Elements of Discrete Mathematics
MT 180-55

Spring 2004

Syllabus

Time: TR 2:30 - 3:45 p.m.
Classroom: LOG 205
Instructor: Dr. Dena Morton
  Office: Hinkle 111
  Phone: x3674
  Office Hours:
  - Mondays from 1:30-3:00
  - Tuesdays from 1:30-2:00 and 4:15-4:45
  - Thursdays from 1:30-2:00 and 4:15-4:45
  and by appointment
  e-mail: morton@xavier.edu
  Note: this is the best way to reach me – I check my e-mail on a regular basis.

Web Page: http://cerebro.xu.edu/~morton/

Purpose and Content:
For most of you, the mathematical training you have received so far has emphasized processes of calculation – the computation of answers to problems – usually based on examples from the professor. In this course we will concentrate on learning to formulate the proofs of theorems, using logical understanding. This will allow you to begin to bridge the gap between the computational and the theoretical aspects of mathematics and computer science, and start towards a deeper understanding of general theory. Discrete structures will provide a beautiful and meaningful environment for testing one's logical reasoning, and form the content of the course.

It is essential that you be conscientious about completing both the reading and the written assignments on time, and at least attempt every assigned problem. Questions are welcome at any time during class and also privately, by email or in office hours. I encourage you to participate actively in class by asking questions and by answering questions posed by either myself or by other students.

Text: Chapter Zero, second edition, by Carol Schumacher. Please bring your text with you for each class session.

Class Activities: Classes will consist of small group activities, discussion, individual activities, and lectures.

Homework: Homework will be assigned daily. There will be three types of homework assignments:
  - **Reading assignments**: should be done before the class session. Read your text with a pencil and paper handy and take extensive notes. I will assume that you have carefully read your text before every lecture, and will frequently ask questions pertaining to the reading.
  - **Type I problems**: should be carefully tried before the class session. I will frequently incorporate these type I problems into my lectures, and I will assume that you have already tried (and succeeded) with them.
  - **Type II problems**: should be written up neatly and carefully and submitted to me for grading. These will be collected and graded.

Doing homework for this course is the best way for you to pinpoint difficulties. It is also a wonderful learning tool. I will take questions about the homework at the beginning of each class session.

Quizzes: Weekly quizzes will be given on Tuesdays. The lowest quiz score will be dropped, so makeup quizzes will not be given. Quizzes will not be given during exam weeks. Many quiz problems will involve statements of definitions; if you don't know the definitions, you cannot possibly expect to do the mathematics.

Exams: There will be three exams given throughout the semester, each consuming an entire class period. There will also be a comprehensive final exam. If you must miss an exam for religious or academic
reasons, or in cases of illness or emergency, you must submit a written excuse. A makeup may be scheduled -- this will be decided on a case-by-case basis.

**Grading**: Quiz performance constitutes 10% of your final score. Each exam will be worth 17% of your final grade. Homework constitutes 15% of your final score. The final exam is worth 24% of your grade.

Each exam will be curved separately and assigned a number grade between 0.0 (the lowest possible F) and 5.0 (the highest possible A). I will announce the cutoffs when returning the exam. If, for example, the cutoff for an A is 87 and the cutoff for a B is 71 and you get an 83, then the number grade corresponding to your 83 would be a 3.75 (B corresponds to 3.0 and you are 12/16=.75 of the way to the next cutoff). The homework and quizzes will be treated similarly. The total course grade may be curved further (that is, a 3.9 would result in an A or A- in the course), but the resulting curve will never lower your grade (that is, a 4.1 would always result in at least an A- in the course. I reserve the right to assign a grade of “F” to any student who earns less than 50% on the final exam.

**Important Dates:**

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<tr>
<th>Monday, Jan. 19</th>
<th>Martin Luther King, Jr. Holiday (No classes)</th>
<th>Thursday, April 8 - Easter Break</th>
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<tbody>
<tr>
<td>Monday, April 12</td>
<td>(No Classes)</td>
<td>Tuesday, April 13 Final date to withdraw</td>
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<td>Thursday, Feb. 12</td>
<td>Exam I</td>
<td>Thursday, April 22 Exam III</td>
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<td>Monday, Mar. 1</td>
<td>Spring Break (No classes)</td>
<td>Friday, April 30 Last day of Classes</td>
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<td>Exam II</td>
<td>Tuesday, May 4 Final Exam 1-2:50 pm</td>
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**Attendance**: Class attendance is crucial. Lectures include the introduction and explanation of new topics, explorations of proofs, and solutions of discrete mathematics problems. Class notes are to be used in conjunction with the text, in order to elicit a fuller understanding of discrete mathematics. Please be courteous and come to class on time!

University policies on attendance are stated on p.45 of the undergraduate catalog.

**One Minute “Quiz”**: At the end of some class periods I will ask you to hand in a sheet of paper on which you have filled out the following:

1. What was the most important topic covered today? (That is, what was the main point?)
2. What was the most confusing idea that was covered today? (That is, which concepts did you find complex or hard to understand?)
3. Any questions or comments?

You need not sign your name unless you have a specific question that you want me to address to you. I will frequently respond to one-minute quizzes during the next class period.

**Group Work**: Working in a group can be beneficial for everyone involved, provided that you do not abuse the privilege. Make sure that everyone in your group is making a contribution. **Do not copy answers from one another, as this will only backfire against you come test-time and is also cheating!** Instead, let concepts gel after group discussion, and then write up the solutions by yourself.

**Academic Honesty**: You are expected to conduct yourself with integrity in this course. Cheating will be dealt with as harshly as University regulations permit; measures will be taken during exams to prevent cheating. Students are directed to p. 50 of the undergraduate bulletin for further information.

**How to Do Well in this Course**: Come to class! Come visit me during office hours! Read the text! Try the problems! Smile! Study hard! Read your class notes! Make sure you keep up with the material in class! Review your class notes! Don’t Panic! Enjoy! Most important of all, if you feel that you are falling behind, or that you do not understand a certain topic, or if you would just like to discuss a mathematical idea (or anything else), come to visit me in my office. That’s why I am here!☺