Central Connecticut State University
Department of Mathematical Sciences
MATH 366 section 70
Fall 2010

READ THIS SYLLABUS CAREFULLY. YOU ARE RESPONSIBLE FOR KNOWING THIS INFORMATION!

Title: Introduction to Abstract Algebra

Course Description: We will study certain fundamental algebraic structures such as groups, rings, integral domains and fields.

Prerequisite: MATH 218, Discrete Mathematics (C– or higher).

Instructor: F. Latour

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Office: Marcus White 113

Office Hours:

Tuesdays: 2:40–4:40pm
Wednesdays: 3–5pm
Thursdays: 2:40–4:40pm

Textbook: A First Course in Abstract Algebra (7th edition) by John B. Fraleigh.

Class Meeting Times: Tuesdays and Thursdays, 6:45pm–8:25pm in room 207, Maria Sanford Hall.

Course Requirements: Attend and participate in class regularly; complete homework assignments; take tests, as scheduled. A general rule for any college course is that you are expected to put in at least 2 hours of work outside of class for every hour in class.

Calculator Use: No calculators will be used in this course.

Cell phones and other communication devices: Must be turned off at all times during class.

Course Objectives: After taking this course, the student should be able to:

1) Write precise definitions for terms that are used in basic group theory and ring theory.

2) State, prove and use basic theorems of group theory and ring theory.

3) Write precise proofs involving the basic concepts of group theory and ring theory, including isomorphism, group, subgroup, cyclic group, permutation group, Lagrange's theorem, homomorphism, factor group, Fermat's theorem, Euler's theorem, etc.

Evaluation — Minimum averages have been established for each of these grades:

		B+	87%	**C+**	77%	**D+**	67%
A	93%	**B**	83%	**C**	73%	**D**	63%
A–	90%	**B–**	80%	**C–**	70%	**D–**	60%

The average for the course will be based on the following weights:

Homework	20%
Mini-Test	8%
Exam 1	15%
Exam 2	15%
Exam 3	15%
Final Examination	27%
Total	100%

Schedule of Important Dates
Mini-Test: Thursday, September 23, in class
Exam 1: Thursday, October 7, in class
Exam 2: Thursday, October 28, in class
Exam 3: Tuesday, November 23, in class
Final Examination: Tuesday, December 16, 6:30pm–8:30pm

Please note: The final examination for this course is cumulative. It covers the entire course.

Homework will normally be due on Thursdays of weeks that do not have an exam and on Tuesdays of weeks that have an exam. You are allowed to collaborate with other students on homework, but the solutions that you submit must be your own. Simply copying another student's work (or allowing another student to copy your work) is considered cheating and is not acceptable.

Occasionally, there may be changes to the course schedule (for example, if classes are cancelled because of bad weather). Changes will be announced in class.

The information on this syllabus is subject to change (by the instructor); changes will be announced in class.

University Policies:

1. You must take the final examination at the time specified in the course selection book: **Thursday, December 16, 6:30pm–8:30pm**.

2. If you need course adaptations or accommodations because of a disability, if you have emergency medical information to share with me, or if you need special arrangements in case the building must be evacuated, please make an appointment with me as soon as possible. My telephone numbers and office hours are given above.

I will need a copy of the accommodation letter from Student Disability Services in order to arrange your class accommodations. Contact Student Disability Services, room 241, Copernicus Hall, if you are not already registered with them. Student Disability Services maintains the confidential documentation of your disability and assists you in coordinating reasonable accommodations with your faculty.

3. In the event of a weather emergency which requires curtailment or cancellation of classes, listen to WTIC (1080 AM) or call (860) 832-3333 for the "general snow message."

4. The last day to withdraw from a course is **Monday, October 25**. Approvals for withdrawal are not required; however, it is strongly recommended that students consult with their academic advisors prior to deciding to withdraw. Cessation of attendance, notice to the instructor, or telephone calls to the Enrollment Center are not considered official notice of a student's intention to drop the course.

After October 25 withdrawals are allowed only under extenuating circumstances and require approval of the course instructor, Department Chair and Dean of the School of Arts and Sciences. Poor academic performance is not considered an extenuating circumstance.

5. All students are expected to demonstrate integrity in the completion of their coursework. Academic integrity means doing one's own work and giving proper credit to the work and ideas of others. It is the responsibility of each student to become familiar with what constitutes academic dishonesty and plagiarism and to avoid all forms of cheating and plagiarism. Students who engage in plagiarism and other forms of academic misconduct will face academic and possibly disciplinary consequences. Academic sanctions can range from a reduced grade for the assignment to a failing grade for the course. From a disciplinary standpoint, an Academic Misconduct Report may be filed and a Faculty Hearing Board may impose sanctions such as probation, suspension or expulsion.

For further information on academic misconduct and its consequences, please consult the Student Code of Conduct (`http://www.ccsu.edu/StudentConduct`) and the Academic Misconduct Policy (`http://www.ccsu.edu/AcademicIntegrity`). This policy is rigorously enforced by the Department of Mathematical Sciences.

Resources Available:

1. If you need help, take advantage of your instructor's office hours. Do not wait until just before the first test to do so.

2. The Learning Center is located in Rooms 241 and 242, Copernicus. Free tutoring is available. A schedule for hours the Center is open will be posted soon after the beginning of the semester.

3. Form a study group with other students in your section. Explaining solutions to homework problems to each other is a good way to learn.

4. A list of private tutors for hire is available in the math department office, Room 107 Marcus White, 832-2835.

Course Material:

I am planning on covering the material contained in the following sections of the textbook:

Introduction

Section 0: Sets and Relations

Chapter 1: Groups and Subgroups

Section 1: Introduction and Examples
Section 2: Binary Operations
Section 3: Isomorphic Binary Structures
Section 4: Groups
Section 5: Subgroups
Section 6: Cyclic Groups

Chapter 2: Permutations, Cosets and Direct Products

Section 8: Groups of Permutations
Section 9: Orbits, Cycles and the Alternating Groups
Section 10: Cosets and the Theorem of Lagrange
Section 11: Direct Products and Finitely Generated Abelian Groups
*Section 12: Plane Isometries

Chapter 3: Homomorphisms and Factor Groups

Section 13: Homomorphisms
Section 14: Factor Groups
*Section 15: Factor-Group Computations and Simple Groups

Chapter 4: Rings and Fields

Section 18: Rings and Fields
Section 19: Integral Domains
Section 20: Fermat's and Euler's Theorems
*Section 21: The Field of Quotients of an Integral Domain
Section 22: Rings of Polynomials
Section 23: Factorization of Polynomials over a Field

The sections marked with an asterisk are optional and will be covered if time permits.