

Math 216B Discrete Mathematical Structures and Proof
Fall 2006

Instructor: Fred Schultheis
Office: PPHAC 218
Office Hours: MW 11:30 am - 1:00 pm, T 1:00 – 2:00 pm, and by appointment
Phone: 610-625-7887
Email: schultheis@math.moravian.edu
Text: Discrete Mathematics and Its Applications , 6th edition,
Kenneth H. Rosen

Course Content

This course is writing intensive and required of all majors in mathematics or computer science. We will cover most sections of Chapters 1-4 and 6-8. Main topics include elementary mathematical logic, set theory, algorithm analysis, basic number theory, recurrence, graphs, and types of mathematical proof.

Course Description

The course meets MWF from 10:10 till 11:20 a.m. in PPHAC 235. Daily reading and writing assignments will be given at each class meeting. Students are expected to complete these assignments by the next class meeting and be ready to answer and ask questions. Some assignments will be collected and graded. You should keep a folder with all completed written assignments (graded and un-graded). The instructor may periodically check this folder. For un-graded assignments you may work with a classmate if you wish but all work to be handed in for grading must be done individually. **Graded assignments must be turned in on the date due to be graded without penalty. No assignments will be accepted after graded papers have been returned to the students.**

Attendance

Class attendance is required. You are responsible for all work covered in class and all assignments, even if absent from class. If you must miss more than one class due to illness or emergency, you should notify the instructor. In-class exams must be taken at the announced time; make-up exams will be given only in case of extreme emergency or serious illness.

Grading

Your final grade will be based on 2 hourly exams (about 100 points each), regular graded homework assignments (about 200 points total), a writing project (about 75 points), class participation (about 30 points), cultural awareness (about 40 points, see below), and a comprehensive final exam (at most one-third of your total grade). The exams may be in-class, take-home, or a combination of the two.

Cultural Awareness

One goal for this course is to develop an appreciation of the beauty and utility of mathematics. To help foster this appreciation you are encouraged to spend some time outside of class thinking and discussing mathematics.

There are many opportunities for you to satisfy the requirements. Some examples of activities that foster cultural awareness include: attending talks, giving a talk, reading a paper, or solving a problem.

Some typical cultural events include, but are not limited to

- attending an epsilon talk (5 points)
- attending a Mathematics Colloquium at Moravian (7 points)
- attending a math talk at another LVAIC school (9 points)
- attending the EPADEL conference in November (10 points)
- reviewing an article on mathematics or computer science related to one of the topics in the course and present it to the class (7 points)
- solving a problem outside the scope of the class (5-infinite points) with 5 additional points available for presenting the solution to the class

If you attend an event relevant to your mathematical growth you need to write a short paper that explains what the event was and how it deepened your appreciation of mathematics. **These written reports are due within one week of the event and maybe returned for a rewrite.**

You must attend a minimum of 2 epsilon talks and 2 Mathematics Colloquiums.

Once you have reached the 40 points for your cultural awareness grade, you may do additional cultural events for extra credit.

Course Goals

Specific course goals are to:

- improve your ability to read and understand mathematical definitions and proofs
- learn how to construct mathematical proofs
- learn how to write mathematical proofs
- learn how to communicate mathematical ideas to different audiences

ACADEMIC HONESTY POLICY GUIDELINES

MATHEMATICS COURSES

The Mathematics and Computer Science Department supports and is governed by the *Academic Honesty Policy of Moravian College* as stated in the Moravian College Student Handbook (pp. 52-57). The following statements will help clarify the policies of members of the Mathematics faculty.

In all homework assignments which are to be graded, you may use your class notes and any books or library sources. When you use the ideas or thoughts of others, however, you must acknowledge the source. For graded homework assignments, you may not use a solution manual or the help, orally or in written form, of an individual other than your instructor. If you receive help from anyone other than your instructor or if you fail to reference your sources you will be violating the *Academic Honesty Policy of Moravian College*. For homework which is not to be graded, if you choose, you may work with your fellow students. You are responsible for understanding and being able to explain the solution of all assigned problems, both graded and ungraded.