Mathematics 302 Syllabus
Spring 2007

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Office hours: (Tentative) WF12 – 1, MF 10 - 11. You may make appointments and can also drop by my office and catch me on the fly.
Text: Abstract Algebra (2nd Ed.) Thomas W. Hungerford. Saunders College Publishing, 1997.
Course Objectives: The basic objective of this course is to familiarize you with the basic ideas and techniques of abstract algebra, so that you can understand and appreciate mathematical structure. As a result, you should learn to use and appreciate the importance of mathematical definitions and techniques of proof.

Class Structure: I will present important ideas and proofs in a lecture format, but much class time will be dedicated to your thoughts and questions. Come to class prepared to ask questions about homework and ideas presented in class. We will have quizzes at least once each week to check your knowledge of basic facts and definitions.
We will also spend time looking at common errors, and thereby learning how to look our own work critically. This is a very important part of mathematical work, as our first attempts at solutions are usually not correct.

This course has Math 280 as a prerequisite and I will draw very heavily on its content, as logic and proofs are central to the study of modern algebra. If you have not taken this class, you will need to postpone this course while you take this important prerequisite.

Homework: Homework will be due weekly (usually on Fridays) and will be graded in the following fashion. I will select several problems for careful grading, and announce these problems in advance. These will be problems that will involve some thought and writing, and I will grade on the quality of your work. Other problems will be assigned, and you are responsible for the information in those problems, but you do not need to hand them in for grading. I will provide detailed solutions for all assigned problems, so you can check your work. Before exams, I may change the homework due date, so that you will be able to study the solutions before the exam. (See the schedule)

Quizzes: These 10 minute quizzes will be held once each week, usually on Wednesdays. The time and topic covered will be announced in advance.

Exams: There will be two exams and a comprehensive final, on the following dates:

Exam I	Friday, March 2
Exam II	Friday, April 20
Final:	Wenesday, May 16, 12 noon – 1:50 pm

The first two exam dates are subject to change, so write them in pencil in your date books!

Office Hours: Since you will be responsible for learning and reviewing much material on your own, it is very likely that you will need to talk with me outside of class time. You should therefore include one office hour per week in your schedule, so that you can attend when needed. When you come to an office hour, bring old homework, exams and notes that we can look at together.

Grading: Each of the two exams will count as 20% of your final grade, while the final exam will count for 30%. Homework will add another 15%, and in-class quizzes will count another 15%. Grades will be based on the following curve:

100% – 98%	'**A+**'	97% – 92%	'**A**'	91% – 90%	'**A–**'
89% – 88%	'**B+**'	87% – 82%	'**B**'	81% – 80%	'**B–**'
79% – 78%	'**C+**'	77% – 70%	'**C**'	69% – 60%	'**D**'

59% – 0% ‘**F**’

Note that the grade of “C-“ will not be assigned.

Lateness to class and cell phones:

Same rule as at the Opera: If you arrive late to class, please wait in the doorway where I can see you. I will invite you in when there is a break in the action, so that your entrance doesn't disturb others. Turn off cell phones (or put them on vibrate). If your cell phone rings, leave the room immediately, and wait for my invitation before returning.

Homework: Most of the assignment will consist of problems that you do not need to hand in: do them on your own and check the answers in the homework solutions I will provide. Explanations will be provided in the homework comments so that you can check your reasoning. You will be responsible on quizzes and tests for the material in these problems, so do them! If your approach or method looks very different from mine, ask in class or office hours (there are many correct ways to do a problem, so your work might well be correct). You will be asked to hand in a few problems in each assignment; these will be graded as described in the syllabus. Late homeworks will not be accepted, but you can fax assignments to me if you wish (see below "If you miss class). You can also email solutions to me. I will drop your lowest homework score when I calculate grades.

Learning from mistakes: The ability to spot one's own mistakes, to be able to look at one's own work critically, is of great importance in mathematics. If a problem is complex, the first attempt at a solution is rarely completely correct, and so "proof-reading" is very important. We will use examples drawn from prior courses and your homework solutions to study errors and how to find them. It is very important that you review returned homeworks, quizzes, and exams so that you can learn from them.

Study Notes and examples

The study notes are designed as supplemental notes to help you study and also to prepare for the class and your homework. The examples provide extra examples and short exercises to help you familiarize yourself with definitions and concepts. As you get more experienced, you may find that you can generate your own questions and examples. Both types of supplements will be posted at the Blackboard site in the "Course Documents" folder.

If you miss class:

Fax your work to me at the Math Department fax number: (714) 278-3972. Make sure both your name and my name appear prominently on the front page. Don't put this information too near the top of the page, or it will be clipped off when you fax it. Call or email me or other students to find out what happened in class. I will be putting together a class directory so you can stay in touch with each other.

If disaster really strikes, and you miss more than one class, please stay in touch. I'll keep you updated and we'll figure out how you can make up the work when you come back to school--you may need extra tutoring and time to make up homework and quizzes.

In general, I do not allow for making up any of the exams.

Tentative Schedule:

Week 1	1/22 –1/26	Ch. 1.1	Well-Ordering, Division Algorithm
Week 2	1/29 – 2/2	Ch. 1.2	Divisibility, Greatest Common Divisors, Euclidean Algorithm
Week 3	2/5 – 2/9	Ch. 1.3, 1.4	Uniqueness of Prime Factorization, Primality Testing, Congruence,
Week 4	2/12 – 2/16	Ch. 2.1, 2.2	$\mathbf{Z}_n$ and modular arithmetic
Week 5	2/19 – 2/23	Ch. 2.2, 2.3	Presidents' Day, $\mathbf{Z}_p$ when p is prime. Solving [a]x = [b] in $\mathbf{Z}_n$.
Week 6	2/26 – 3/2	Ch. 3.1	Solving [a]x = [b] in $\mathbf{Z}_n$, Exam I (Friday)

Week 7	3/5 – 3/9	Ch. 3.1, 3.2	Rings, Examples, subrings, basic properties
Week 8	3/12 – 3/16	Ch. 3.2	More properties, isomorphisms
Week 9	3/19 – 3/23	Ch. 3.3	Isomorphisms, homomorphisms
		S P R I N G	B R E A K !
Week 10	4/2 – 4/6	Ch. 4.1,4.2	Polynomial rings, divisibility
Week 11	4/9 – 4/13	Ch. 4.2, 4.3	Divisibility, Irreducibles
Week 12	4/16 – 4/20	Ch. 4.3, 4.4	Reducibility and Roots, Exam II (Fri.)
Week 13	4/23 – 4/27	Ch. 4.5, 4.6	Roots and reducibility in **Q**, **R**, and **C**
Week 14	4/30 – 5/4	Ch. 7.1, 7.2	Examples of groups, basic properties
Week 15	5/7 – 5/11	Ch. 7.2, 7.3	Subgroups, homomorphisms of groups

Academic Integrity

The current CSUF Campus Policy defines cheating as "obtaining or attempting to obtain credit for work by the use of any dishonest, deceptive, fraudulent, or unauthorized means" and/or "helping someone commit an act of academic dishonesty". Examples include:

- Unacceptable examination behavior – communicating with fellow students, copying material from another student's exam or allowing another student to copy from an exam, possessing or using unauthorized materials, or any behavior that defeats the intent of an exam.
- Plagiarism – taking the work of another and offering it as one's own without giving credit to that source, whether that material is paraphrased or copied in verbatim or near-verbatim form
- Unauthorized collaboration on a project, homework or other assignment where an instructor expressly forbids such collaboration
- Documentary falsification including forgery, altering of campus documents or records, tampering with grading procedures, fabricating lab assignments, or altering medical excuses.

Collaboration (discussing problem sets and project analyses) are welcome and encouraged, but written summaries must be independently completed by each person. With the exception of the handouts obtained from conference presentations, all project work is subject to the institutional policy regarding academic integrity.

Students who violate university standards of academic integrity are subject to disciplinary sanctions, including failure in the course and suspension from the university. Since dishonesty in any form harms the individual, other students and the university, policies on academic integrity are strictly enforced. I expect that you will familiarize yourself with the academic integrity guidelines found in the current student handbook.

Emergency Procedures

In the event of an emergency such as an earthquake or fire (or in response to a preparedness drill for such an event):

- Take all your personal belongings and leave the classroom (or lab). Use the stairways located at the east, west, or center of the building.
- Do **NOT** use the elevator. They may not be working once the alarm sounds.
- Go to the lawn area adjacent to Nutwood Avenue. Stay with class members for further instruction.
- For additional information on exits, fire alarms and telephones, **Building Evacuation Maps** are located near each elevator.

- Anyone who may have difficulty evacuating the building, please see the instructor.