Fall 9-1-2000

MATH 130.04: Mathematics for Elementary Teachers

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COURSE SYLLABUS

TITLE: Mathematics for Elementary Teachers

NUMBER: MATH 130
Section 4

CREDIT: 5

TAUGHT BY: Richard Paul

Semester: Fall, 2000

Office: 260 Corbin Hall
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PREREQUISITES: The prerequisite for MATH 130 is MATH 100 or a demonstrated proficiency in MAT 100. Also the course is open only to Elementary Education majors

GOALS AND OBJECTIVES

1. To engage pre-service teachers in doing and learning mathematics in a style consistent with the way in which they will be expected to teach or use mathematics in their future career settings.

2. To provide students the opportunity to be involved with doing mathematics through investigating, conjecturing, discussing, and validating in order to develop confidence in their own mathematical ability and to be able to instill an appreciation of mathematics' value in their future students.

CONTENT SUMMARY:

Chapter 1: An Introduction to Problem Solving
Chapter 2: Sets, Functions and Logic
Chapter 3: Numeration Systems for the Ages
Chapter 4: Integers and Number Theory
Chapter 5: Rational Numbers as Fractions
Chapter 6: Exponents and Decimals
Chapter 7: Applications of Mathematics
Chapter 8: Probability
Chapter 9: Statistics: An Introduction

METHODS OF EVALUATION:

The grade for MATH 130 will be determined by the following

Average of In-Class Exams (3 – 4)	50%
Comprehensive Final Exam	30%
Class Participation (which includes the following)	20%

a. Pre-class preparation
b. Homework
c. Quizzes
d. Projects
e. Indiv. Reports

The final course letter grade will be determined according to the following scale:

90 - 100	=	A
80 - 89	=	B
70 - 79	=	C
60 – 69	=	D
Below 60	=	F

TEACHING METHODOLOGY

Classes will be conducted in a seminar format in which each student is expected participate on a daily basis. Such participation may include:

a. Support of fellow students having difficulty in class .
b. Participation in discussion leading to the development of course concepts
c. Participation is review of homework exercises.
d. Participation in activities that lead to extensions of course topics to a variety of outside-of-class settings.
e. Providing insight or interesting materials for the class relating to the topics being addressed in the class session.
f. Relating personal experiences associated with the course content of the day.
g. Working as a team in addressing specific content activities.

Prior to class, students will have responded to an activity sheet that addresses issues associated with the new material to be discussed in class that day. These tasks will consist of a wide variety of activities that prompt the individual students to preview the course content prior to in-class discussions of the specific details of the lesson. From time to time, these activities will be collected for assessment as a portion of the class participation component of the course grade. All of these activities will vary in detail, but will be designed to promote involvement with one or more of the following goals:

REQUIRED MATERIALS AND TEXT(S):

Text: A Problem Solving Approach to Mathematics for Elementary School Teachers, Sixth Edition by Billstein, Libeskind, & Lott. Published by Addison Wesley Longman, 1997.

A **Math Explorer Plus or TI-34 II** (Texas Instruments calculators) is highly recommended

Pencil, note paper, ruler, compass, protractor, graph paper

Optional: Mathematics Activites for Elementary School Teachers: A Problem Solving Approach by Dolan, Williamson,and Muri. Published by Addison Wesley Longman, 1997.

ATTENDANCE POLICY:

Students are expected to attend and to participate in all class sessions. However, it is recognized that circumstances do arise which make attendance extremely difficult or impossible. Thus, it is understood that if it is necessary to miss a class, the student is expected to notify the instructor (preferably prior to the absence) of the need for the absence. Announcements, materials, and assignments missed because of an absence are the student's responsibility. Make-up work is allowed only at the discretion of the instructor and may be subject to limited credit.

CHEATING AND PLAGIARISM:

Working with colleagues on homework is encouraged; however, the work specified as "individual work" and exams must be exclusively the student's alone. Validation that Cheating and/or Plagiarism has occurred will result in a grade of zero on that particular assignment and possible dismissal from the course with a course grade of F.

Snow Days:

If classes are canceled for snow (or any other reason), continue to do all assignments as scheduled. If an exam was scheduled, we will take it at the next class meeting.

Final:

Wednesday, December 20 1:10 – 3:10

Note: September 25 is the last day to DROP or ADD a course without a fee being charged. October 16 is the last day to DROP with instructor and advisor signatures. After this date, a grade of WP or WF must be assigned.

Holidays: November 7, November 10, and November 22 – 24

a. To illicit the students' reactions to the text presentation or homework problems.
b. To discuss possible strategies for presenting the course material in a variety of grade-level and classroom settings.
c. To identify real world (preferably local, community-based) settings where the concepts might be use by students.
d. To connect the concepts of the sessions to various components of the elementary mathematics curriculum,
e. To Connect the course content to the National Council of Teachers of Mathematics standards and possibly to state curriculum requirements.

The underlying structure of all component of the course will be to emphasize communication in mathematics. In complying with this construct, the role of the instructor will be that of a facilitator and resource person.

Homework assignments will be given on a daily basis. The homework will be collected periodically and will be graded. Homework should be completed by the student in a manner that allows each day's work to be submitted to the instructor as a single block *i.e.* each collection will consist of one day's (and one day's only) assignment with no overlap of other assignments showing on the papers submitted. The grade will be incorporated into the class participation component of the final course grade. In the grading process, major consideration will be given to the manner in which a final response is determined, and not just to value of the final answer.

The class may meet in the computer lab one or more times during the semester. For those sessions, an activity that requires work to be submitted by the student will be assigned.

Hands-on projects that require the students to work in teams will be conducted during the semester. These projects may require the teams to meet independently outside of class times to perform such tasks as collect data, reflect on the project, develop the underlying ideas of the project, and compose a report that represents the group's work.

Throughout the semester each student is required to participate in a professional mathematics education event or activity. These will include local, regional, statewide, and national functions presented by recognized professional organizations. They may include attendance at a specific event (including appropriate sessions of the campus Mathematics Colloquium), a review of a world wide web site recognized for its math education content, or a review of materials from a math education organization (as the NCTM, the AMA, AAM, etc.). Reporting on these experiences to the class is required and will be reflected in the student's class participation grade.