

MTH 182 Discrete Structures II

Professor Kim

Spring, 2009

Text: Discrete Mathematics with Applications by Susanna S. Epp, 3rd Edition,
Thomson & Brooks/Cole

Class Hrs: **18201:** M. W. F.: 10 - 10:50 a.m. at Gr.1 # 110
18202: M. W. F.: 12 - 12:50 a.m. at Gr.1 # 110

Instructor: Dr. Saeja Oh Kim <http://www.umassd.edu/cas/mathematics/people/kim>

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Office Hrs: Mon. & Fri.: 11:10 a.m.- 11:50 a.m. Wed. & Fri.: 1:00-1:50 p.m. and by appointment.
(Or just drop by. I tend to be in on M. W. F. (by 8:30 a.m.) and usually not on T. Th.)
You are always welcome to my office.

Course

Objectives: This course is designed primarily to provide the mathematical foundations with applications for students planning to take advanced mathematics courses or computer programming and computer theory courses. Also thru this course, students can develop their ability to understand and create thorough mathematical arguments. The rise of the digital computer in past 50 years has demanded the development of Discrete Mathematics and Mathematical Logic. While understanding of how computer operates, in their hardware or software, involves mathematics, the applications of computing are widely used in mathematics to facilitate numerical and combinatorial calculations or to recognize patterns in structural behavior among objects. In both semesters (181-182), we will cover five major topics (These five themes are blended and balanced throughout both semesters): Mathematical Reasoning (Mathematical Logic, Methods of Proof, Mathematical Induction), Combinatorial Analysis (Counting Principle, Permutations, Combinations, Probability), Discrete Structures (Sets, Functions, Sequences, Recursions, Relations, Modular Arithmetic Boolean Algebras, Graphs, Trees, Finite-State Machines), Algorithmic Thinking (Algorithms, Growth of Functions, Complexity of Algorithms), Applications & Modeling (Sorting, Network Models, Coding Theory, Combinatorial Circuits). On completion of this course, students should be able to:
(1) Demonstrate a basic level of competence in the use of discrete math. and formal logic tools.
and (2) Retain ideas and rigorous proof strategies for other disciplines.

Course

Outline: In 182, we will cover part or all of Chapters 6, 7, 8, 9, 10, 11, 12 (if time permits us).

Homework: Weekly homework will be assigned (not collected) and discussed during class hours.
You are encouraged to work with your peers. 8 quizzes will be given during class hours.

Attendance: You are expected to be at all classes. If you miss a class, you are still responsible for topics covered in class.

Assessment: The course grade will be determined on the following basis:

90% of Best Three Exams out of Four In-Class Exams (Must take Four Exams)
+ 10% of Quiz, Presentations & Efforts

EXCLUSIVELY OR

10% of Quiz, Presentations & Efforts + 90% of Cumulative Final Exam

Exam 1 (Feb. 18, Wed.), Exam 2 (Mar. 13, Fri.), Exam 3 (April. 13, Mon.), Exam 4 (May 6, Wed.)

Each in-class exam will cover the material since the preceding exam.

Final Exam: 18201: May 18, Monday, 8:00 a.m. - 11:00 a.m.

18202: May 20, Wednesday, 8:00 a. m. - 11:00 a.m.

Prerequisite: MTH 181 & MEPPP (Motivation, Enthusiasm, Perspiration, Patience, and Persistence)