative approaches if Plan A does not work out; also highlight places in your proposal that are innovative –employ novel approaches, methodologies, tools etc)
  - Sample
    - Proposed N size, demographic characteristics of participants
  - Measures
    - What are your constructs (variables) of interest, how will you operationalize them, specifically what measures do you plan to use, what are the psychometric properties; provide sufficient detail to justify your choice of these measures from a theoretical and empirical perspective (e.g., do they map onto your theoretical model, how are the best measures to allow you to answer your research questions, and are they psychometrically sound/appropriate for your target population?)
    - If you plan to use a measure which includes direct observation or coding of observational or qualitative data, be sure to specify how you plan to collect and code these data, and assess inter-rater reliability data; be sure to include in the procedures section your plan to train coders to reliability
  - Procedures (ethics, recruitment/IRB)
    - Procedures to be used and how do you plan to ensure that participants will be treated ethically.
    - Is the research design appropriate and sufficient for addressing the questions of the study?
  - Planned data analysis
    - Analytic strategy (include description of rationale for choice of analytic plan, how this maps onto your research questions, and a Plan B if certain things do not work out as you had planned—e.g., not enough participants recruited… can’t create a measurement model in SEM….)
Your plan to address missing data
How is this analytic strategy the best strategy to advance the state-of-the-art? Extent to which this is appropriate to answer your research questions or the purpose of your study.

- Power
  - Describe whether you have sufficient sample size to conduct your analyses and power to detect significant effects.

- Feasibility
  - Describe the extent to which you believe the scope of your research plan is feasible, for the funds and time available, and for your level of expertise. If you feel that you will need to work collaboratively with others or mentors to complete your plan, describe this here.

Part 3- Dissemination plan
- What is your plan for disseminating the findings from your study? Does this include professional and/or practitioner-oriented presentations, papers, or other products? Describe.

Part 4- Reflections & Future directions
- Thoughts, reflections, or questions you have regarding the methodology of your project. Discuss any issues which you feel you may encounter either when you will conduct this research AND/OR at the end of the day, when you are interpreting and plan to disseminate your findings. For example, are there issues with recruitment of participants, coding of measures, or data analyses that might be problematic and how do you intend to deal with them? Do you anticipate any issues that you feel might affect your ability to draw conclusions from your findings or that might limit the generalizability of your findings? If so, what might they be? Please describe how you might address them in future studies.