

Math 310-001 Fall 2015

3 hours credit

Dr. John Spraker

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Office Hours: MWF: 11:30 – 1:30, MW: 3:00 – 4:00, TTH: 12:45 – 2:00

Others by appointment or capture

Class Meetings

MWF 1:50 - 2:45 COHH 3121

Welcome the Math 310! The goal of this course is to provide mathematics majors and minors with a transition to advanced mathematics as well as an introduction to combinatorics and graph theory. The prerequisite for this course is Math 137 with a grade of C or above. Most students taking this course have had no formal background in abstract mathematics. It is essential that this course provide the proper tools for students to continue in subsequent courses. Therefore approximately two thirds of this course is devoted to what is commonly called foundations; i.e., logic, set theory, mathematical induction, relations, functions, cardinality, and most importantly, techniques of proof and mathematical rigor.

In Math 310 students will satisfy the following **learning objectives**.

1. They will become proficient in handling sets.
2. They will be able to work with functions and relations.
3. They will learn counting principles and elementary combinatorics.
4. They will be introduced to several methods of proof.

There will be three exams and a comprehensive final. The dates are below. Exams other than the final may be taken early but almost never late. There will be homework assigned daily and taken up occasionally without warning, so do your homework every night. Make use of my office hours! If I did not like talking to students, I would do something else for a living. You may contact me by phone, email or any other method you like as well.

Course Outline

Text: *A Discrete Transition to Advanced Mathematics*, by Bettina Richmond and Tom Richmond, Brooks/Cole Series in Advanced Mathematics, © 2004.

Chapter 1 Sets and Logic

Chapter 2 Proofs

Chapter 3 Number Theory (Sections 3.4, 3.5 optional)

Chapter 4 Combinatorics (Section 4.5 optional)

Chapter 5 Relations (Section 5.4 optional)

Chapter 6 Functions (Section 6.4 optional)

Chapter 7 Graph Theory (Selected topics)

Exams:

Exam 1: Friday Sept. 25

Exam 2: Friday Oct. 23

Exam 3: Friday Nov. 20

Final Exam: Friday Dec. 11 10:30 – 12:30

Your grade will be determined as follows:

3 Exams – 60%, Homework – 20%, Final Exam – 20%.

Student Accessibility Resource Center

In compliance with university policy, students with disabilities who require accommodations (academic adjustments and/or auxiliary aids or services) for this course must contact the Student Accessibility Resource Center in DSU 1074. Please DO NOT request accommodations directly from the instructor without a letter of accommodation from the Student Accessibility Resource Center.

Important Dates:

Sept. 7 Labor Day

Oct. 1 - 2 Fall Break

Oct. 14: Last day to drop classes with a W.

Nov. 25 - 27 Thanksgiving Break