

MA3825 Syllabus

Instructor: William J. Martin

Office: SH 302A

Phone: 831-6764

e-mail: martin@wpi.edu

Office hours: 10-11 TRF

12-1 W

MA 3825 – B01, B Term 2009

Rings and Fields

Text: “Contemporary Abstract Algebra”

by J. A. Gallian (7th ed.)

Meetings: 12-12:50 MTRF, SH202

The goal of this course is to introduce the student to the basic concepts and techniques of modern or abstract algebra. Setting the important subject of group theory aside to be addressed in another course (MA 3823), we explore rings and fields. These structures can be thought of as “alternative number systems” and, as such, have a great variety of applications. Applications include many areas of mathematics, theoretical physics, and computer science.

We will study as a team. Students are encouraged to collaborate ethically on assignments. (For example, direct copying is forbidden and every member of a discussion group must make significant contributions or will not be welcome in the future.) Class participation will be a large part of your grade. All students are expected to come to class having completed the assigned reading and ready to answer questions verbally or to present solutions at the blackboard. Nevertheless, it is expected that most of the learning will occur outside of normal class time.

TERM SCHEDULE

Here is a rough outline of what I expect us to cover in the 28 class meetings:

Oct. 27 to Oct. 30	<i>Introduction</i>	Chapter 0
Nov. 2 to Nov. 13	<i>Rings</i>	Chaps. 12 – 15
Nov. 16 to Nov. 24	<i>Polynomials and Factorization</i>	Chaps. 16 – 18
Nov. 30 to Dec. 17	<i>Field Theory</i>	Chaps. 19 – 22

GRADES

A: 100 % – 88 %; **B:** 87.99 % – 74 %; **C:** 73.99 % – 60 %

GRADING SCHEME

Homework (best 6 out of 8 assignments):	20 %
Classroom Participation:	20 %
Mid-Term Exam (Mon. Nov. 23):	20 %
Final Exam (Thur. Dec. 17):	40 %

ASSIGNMENTS

Assignments will be due (in my mailbox in Room SH108) at 4:30 pm on the following days: **Oct. 30, Nov. 6, Nov. 13, Nov. 20, Nov. 30, Dec. 4, Dec. 11** and **Dec. 16**. No late assignments will be accepted for credit.

TESTS

There will be one midterm exam on Monday, November 23 and a final exam on Thursday, December 17, in class. The final exam will weigh twice as much as the midterm.

PARTICIPATION

Each student is expected to present material during class period on a regular basis. Moreover, all students are expected to participate by asking questions and answering the questions of the current speaker. At the end of the course, each student will be assigned a grade for this component based on the instructor's judgment.

INFORMATION ON THE WEB

The course web page is

<http://www.wpi.edu/~martin/TEACHING/current.html>