This course provides an introduction to discrete mathematical structures. Topics include combinatorics, sets, recursion, and graph theory. We will cover selected sections from chapters 1-4 and 6-9 of your text, in order. The deadline for withdrawing from the course is Tuesday, 20 May and the final will be given on Monday, 9 June.

Topics

1. Logic, Sets, Functions, and Integers (Chapters 1 & 2):
   logic, propositional equivalences, predicates and quantifiers, nested quantifiers, methods of proof, sets, set operations, functions, integers and division, integers and algorithms

2. Mathematical Reasoning and Counting (Chapters 3, 4 & 6):
   proof strategies, sequences and summations, mathematical induction, recursive definitions, basic counting methods, pigeonhole principle, permutations and combinations, recurrence relations, solving recurrence relations, generating functions, inclusion-exclusion methods

3. Relations and Graphs (Chapters 7 & 8):
   definition of a relation, n-ary relations, representing relations, closure of a relation, equivalence relations, definition of a graph, graph terminology, graph representations, connectivity, Euler and Hamiltonian paths, planar graphs, graph coloring

4. Trees (Chapter 9):
   definitions, tree traversal, spanning trees

Objectives

Upon completion of this course, students will be have

1. developed demonstrable understanding of the topics outlined above.
2. successfully engaged in mathematical reasoning and proof, both formally and informally.
3. effectively communicated ideas and solve problems from the topics outlined above.

The following requirements encourage and measure the successful completion of these objectives.

Homework

Daily 10 point assignments will be give, each due at the beginning of the next class period. Homework which is more than one class period late will be discounted at a rate of 2 points per day late. Please see your instructor about homework which is late due to illness or other appropriate and verifiable reasons. Late homework will not be accepted after the start of review week. Your lowest homework score will be dropped at the end of the quarter.
Please observe the following guidelines when preparing your homework. You may be asked to redo assignments which do not meet these criteria. In such cases, normal late homework discounts will apply.

1. Use 8.5 × 11 paper with clean edges (not torn out of a notebook). Staple multiple pages together, fold them lengthwise like a book, and write your name and assignment number(s) on the front cover.
2. Use a pencil, write legibly, and organize your problems and solutions in a logical manner.
3. Show all steps in solving the problem, include figures and notes when appropriate. A reader must be able to easily verify that you not only have the correct answer, but have also expressed the correct solution to the problem.

Exams

There will be four exams during the course of the quarter, including the two-hour comprehensive final. You must attend the final exam at the scheduled time. Make-ups for other exams will only be given for written, verifiable excuses, with notification given to your instructor in advance.

Exam I Chapters 1 and 2 16 April
Exam II Chapters 3, 4, and 6 8 May
Exam III Chapters 7 and 8 30 May
Final Comprehensive, emphasis on 9 Mon, 9 June 12:00 p.m.

Grades

Your final letter grade will be assigned as shown below based on your quarter average. Your quarter average is made up of three scores: your homework average, hour-exam average, and your final exam score. Weights for each of these are shown 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>Average Weights</th>
<th>Letter Grades (lowest percent)</th>
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</thead>
<tbody>
<tr>
<td>Final 30%</td>
<td>A+ 98% B+ 88% C+ 76% D+ 63%</td>
</tr>
<tr>
<td>Exams I-III 50%</td>
<td>A 92% B 82% C 67% D 57% F 0%</td>
</tr>
<tr>
<td>Homework 20%</td>
<td>A- 90% B- 80% C- 65% D- 55%</td>
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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.