CS 365 Mathematics of Computer Science
Spring 2007

Prerequisites: Data Structures (CS 302), Calculus II (MATH 182). If you do not meet the prerequisite requirements for this course, you should see me immediately. *Credit hours:* 3.0

TR 2:30-3:45 PM (SEM 344)

Instructor: Dr. George Bebis
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Phone: 784-6463
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Course Webpage: http://www.cse.unr.edu/~bebis/CS365
Office Hours: TR: 10:30 am - 12:30 pm and by appointment

TA: TBD
TA's e-mail: TBD

Required Text

Discrete Mathematics and Its Applications by K. Rosen, McGraw Hill, 6th edition, 2006.

Optional Text

Discrete Mathematical Structures: Theory and Applications, by D. Malik and M. Sen, Thomson Course Technology, 2004.

Objectives

The primary purpose of this course is to enhance students' reasoning and problem-solving abilities, in both a general context and in terms of solving computing-related problems. Specifically, the course has the following objectives:

• Familiarize students with the concepts and applications of computing - and engineering-related mathematics.
• Teach students how to think mathematically and algorithmically.
• Emphasize the combination of computational reasoning and problem-solving skills.
• Introduce students to discrete structures and combinatorics.

Course Outline (tentative)

• Propositional Logic
• Predicate Logic
• Methods of Proof
• Set Theory
• Functions
• Algorithms
• Matrices
• Sequences and Summations
• Mathematical Induction
• Recursion
• Combinatorics
• Probability

- Relations
- Graphs
- Trees

Exams and Assignments

Grading will be based on two exams, 6-8 quizzes, 6-8 homework assignments, a course project, and a short presentation. Details are provided below:

- Quizzes will be announced at least one class period in advance.

- Homework problems will be assigned and collected for grading on a regular basis. Odd-numbered homework assignments will be done on an individual basis while even-numbered homework assignments will be done in groups of two. Homework solutions will be made available within a week of the due date for the assignment.

- There will be two exams: a midterm and a final. The material covered by the exams will be drawn from the lectures, the quizzes, and the homework.

- There will be a course project which will have both individual and team components. Specifics and due dates will be announced in class.

- Each group of students will have to prepare a short presentation (approximately 15 minutes) on a contemporary issue related to discrete mathematics. Presentation topics will be decided in coordination with the instructor. The presentations should be professional as if it was presented in a formal conference (i.e., slides/projector). The last quiz will be based on material related to the student presentations.

Course Policies

Lecture slides, homework assignments, and other useful information will be posted on the course web page.

Regular attendance is highly recommended. If you miss a class, you are responsible for all material covered or assigned in class.

Discussion of the assignments is allowed and encouraged between students. However, each student would be expected to do his/her own work. Assignments which are too similar will receive a zero.

No late homework or project report will be accepted. If you are unable to hand in your homework or project report by the designated deadline, you must notify me *before* the deadline.

No incomplete grades (INC) will be given in this course and a missed quiz/exam may be made up only if it was missed due to an extreme emergency.

Useful Tips

Since the material in this course is highly integrated, a limited understanding of one topic will have a serious effect on the understanding of subsequent topics. You should expect to spend many hours on this course outside the classroom. Do not expect to fully understand the material covered in this class if you do not study on a regular basis.

Disability Statement

Any student with a disability needing academic accommodations is requested to speak with me or contact the Disability Resource Center (Thompson Building, Suite 101), as soon as possible to arrange for appropriate accommodations.

Grading Scheme

Midterm: 20%
Final: 20%
Quizzes: 20%
Homework: 15%
Course Project: 15%
Presentation: 10%

A 90 and above
B 80-89
C 70-79
D 60-69
F < 59

Important dates

3/13/2007 - Midterm
3/16/2007 - last day for dropping classes
3/17/2007 to 3/25/2007 - Spring Break
5/10/2007 - Final exam (2:15 pm - 4:15 pm)