MTE 655: Developing Research Skills Pt. 1
Course Overview

Professor: Dr. Chandra H. Orrill
Location: Monday 4:00-6:30pm, Fairhaven
Contact: corrill@umassd.edu
774-929-3052

Abstract: This course will focus on building the skill set necessary to conduct research for the dissertation, most likely focused on background fundamental issues in mathematics education research. It will build exploration, analysis and writing skills. Students will learn the skills to give shape to their thinking. In particular, during this course, students will be expected to identify a problem for which they will conduct a pilot study during the Introductory and Preparatory phases of the program.

Learning Objectives
• To develop a toolkit of data collection methods
• To explore the relationship of research questions to a research agenda and the methods used
• To develop a coherent approach for conducting research around a specific question
• To further develop understandings of ethical standards for research
• To further technical writing abilities related to producing research in mathematics education

Textbooks
Required:

Additional Resources:

Evaluation
In-Class Participation: 25%
Homework: 50%
DR K-12 Grant Proposal: 25%
**General Information:**
- All written work must conform to APA 6th edition format.
- Attendance is expected. Please notify me in advance regarding extenuating circumstances.
- Please see [http://www.umassd.edu/studenthandbook/academicregs/ethicalstandards.cfm](http://www.umassd.edu/studenthandbook/academicregs/ethicalstandards.cfm) for a statement on the university’s policy on academic dishonesty, including plagiarism.
- Please see Center for Access and Success regarding information about available academic support services, including services for learning and physically disabled students.

**Course Calendar**

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<td>2/16/10**</td>
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<td>Refining the Research Process for the Funder &amp; Turning a Proposal into Articles</td>
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<td>Quantitative studies in grant proposals and research papers</td>
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<td>5/19/10</td>
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Course Calendar

1/25/10  Introductions & Broader view of Mathematics Education Research

2/1/10  Research Designs
        *Creswell: Selection of Research Design (pp. 3-21)*
        *Maxwell: Why do this study? (pp 15-32)*
        *Maxwell: Methods – What will you actually do? (pp 79-103)*
Assignment Due: Answers to Creswell pg 20 #1 & 2 using a topic from the RAND brief as a basis for your discussion

2/8/10  Research Questions
        *Creswell: Writing Strategies & Ethical Considerations (pp 73-93)*
        *Maxwell: Research Questions (pp. 65-78)*
        *Katzer, Cook, & Crouch: What is Being Studied? (pp. 75-91)*
Assignment Due: Maxwell Chapter 4 Exercise

2/16/10** (Tuesday!!) Interviewing
        *Seidman: Chapters 1, 2, 3, 4, & 6 (skim 4 & 6)*
Assignment Due: Write a sample interview protocol for a 15-30 minute interview on your topic of interest

2/22/10  Observations and Video
        *Merriam: Being a Careful Observer pp 87-103**
        *Erickson: Definition and Analysis of Data from Videotape: Some Research Procedures and Their Rationales (pp 177-191)**
        *Hall: Videorecording as Theory (pp. 647-664)**
        *Roschelle: Choosing & Using Video Equipment for Data Collection (pp. 709-731)**
Assignment Due: Reflection on using video versus using observation versus using interviewing for data collection

3/1/10  Documents and Surveys
        *Scheuren: What is a Survey PDF pamphlet**
        *Creswell: Quantitative Methods, pp 145-170
        *Merriam: Mining Data from Documents, pp 104-118**
Assignment Due: Turn in Interview transcript and reflection and
Bring a “starter survey” to class on your topic of interest

3/8/10  Clinical Interviews
        *Ginsburg: chapters 2-4 (pp. 30-115)*
Assignment Due: Reflection comparing semi-structured or structured interviews to clinical interviews

3/22/10  Teaching Experiments
        *Handbook of Research Design in Mathematics and Science Education
          - Ch 11 (Steffe & Thompson) pp 267-306*
          - Ch 12 (Cobb) pp 307-333*
          - Ch 13 (Simon) pp 335-359*
Assignment Due: Final survey with reflection.
3/29/10  Research Questions and Grant Proposals
         Designing Research K-12 Request for Proposals (online)
         Lobato & Ellis materials*

4/5/10  Refining the Research Process for the Funder & Turning a Proposal into Articles
         Newborn materials*
         Assignment Due: Your research question & proposed literature base for DR K-12 proposal

4/12/10  Quantitative studies in grant proposals and research papers
          COSMIC materials*
          Assignment Due: None

4/26/10  Adhering to and Diverging from the Proposal
          CoSTAR materials*
          Assignment Due: Your methods for DR K-12 proposal

5/3/10  No Class – NCTM Research Presession

5/10/10  Mixed Methods in Research Proposals and Practice
         Does it Work materials*
         Assignment Due: Draft of DR K-12 proposal

5/19/10  Final DR K-12 proposal due by 3:00

* These materials are on myCourses. Please read all documents in corresponding folder
** These are scanned chapters available on myCourses.