Welcome to Discrete Mathematics!

Math 231 Winter 2016

Contact Information:
Instructor: Holly Swisher
Email: swisherh@math.oregonstate.edu
Office: 308 Kidder Hall
Office Hours: Monday 2:00 - 2:50, Wednesday 4:00 - 4:50, Friday 2:00 - 2:50
Website: http://people.oregonstate.edu/swisherh/teaching/


Overview: The course is divided into three main topics, each spanning about three weeks: Logic and Sets, Proofs and Induction, Counting and Graphs. Your grade will be determined by Topic Exams (45%), Recitation Participation/HW Presentation (15%), and a Final Exam (40%), detailed below.

Topic Exams: You will be given homework problems for each covered section that will be practice for the topic exams. The topic exam questions will be taken directly from the homework problems, with only minor changes in constants, variables, etc. The topic exams are thus testing how effectively you can solve problems like the assigned homework.

Recitation: Your recitation grade will be based on weekly attendance, discussion participation, and presenting homework problems.

Final Exam: The final exam will cover all sections from the course. Many questions will come from the homework sets, with some additional questions to test your understanding by synthesizing material and/or branching across sections.

Exam Schedule:
Exam 1: Friday, January 22, in class, covering §1.1-1.5, §2.1-2.2
Exam 2: Wednesday, February 10, in class, covering §1.7-1.8, §5.1-5.3
Exam 3: Friday, March 4, in class, covering §6.1, §6.3-6.4, §10.1-10.2, §10.4, §10.6
Final Exam: Tuesday, March 15, 8:00-9:50 pm, room TBA, covering all sections
Approximate Schedule:

<table>
<thead>
<tr>
<th>Week</th>
<th>M</th>
<th>Tu</th>
<th>W</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Logic/Sets</td>
<td>Recitation</td>
<td>Logic/Sets (Video)</td>
<td>Logic/Sets (Video)</td>
</tr>
<tr>
<td>2</td>
<td>Logic/Sets</td>
<td>Recitation</td>
<td>Logic/Sets</td>
<td>Logic/Sets</td>
</tr>
<tr>
<td>3</td>
<td>MLK Holiday</td>
<td>Recitation</td>
<td>Logic/Sets</td>
<td>Exam 1</td>
</tr>
<tr>
<td>4</td>
<td>Proofs</td>
<td>Recitation</td>
<td>Proofs</td>
<td>Proofs</td>
</tr>
<tr>
<td>5</td>
<td>Induction</td>
<td>Recitation</td>
<td>Induction</td>
<td>Induction</td>
</tr>
<tr>
<td>6</td>
<td>Induction</td>
<td>Recitation</td>
<td>Exam 2</td>
<td>Counting</td>
</tr>
<tr>
<td>7</td>
<td>Counting</td>
<td>Recitation</td>
<td>Counting</td>
<td>Counting</td>
</tr>
<tr>
<td>8</td>
<td>Graphs</td>
<td>Recitation</td>
<td>Graphs</td>
<td>Graphs</td>
</tr>
<tr>
<td>9</td>
<td>Graphs</td>
<td>Recitation</td>
<td>Graphs</td>
<td>Exam 3</td>
</tr>
<tr>
<td>10</td>
<td>Trees</td>
<td>Recitation</td>
<td>Final Review</td>
<td>Final Review</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td><strong>Final Exam</strong></td>
</tr>
</tbody>
</table>

**Expectations:** To receive an A or B grade in this class, expect to:
- Review your notes from last class and/or read ahead in the book before each class
- Successfully complete and understand every homework problem
- Be present and engaged for every lecture and recitation
- Be present and on time for every exam

**Missed Exam Policy:** If you are in danger of missing an exam due to an emergency, you must contact me immediately (before the exam) and give verification in order to reschedule.

**Learning Outcomes:** A successful MTH 231 student will be able to:
1. Apply basic set operations and DeMorgans Laws.
2. Be able to negate compound and quantified statements.
3. Be able to form converse and contrapositives of statements.
4. Be able to construct a direct proof (from definitions) of simple statements.
5. Demonstrate an understanding of proof construction by contraposition and contradiction.
6. Learn and apply the Principle of Mathematical Induction.
7. Construct complete explanations for solutions to counting problems.
8. Be able to use at least one algorithm for finding a shortest path or a minimal spanning tree in a connected graph.

**Additional Information:**
Students are expected to be familiar with Oregon State Universitys Statement of Expectations for Student Conduct (see: http://oregonstate.edu/admin/stucon/achon.htm). Students with accommodations approved through Disability Access Services (DAS) are responsible for contacting me prior to or during the first week of the term to discuss accommodations. Students who believe they are eligible for accommodations but who have not yet obtained approval through DAS should contact DAS immediately at 541-737-4098.