Mathematics For Elementary Teachers II (MATH 113)
Winter Quarter, 2005

Time/Place: MF 11:00-11:50 a.m. KRH 108
W 2:00-4:50 p.m. CTC 305

Instructor: Jonathan Duncan (duncjo@wwc.edu)
Office: Kretchmar Hall 330, phone: 527-2097
Office Hours: 10:00 MWHF, 2:00 TR, or by appointment


Webpage: http://math.wwc.edu/courses/113/

This course covers topics in mathematics, including number theory, geometry, numeration, number systems, graphs, algebra, statistics, and measurements. We will cover chapters 5, 6, and 8-10 in your text. The deadline for withdrawing is **Tuesday, 22 February** and the final is on **Tuesday, 15 March**.

**Topics**

1. Extending the Number System:
   - integers, fractions and rational numbers, operations on fractions, decimals, exponents, real numbers
2. Proportional Reasoning:
   - ratios, proportions, percents
3. Geometry as Shape:
   - basic ideas, building blocks, two-dimensional figures, three-dimensional figures
4. Geometry as Transforming Shapes:
   - congruence transformations, symmetry, tessellations, similarity, topology
5. Geometry as Measurement:
   - systems of measurement, perimeter, area, surface area, volume

The course is divided into two parts. A traditional lecture component focuses on teacher-directed learning and individual student homework. A laboratory component focuses on group work and student discovery.

**A. Lecture Component**

**Objectives**

Upon completion of this course, students will have

1. developed an **adult-level** understanding of the elementary mathematics topics outlined above.
2. successfully engaged in mathematical thinking, reasoning, and problem solving.

**Homework (A1, A2)**

**Mathematics is not a spectator sport.** Assignments will be given each lecture period and are due by 5:00 p.m. on the day of the next lecture. Assignments which are more than one calendar day late (excluding weekends) will not be accepted. Homework scores are based on both correctness and quality of presentation. Please observe the following procedures when preparing your homework for submission.

1. Use letter (8.5 × 11) sized paper with clean edges and staple multiple pages together.
2. Fold the assignment lengthwise like a book and write your name, the course number, and the assignment number on the front cover.
3. Use proper syntax and grammar, organize your work, and show all steps in your solutions.
Exams (A1)
There will be an in-class midterm exam and a two-hour comprehensive exam. Exam grades are composed of 70% individual exam score and 30% lab exam score (see below). The final exam may only be taken out of schedule after consultation with the Associate Academic Dean.

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<thead>
<tr>
<th>Exam</th>
<th>Chapters</th>
<th>Date</th>
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<tr>
<td>Midterm</td>
<td>5, 6, and 8</td>
<td>7 February</td>
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<tr>
<td>Final</td>
<td>Comprehensive, emphasis on chapters 9 and 10</td>
<td>15 March, 10:00 a.m.</td>
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B. Laboratory Component

Objectives
Upon completion of this course, students will have

1. developed the ability to construct their own mathematical knowledge.
2. become proficient at group problem solving in mathematics.

Participation (B.1, B.2)
The majority of lab time will be devoted to solving problems in a group setting. Each member of a group must participate to gain the benefits of this experience. Your participation grade is based on the following.

1. Each student will record their group’s activities in an individual notebook. These notebooks will be checked for completeness during laboratory exams.
2. After each lab you will be asked to reflect on lab activities and what you’ve learned in an online journal.
3. Occasional group quizzes will be given during lab meetings and recorded as participation points.
4. After each lab exam, you will evaluate and be evaluated by your group members and instructor.

A prerequisite to participation is attendance. It is impossible to substitute outside work for the experience gained during the lab. Because of this there will be no excused absences. Each absence (more than 30 minutes late) will lower your final participation grade by 10%, and each tardy (10-30 minutes late) by 3%.

Lab Exams (B.2)
A group lab midterm and final will be given at the end of the last lab meeting before the individual midterm and final. Lab exams will take approximately one hour and will count for 30% of your total exam grade.

Grades
Your final letter grade will be based on your quarter average as shown below. Your quarter average is made up of five scores: your homework average, participation average, midterm exam score, and final exam score. Weights for each of these are given below. Appropriate (to your instructor) modifications of the final letter grades may be made in individual cases for progress, unusual circumstances, etc.

<table>
<thead>
<tr>
<th>Score Weights</th>
<th>Letter Grades (lowest percent)</th>
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<tr>
<td>Homework 20%</td>
<td>B+ 89% C+ 78% D+ 64%</td>
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<tr>
<td>Participation</td>
<td>A 93% B 82% C 68% D 57% F 0%</td>
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<tr>
<td>Midterm 25%</td>
<td>A- 91% B- 80% C- 66% D- 55%</td>
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<td>Final 30%</td>
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All acts of dishonesty are unacceptable, including cheating, plagiarism, forgery, misrepresentation, falsification, and prohibited collaboration. Violation of academic integrity codes will result in disciplinary action. Collaboration on homework is encouraged, but be certain that the work you hand in is your own.

Disabilities
Students with a physical and/or learning disability who require accommodations should contact the instructor or Disability Support Services at 527-2366. This syllabus is available in alternative formats upon request.