CURRENT ISSUES AND RESEARCH IN MATHEMATICS EDUCATION
EDST 620 – Spring 2006 CRN#22178

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The mission of the College of Education Community is to collaboratively transform public education by preparing thoughtful educators and advancing professional practices. We are committed to diversity, educational equity, and social justice, exemplified through reflective teaching, life-long learning, innovative research, and ongoing service. Our practices demonstrate a commitment to student centered education, diversity, collaboration, professionalism, and shared governance.

REQUIRED MATERIALS:
- Lampert, M. (2001). *Teaching problems and the problems with teaching*. New Haven, CT: Yale University Press.
- Additional articles will be assigned in class

COURSE DESCRIPTION:
In this course, we will identify and investigate a few of the most current issues and problems in mathematics education as well as become familiar with the major areas of research in the field. A significant focus of this course will be on research that can help to inform practitioners in the teaching and learning of mathematics, especially research that will help us to better understand teaching practice as it is enacted in the complexity of the classroom. This semester we will conduct a research study as a class to help you become familiar with the research process.

WRITTEN ASSIGNMENTS:

Assignment	Points	Due Date
1. Important Issues in Mathematics Education	20	March 1,2006
2. Specific Issue of Personal Interest	20	April 12,2006
3. Group Research Project	60	May 3,2006

PROFESSIONALISM:
As a professional in the field of education, you need to take seriously your responsibility for learning and helping others learn in this class. As a professional, you should:
- attend all classes
- arrive on time and remain for the entire period
- be prepared for each class by having thoughtfully completed all readings and assignments
- keep me informed of any extenuating circumstances in your life that may hinder your ability to succeed in this course
- remain on task during class sessions
- respect others' opinions in the class
- be curious about ideas different than your own

Since it is expected that everyone will act professionally in all class sessions, final grades will be lowered for an unprofessional attitude or behavior (including lack of or inappropriate participation). Arriving late, leaving early, or skipping classes will be interpreted as lack of participation (please also see COE Attendance Policy below)

I take very seriously the idea that our class is a community of learners. It is important that everyone feels both encouraged to participate and a responsibility to participate. All ideas are welcome including those that are different than my ideas and those of the majority of the class. Only through explorations of multiple perspectives will we be able to really address the complex issues of teaching and learning mathematics.

COE ATTENDANCE POLICY:

Due to the dynamic and interactive nature of course in the COE, all students are expected to attend all classes and participate actively. At a minimum, students must attend more than 80% of class time, or s/he may not receive a passing grade for the course at the discretion of the instructor. If you miss two class sessions or are late (or leave early) more than three sessions, you cannot receive a grade of "A". If you miss three class sessions, your highest possible grade is a "C+". Should you have extenuating circumstances, contact the instructor as soon as possible. Please discuss with me any extenuating circumstances that will cause you to miss class prior to your absence. Attendance will be taken at each class session.

ASSIGNMENTS:

All written assignments must be typed and double-spaced. Each assignment is due on the date indicated on the syllabus, and grades on late assignments will be lowered unless **prior arrangements** have been made with the instructor.

GRADING SCALE:

Grades will be based on the following grading scale:

A.....90 -100%
B.....80 - 89%
C.....70 - 79%
D.....60 - 69%
F.....Below 60%

PLAGIARISM AND CHEATING:

Please be sure to read and understand the university policy on plagiarism and cheating as it will be strictly enforced. Academic dishonestly will not be tolerated and will result in a failing grade for this course and will be reported to the University.

DATE **TOPIC & ASSIGNMENT DUE *ON THAT DAY***

Session #1 (1/18)

COURSE INTRODUCTIONS AND OVERVIEW

Introduction to the course and general overview of the research issues in mathematics education.

Session #2 (1/25)

INTERNATIONAL ISSUES IN MATHEMATICS EDUCATION

Read and be prepared to discuss issues related to TIMSS. Conduct an internet search to find information about TIMSS and be prepared to discuss your findings in class.

Session #3 (2/1)

GROUP RESEARCH PROJECT PLANNING

Tonight we will begin identifying issues of interest and outlining our research study. We will identify what all will need to be done as part of our study.
*Bring your wireless laptop!

Session #4 (2/8)

TEACHING PRACTICES & RESEARCH METHODS

Read and be prepared to discuss Chapters 1, 2, & 3

Session #5 (2/15)

CLASSROOM CULTURE & STUDENT THINKING

Read and be prepared to discuss Chapters 4 & 5

Session #6 (2/22)

MAKING TEACHING DECISIONS

Read and be prepared to discuss Chapters 6 & 7

Session #7 (3/1)

CHILDREN'S CONTENT SPECIFIC THINKING

***IMPORTANT ISSUES IN MATHEMATICS EDUCATION PAPER DUE**

Session #8 (3/8)

MAKING CONNECTIONS & TEACHING FOR UNDERSTANDING

Read and be prepared to discuss Chapter 8

Session #9 (3/15)

MATHEMATICS CONTENT & CURRICULUM

Read and be prepared to discuss Chapter 9

Session #10 (3/22)

STUDENT MOTIVATION

Read and be prepared to discuss Chapter 10

SPRING BREAK (No Class 3/29)

Session #11 (4/5)

CLASSROOM INTERACTIONS & EQUITY

Read and be prepared to discuss Chapter 11 & 12

Session #12 (4/12)

PERSONAL ISSUES OF INTEREST

PRESENTATIONS AND PAPER DUE TODAY

Session #13 (4/19)

ASSESSMENT

Read and be prepared to discuss Chapter 13

Session #14 (4/26)

TEACHER BELIEFS, KNOWLEDGE & PROFESSIONAL DEVELOPMENT

Read and be prepared to discuss Chapter 14

Read *A Lesson is Like a Swiftly Flowing River* by Catherine Lewis (http://www.lessonresearch.net – click on resources)

Session #15 (5/3)

*** GROUP RESEARCH PAPER DUE TODAY**

Discussion/Presentation related to our Research Project

Session #16 (5/10)

Final Wrap-up and look back

Assignment #1 - Important Issues in Mathematics Education

Due Date:

This assignment will due at the beginning of class on **March 1,2006**

Assignment:

You are to investigate, identify and briefly describe what you believe are the "top three" most important challenges in the field of mathematics education today. Your paper should be **NO MORE THAN 5 PAGES** in length, identify the major factors of each issue, and discuss why you believe each issue is important. Be sure to include as much "high quality" research as possible to support your position. One of the purposes of this paper is to get you reading and identifying good research in the field. Please be very careful to structure your paper in an organized fashion using your best academic writing skills and using APA format.

Where to Search for Information:

1. The internet
2. ERIC & ERIC Document Reproduction Service (EDRS) – As a CSUSM student you can gain access to many of these research articles on-line (e.g, PDF files) and/or on microfiche in our library.
3. CSUSM Library and interlibrary loan
4. SDSU and UCSD library (unfortunately, more resources in mathematics education)
5. My personal collection of research (I will be bringing some of my resources to class)
6. Your own experiences and the experiences of your colleagues (consider CA documents)

Purpose:

The purpose of this assignment is to help you to become familiar with mathematics education research, investigate current issues and challenges in mathematics education, and improve your academic writing skills.

Assignment #2 - Issue of Personal Interest

Due Date:

This paper will be due at the beginning of class on **April 12,2006**. Each person should also be prepared to give a short 5 minute presentation on their issue of interest in class using some form of technology (e.g., PowerPoint)

Assignment:

For this assignment you are to investigate the research on a particular problem in the field of mathematics education. You are to provide a review of relevant research related to the problem you have identified (consider both pro and con), describe any conclusions you might be able to draw as a result of your research, and identify the sources that you used and that might help us to further investigate this topic (using APA format). Your paper should be **NO MORE THAN 5 PAGES** in length.

Where to Search for Information:

1. The internet
2. ERIC & ERIC Document Reproduction Service (EDRS) – As a CSUSM student you can gain access to many of these research articles on-line (e.g, PDF files) and/or on microfiche in our library.
3. CSUSM Library and interlibrary loan
4. SDSU and UCSD library (unfortunately, more resources in mathematics education)
5. My personal collection of research (I will be bringing some of my resources to class

Purpose:

The purpose of this assignment is to provide you an opportunity to deeply investigate how research can provide support and guidance on a specific problem in the field of mathematics education. This is a good opportunity to consider conducting background research on a field of interest that might lead to a thesis study.

Assignment #3 – Group Research Project

Due Date:

This paper will be due at the beginning of class on **May 3,2006**.

Assignment:

This will be a whole class assignment in which we will fully conduct a research study on an issue that we will together identify in the field of mathematics education. Depending on the size of our class, we will either conduct one study as a whole group or we will create more than one group to ensure active participation by each class member. Each student will write a short research article that will include a short introduction, a brief review of the relevant research, hypothesis, research methods, data analysis, a discussion/conclusion section, and a bibliography. Papers must be written using APA format.

Given that this will be a large group project, students will be expected to take an **ACTIVE** role in **ALL** aspects of this project. Your participation on this study and your paper will account for **60% of your overall grade** in this course. **PLEASE**, take this project seriously and be warned that **grades will be lowered for lack of active participation**. Each student is expected to play a significant role in this project, if you have any question or doubt about the significance of your contribution, please ask!

Each student must include a short statement that describes his/her participation in the study (be **specific** about your contribution to the project – what exactly did you do?!). This statement must be included with your paper. We will be working on this project throughout the semester and sharing information throughout. For this to be successful, we must all work together and be willing to share information and do our share of the workload.

Purpose:

The purpose of this assignment is to engage each student in the complete process of conducting and writing up a research study in mathematics education. There is no better way to understand the research process than by conducting a research study. Depending on our results, we might want to consider publishing our article collectively as a class!