Mathematics For Elementary Teachers II (MATH 113)
Winter Quarter, 2008

Time/Place: MF 11:00-11:50 a.m. KRH 347
W 2:00-4:50 p.m. SMH 102

Instructor: Jonathan Duncan (jonathan.duncan@wallawalla.edu)
Office: Kretchmar Hall 330, phone: 527-2097
Office Hours: 9:00 TR, 10:00 T, 11:00 W, 1:00 MWF, or by appointment

Text: Mathematics for Elementary School Teachers, 4th Edition,
Webpage: http://math.wallawalla.edu/courses/113/

This course covers topics in mathematics, including number theory, geometry, numeration, number systems, graphs, algebra, statistics, and measurements. We cover chapters 5, 6, and 8-10 in your text. The deadline for withdrawing from the course is Tuesday, 19 February and the final is on Tuesday, 18 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,
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 discovery learning and group work.

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 rules 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, A2)
There will be an in-class midterm exam and a two-hour comprehensive final exam. The final exam may only be taken out of schedule after consultation with the Associate Academic Dean.

- **Midterm**: Chapters 5, 6, and 8 8 February
- **Final**: Comprehensive, emphasis on chapters 9 and 10 18 March, 10:00 a.m.

B. Laboratory Component

Objectives
Upon completion of this course, students will have

1. learned to use concrete objects or pictures to represent abstract mathematical concepts.
2. developed the ability to construct their own mathematical knowledge.
3. become proficient at group problem solving in mathematics.

Lab Participation (B.1, B.2, B.3)
During the lab sessions devoted to group problem solving, each group member must participate. Participation is measured by the taking of attendance, your instructors evaluation of your attitude and time on task, and peer evaluations. A prerequisite for 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**.

Lab Reports (B.1, B.2)
After each lab, you will individually be required to turn in your personal notes from the lab as well as an individual lab report covering the methods and concepts seen in that lab. The report could be a creative activity, lesson plan, original handout or worksheet, poster, or other product which displays an understanding of the main concepts covered in the lab. These reports are due at the beginning of the next lab period and should cover a wide range of grade levels.

Lab Exams (B.1, B.2, B.3)
A 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 roughly half of the lab period and will be completed in your groups.

Grades
Your final letter grade is based on your quarter average as shown below. Your quarter average is made up of five scores: your homework average, lab participation score, midterm exam, and final exam. 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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<tbody>
<tr>
<td>Lab Participation</td>
<td>A  93%  B+ 89%  C+ 78%  D+ 64%</td>
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<tr>
<td>Homework</td>
<td>A- 91%  B- 86%  C- 66%  D- 55%</td>
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<td>Lab Reports</td>
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<td>Lab Exams</td>
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<td>Midterm</td>
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<td>Final</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.