

TOPICS IN MATHEMATICS EDUCATION: CURRICULUM AND INSTRUCTION - THE
AFFECTIVE DOMAIN RESEARCH IN MATHEMATICS EDUCATION

MATH 710B SPRING 1999

6:00-8:40 Tuesdays

DuSable Hall 302

INSTRUCTOR: Dr. Alan Zollman
352 Watson Hall
Northern Illinois University
DeKalb, IL 60112-2888

OFFICE HOURS: by appointment
or M, W 3:30-4:30
TELEPHONE: 815/753-6750
e-mail: ZOLLMAN@math.niu.edu
<http://www.math.niu.edu/~zollman>

COURSE OBJECTIVES: The objectives of MATH 710 are: to familiarize you with materials and publications for teaching mathematics with respect to the new Principles and Standards of School Mathematics; to acquaint you with affective domain research on the learning and teaching of mathematics; to acquaint you with current curriculum issues of attitudes, beliefs, appreciations, preferences, emotions, feelings, and values in mathematics education. This semester's MATH 610-B is an in-depth investigation of current developments in areas of attitude and beliefs research that relate directly to mathematics learning, curriculum, and instruction. PRQ: Consent of department (usually, MATH 510 and either MATH 511, MATH 512, MATH 513, MATH 514, MATH 515, or MATH 517)

TEXTS:

Grouws, D.A., Ed. (1992). Handbook Of Research On Mathematics Teaching And Learning. New York: Macmillan Publishing Company. [RECOMMENDED TEXT]

National Council of Teachers of Mathematics. (1998). Principles and Standards for School Mathematics. Reston, VA: NCTM. [RECOMMENDED TEXT]

Owens, D.T., Ed. (1993). Research Ideas for the Classroom: Middle Grades Mathematics. New York: Macmillan Publishing Company. [RECOMMENDED TEXT]

Jensen, R.J., Ed. (1993). Research Ideas for the Classroom: Early Childhood Mathematics. New York: Macmillan Publishing Company. [RECOMMENDED TEXT]

Wilson, P.S., Ed. (1993). Research Ideas for the Classroom: High School Mathematics. New York: Macmillan Publishing Company. [RECOMMENDED TEXT]

MATH 710B-1 SEMESTER SCHEDULE

_SESSION #	DAY	DATE	TOPIC
1	T	Jan. 12	What is Research? Why Do Research? Types of Research. The Research Process
2	T	Jan. 19	Principles and Standards of School Mathematics
3	T	Jan. 26	Principles and Standards of School Mathematics
4	T	Feb. 2	The Role of Affect-Critical Component of the Student & of the Teacher
5	T	Feb. 9	Types of Research: Surveys, Experiments, & Quantitative Studies
6	T	Feb. 16	Types of Research: Case Studies & Qualitative Studies
7	T	Feb. 23	Research in Students' Attitudes
8	T	Mar. 2	Research in Students' Beliefs: Mathematics, the Self, the Social Context & Mid-term Examination

March 6th -- 14th NIU SPRING BREAK

9	T	Mar. 16	Research in Students' Confidence, Motivation, Persistence, Anxiety
10	T	Mar. 23	Designing an Affective Domain Investigation
11	T	Mar. 30	Designing an Affective Domain Investigation
12	T	Apr. 6	Research in Teachers' Knowledge
13	T	Apr. 13	Research in Teachers' Attitudes
14	T	Apr. 20	Research in Teachers' Beliefs
15	T	Apr. 27	The Affective Domain and Learning, Teaching, and the Curriculum
	T	May 4	Final Exam @ 6:00-8:40 pm

FINAL EXAM Tuesday, May 4th @ 6:00-8:40 pm (No exceptions!)

Note: Changes and adjustments may be made to this syllabus. Such changes will be announced in class. On the weeks of Jan 29th, Feb 5th, Feb 12th, Feb 26th, Apr. 16th; I am scheduled give presentations across the country. I will leave DeKalb immediately after my Thursdays' office hours on these dates and return to campus on Mondays. If you need to discuss class matters, please plan ahead.

COURSE EVALUATION:

40 points	Current Issue Paper on the Affective Domain
30 points	Midterm Examination
40 points	Final Examination
30 points	Design of Current Issue Paper on the Affective Domain
5 points	Class Discussion Facilitator (Topic & Date chosen by lottery)
5 points	Attendance (always)

COURSE GRADING: 90% & above = A

80% & above = B

70% & above = C

60% & above = D

PERFORMANCE RUBRIC

F Student does not turn in assignments; shows little evidence of appropriate knowledge, skills, understandings, and reasoning; does not successfully communicate; approach to assignments leads to inappropriate work, e.g., presents extraneous information.

D Student does incomplete assignments; shows gaps in evidence of appropriate knowledge, skills, understandings, and reasoning; attempts partial communications; approach to assignments leads away from accurate work.

C Student complete assignments; presents evidence of appropriate knowledge, skills, understandings, and reasoning; successfully communicates important ideas; approach to assignments leads to accurate work.

B Student goes beyond assignments; displays clear, concise, coherent knowledge, skills, understandings, and reasoning; fluently communicates multiple ideas; assignments are beyond expectations.

A Student insightfully interprets and extends assignments; construes, elicits, and connects knowledge, skills, understandings, and reasoning; flawlessly communicates at many levels; assignments are exemplars.

DEPARTMENTAL FINAL is Tuesday, May 4th @ 6:00 pm

Only the Assistant Chair or Chair of the Department of Mathematical Sciences can waiver the date or time of this Final Examination.

MATHEMATICS EDUCATION LABORATORY: Open lab hours are available for you to use the lab's equipment, e.g., the research books and papers, during the semester. There is a lab attendant that can assist you in finding materials. Lab hours for this semester will be posted.

ASSIGNMENTS AND LEARNING ACTIVITIES

ATTENDANCE, CLASS PARTICIPATION, ETC.: Your participation in class discussion is essential to your further learning of mathematics education. (One point will be subtracted from the final grade for each unexcused absence. Excused absences are described in the NIU Student Handbook. Late assignments will not be accepted without prior approval of the instructor.)

EXAMINATIONS: The final exam will be comprehensive, covering all the semester's topics up to the date of the exam. You **MUST** take the final examination with your fellow classmates at the scheduled time!

DESIGN OF CURRENT ISSUE PAPER.: You will write a paper on a specific, research-able topic in either beliefs or attitudes of students or teachers. This paper will include a research question(s) and a design of a pilot study of a research project. The paper will contain the background and the methodology of a study in some aspect of the affective domain.

CURRENT ISSUE PAPER.: After approval of your design paper, you will pilot test your research project. The paper will contain the background and the methodology of the design paper and also the results and conclusion study in some aspect of the affective domain. This paper may lead you to a research topic in the NIU Mathematics Education Program.