This course covers topics in mathematics, including number theory, geometry, numeration, number systems, graphs, algebra, statistics, and measurements. We will cover chapters 1-4 and 7 in your text. The deadline for withdrawing from the course is Tuesday, 14 November and the final is on Monday, 11 December.

Topics

1. Foundations for Learning Mathematics:
   problem-solving, patterns, representation, reasoning and proof, communication, connections
2. Fundamental Concepts:
   sets, algebraic thinking, numeration
3. The Four Fundamental Operations of Arithmetic:
   understanding addition, subtraction, multiplication, and division
4. Number Theory:
   divisibility, prime and composite numbers, factoring, greatest common factor, least common multiple
5. Uncertainty: Data and Chance:
   representing and interpreting data, distributions, center, spread, chance, counting

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 weekday late will not be accepted. Homework scores are based on both correctness and quality of presentation. Please follow 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, 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 1, 2, and part of 3  
  27 October
- **Final**: Comprehensive, emphasis on chapters 3, 4, and 7  
  11 December, 2:00 p.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 prompt arrival, being on task, peer evaluations, and having a positive attitude during the lab. 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**. Each absence (more than 20 minutes late) will lower your lab participation grade by 20%.

**Lab Reports** (B.1, B.2)
After each lab, you will individually be required to create a product which summarizes or exhibits the methods and concepts covered in that lab. This could be a creative activity, lesson plan, original handout or worksheet, a poster, or other product which displays an understanding of the main concepts covered in the lab. These “reports” will be due at the beginning of the next lab period.

**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 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>
</tr>
</thead>
<tbody>
<tr>
<td>Lab Participation 6%</td>
<td>A+ 100% B+ 90% C+ 80% D+ 70%</td>
</tr>
<tr>
<td>Homework 12%</td>
<td>A  93% B  83% C  73% D  63%</td>
</tr>
<tr>
<td>Lab Reports 12%</td>
<td>A- 91% B- 81% C- 71% D- 61%</td>
</tr>
<tr>
<td>Lab Exams 15%</td>
<td>A  93% B  83% C  73% D  63%</td>
</tr>
<tr>
<td>Midterm 25%</td>
<td>A  93% B  83% C  73% D  63%</td>
</tr>
<tr>
<td>Final 30%</td>
<td>A  93% B  83% C  73% D  63%</td>
</tr>
</tbody>
</table>

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.