

Mathematics 410 – Modern Algebra II

Winter 2004

Instructor Prof. Ted Sundstrom **Office** 2268 Mackinac Hall

e-mail sundstrt@gvsu.edu **Phone** 331-2041

Instructor's Home Page <http://www.faculty.gvsu.edu/sundstrt/>

Class Schedule Tu Th 2:30 – 3:45 Mackinac Hall – Room 2314

Office Hours Mon. 1:00 – 2:00 Thur. 11:00 – 12:00

Wed. 9:00 – 10:00 Fri. 9:00 – 10:00

Prerequisite MTH 310 – Modern Algebra I

ADA Statement GVSU seeks to ensure that its programs are accessible to all persons. Students in need of special assistance or an accommodation regarding any of the course requirements as outlined in this syllabus, the course objectives, and/or course evaluation and assessment criteria, are advised to notify the Office of Academic Support (200 STU, 616-331-2490) within the first two weeks of class. Confidentiality will be maintained regarding your special needs.

Textbook *Contemporary Abstract Algebra* (fifth edition), by Joseph A. Gallian, copyright 2002 by Houghton Mifflin Co.

Course Description: An introduction to groups, including homomorphisms and isomorphisms. Lagrange's theorem, quotient groups, finite groups, and the Sylow theorems. Additional topics from ring theory, including polynomial rings, ideals, and quotient rings.

Tentative Course Content

1. Groups (Gallian - Chapters 1 through 11).
2. The Sylow Theorems (Gallian – Chapter 24).
3. Rings and Integral Domains (Gallian - Chapters 13 through 15)
4. Polynomial Rings and Unique Factorization Domains (Gallian - Chapters 16 and 18).

Internet Access and Student e-mail Most of the materials and information for this course will be posted to the course home page. This homepage is part of one of Grand Valley's internet sites called "GVSU Blackboard." The internet address for the GVSU Blackboard System is <http://bb.gvsu.edu>. (A link to this page is also on the instructor's home page.)

Students are expected to check the course home page daily since the course schedule and assignments will be posted on this home page. Students are also expected to use the e-mail provided by GVSU as the instructor will frequently send e-mail messages to the entire class.

Homework Daily reading and exercises will be made and homework will be reviewed in class. These homework assignments will not be collected.

Preview Assignments During the semester, several preview assignments will be made. These will be short assignments that will be distributed in class (and posted on Blackboard) and will be due before the start of the next class. Grading of these assignments will not be based on whether or not everything is correct, but rather on whether or not a serious and substantial effort was made to complete the assignment. Each preview assignment will be graded on an 4-point basis.

Assignments There will be several homework assignments that will be collected and graded. Usually, these assignments will be distributed in class on Thursday and will be due the following Thursday. Note: Assignment #1 will be distributed in class on Tuesday January 6 and will be due on Tuesday January 13. This assignment will be a review of material from MTH 310.

These assignments are an essential component of this course and will be a major factor in determining grades for the course. The problems on the assignments will mostly be proofs, which must be written according to the guidelines for the course (to be distributed in class). Basically, the proofs will be graded on the quality of the writing, the quality of the mathematical content, and the logical organization of the writing. Each problem on an assignment will be graded on a 10-point scale. For each student, the lowest score on a problem will be dropped, and the remaining scores will be averaged to count 200 points toward the final grade.

There will be two types of problems on the assignments; individual problems and team problems. These types of problems will be clearly indicated on the assignment.

Honor System All work that you submit for individual problems must be your own work. **This means that you may not discuss the individual problems with anyone except the instructor of the course and may not use any resources other than the textbook.**

For the team problems, you may work with one other person. All work that is submitted for team problems must be the work of the team, but each person must hand in their own version of the solution for the problem or the proofs required for the problem. **This means that each team member may not discuss the team problems with anyone except their fellow team member and the instructor of the course and may not use any resources other than the textbook. It also means that both students on the team are to contribute to solutions.**

Tests There will be two tests, each worth 100 points. An attempt will be made to schedule the tests uniformly throughout the semester. This means that the first test will occur during Week 5 or Week 6, and the second test will occur during Week 10 or Week 11. The date of each test will be announced in class at least one week in advance. No make-up tests will be given without permission from the instructor prior to the date of the test.

Writing, Using a Word Processor, and Electronic Submission of Assignments: Writing is an important part of communicating mathematical results. The assignments and tests will require you to write solutions to mathematical problems. Writing mathematical solutions means more than writing formulas and circling an answer. It requires explanations of all significant steps taken in the solution of a problem. These explanations must be written in complete sentences and paragraphs with appropriate formulas and graphs included. The grading of the assignments will be based on the quality of the writing, the quality of the mathematical content, and the logical organization of the writing.

Students will be required to use word processing/typesetting software for some of the problems on the assignments. These problems will be clearly indicated on the assignments.

Final Examination The final examination will be a comprehensive test worth 150 points. The final exam is scheduled for Tuesday April 20, 2004 from 4:00 p.m. to 5:50 p.m.

Grading

Grades will be determined by the scores on the preview activities, assignments, portfolio, mid-term examination, and final examination according to the following scale:

Grade	Minimum Score	Grade	Minimum Score
A	90%	C+	74%
A-	87%	C	70%
B+	84%	C-	67%
B	80%	D+	64%
B-	77%	D	60%