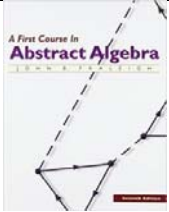


University of North Texas at Dallas
Spring 2016
SYLLABUS

MATH 3510	ABSTRACT ALGEBRA		3 Hrs
Department of	Mathematics and Information Sciences	School of	Liberal Arts & Life Sciences
Instructor Name:	Dr. Noureen Khan		
Office Location:	Founders Hall (DAL2) - 223		
Office Phone:	972 338 1567		
Email Address:	noureen.khan@unt.edu Please use UNTDallas email account and include Class/Section in subject line.		
Office Hours:	Monday & Wednesday 11:30 am – 2:30 pm or by appointments.		
Virtual Hours:	NA		
Classroom Location:	Founders Hall (DAL2) - Room # 240		
Class Meetings	Monday & Wednesday 10: 00 – 11: 20 am		
Course Catalog Description:	Groups, rings, integral domains, polynomial rings and fields.		
Prerequisites:	MATH 3000 Real Analysis- I and MATH 2700 Linear Algebra and Vector Geometry (maybe taken concurrently)		
Required Text:		First Course in Abstract Algebra, 7 th Edition , John B. Fraleigh ISBN-13: 9780201763904	
Reference Books	<ul style="list-style-type: none"> • Undergraduate text on Abstract Algebra • Class notes and handouts 		
Access to Learning Resources:	UNT Dallas Library: web: http://www.unt.edu/unt-dallas/library.htm phone: (972) 780-3625; UNT Dallas Bookstore: e-mail: 1012mgr@fhcg.follett.com phone: (972) 780-3652;		
Calculator Policy:	This course DOESN'T REQUIRE calculator.		

Course Goals: The goal of this course is to	
1	Present the study of general algebraic structures of various sets (such as real numbers, complex numbers, matrices, and vector spaces) on which operations have been defined.
2	Learn about algebraic systems like; groups, rings, fields, modules, vector spaces, loops.
3	Emphasize two main topics, groups and rings.
4	Describe groups and their structure, with an emphasis on examples such as the cyclic, abelian group, factor group and the symmetric groups.
5	Discuss about more general rings, emphasizing the particular case of polynomial rings and their quotients, which lead to field theory.
Learning Objectives/Outcomes (course): At the end of this course, the student will be able to	
1	Read, understand, formulate, explain and apply the concept of equivalence relation.
2	Define binary operation, group, homomorphism, isomorphism and Factor group.
3	Understand the properties of a group, subgroup and the Lagrange Theorem.
4	Compute permutation groups and represent rings by using the concept of groups.
5	Solve the problems of finding the fields and Integral domains.
Learning Outcomes (Program): At the end of this course, the student will be able to	
SLO-2	Communicate with technical precision in writing mathematical ideas.
SLO-3	Read, understand, formulate, explain, and apply mathematical statements.
Course Outline:	
<p>Abstract Algebra studies the properties of Groups– in this course you will learn about three main topics: Groups, Rings and Fields. The study of Group theory provides an excellent opportunity to develop the habits of mind necessary to write careful proofs in mathematics. Prior experience with analytic proofs will be assumed; you will be introduced to algebraic proofs. Attendance is required for this class as its essential for effective learning. The home work will be assigned in every meeting; you are encouraged to do every home work. UNT Dallas provides all possible help to assure student success, Math lab is open and tutors is available to help on one to one basis throughout the day. You can also come during my office hours or make appointments otherwise in order to seek further help.</p>	
Important Dates:	
<ul style="list-style-type: none"> • Monday, January 18 • March 14 – March 20 • Friday, April 8 	<ul style="list-style-type: none"> Martin Luther King Day Spring Break Monday Last day to withdraw from a course with a grade of W.

Course Evaluation Methods:

This course will utilize the following instruments to determine student grades and proficiency of the learning outcomes for the course.

Grading Matrix:

Instrument	Percentage %	Grade Determination:	
		Grade	Score (%)
Homework	20	A	90 or better
Quizzes	20	B	80 – 89
Class Project	10	C	70 – 79
Midterm Exam	20	D	60 – 69
Final Exam	30	F	less than 60
Total:	100		

Assignment Policies:**Home Work** – (5 homework)

Home work will be assigned in every class meeting and will be collected on listed due dates. Students are required to do all your home work in a spiral notebook throughout the semester. Students are responsible to obtain missing classwork/homework from you class mates or by contacting instructor in person.

Quizzes – (Best 10 quizzes)

Weekly short quizzes, 10-15 minutes long will be given over the material covered in prior class. At the end of semester, one lowest quiz grade will be dropped.

Two Midterm Exam – There will be two midterm exams (100 minute long) for this course.

Project – Class project and presentation

A major class project will be assigned by mid-semester (week 8), project details will be posted on Blackboard. The project will give you a chance to think reflectively and expansively about specifically covered course topics. Your project report should be a full 2-3 pages, double spaced, in times new roman font and formatted using CMJ guidelines. Papers **MUST BE** turned in via Blackboard by 11:59 pm on the specific due date (see attached schedule).

***** Schedule for Homework, Quizzes, and Exams is attached. *****

Class Policies:

- **Come prepared!**
- Use of Cell Phones, Laptops, and IPADS are prohibited in the classroom.
- Eating or drinking is not allowed during lectures.
- Calculators cannot be shared during testing.
- No cheating will be tolerated.

Anyone caught cheating will receive an **F** for the course. Cheating includes receiving help from anyone or anything that is not allowed on quiz, test or final exam.

Class Schedule: The schedule is subject to change by the professor at any time.

Spring 2016	Monday	Wednesday	Topics
Week 1 - Jan 20	NO Class		Section 0: Sets and Relations
Week 2 Jan 25 & Jan 27		Quiz #1	Section 1: Introduction and Examples Section 2: Binary Operations
Week 3 Feb 01 & Feb 03		Quiz #2	Section 3: Isomorphic Binary Structure
Week 4 Feb 08 & Feb 10	Homework 1	Quiz #3	Section 4: Groups & Section 5: Subgroups
Week 5 Feb 15 & Feb 17		Quiz #4	Section 6: Cyclic Groups
Week 6 Feb 22 & Feb 24		Quiz #5	Section 8: Group of Permutations Section 9: Cycles
Week 7 Feb 29 & Mar 02	Homework 2	Quiz #6	Section 10: Cosets
Week 8 Mar 07 & Mar 09	Exam Review	Exam #1	
Week 9 Mar 14 & Mar 16	SPRING BREAK		
Week 10 Mar 21 & Mar 23	Homework 3		Section 10: Lagrange Theorem Section 11: Direct Product,
Week 11 Mar 28 & Mar 30		Quiz #7	Section 11: Abelian Groups
Week 12 Apr 04 & Apr 06	Homework 4	Quiz #8	Section 13: Homomorphism
Week 13 Apr 11 & Apr 13		Quiz #9	Section 14: Factor Groups
Week 14 Apr 18 & Apr 20	Homework 5	Quiz #10	Section 18: Rings and Fields
Week 15 Apr 25 & Apr 27		Quiz #11	Section 19: Integral Domain, Section 20: Fermat's & Euler's Theorem
Week 16 May 02 & May 04	Review Exam	Exam #2	Project Reports due
Week 17 May 09	Project Presentations	NO CLASS	

University Policies and Procedures

Students with Disabilities (ADA Compliance):

Any student requesting academic accommodations based on a disability is required to register with Disability Services each semester. A letter of verification for approved accommodations can be obtained from this office. Please be sure the letter is delivered to me as early in the semester as possible. Disability Services is located in the Student Life Office in DAL2, Suite 200 and is open 8:30 a – 5:00 p, Monday - Friday. The phone number is (972) 338-1775.

Student Evaluation of Teaching Effectiveness Policy:

The Student Evaluation of Teaching Effectiveness (SETE) is a requirement for all organized classes at UNT. This short survey will be made available to you at the end of the semester, providing you a chance to comment on how this class is taught. I am very interested in the feedback I get from students, as I work to continually improve my teaching. I consider the SETE to be an important part of your participation in this class.

Exam Policy:

Exams should be taken as scheduled. No makeup examinations will be allowed except for documented emergencies (See Student Handbook). In the case of injury or illness, you need to provide a note from a health care professional affirming date and time of a medical office visit regarding the injury or illness and stating that you should not be in class that day. You must notify me no later than the end of the second working day after the missed exam.

Academic Integrity:

Academic integrity is a hallmark of higher education. You are expected to abide by the University's code of conduct and Academic Dishonesty policy. Any person suspected of academic dishonesty (i.e., cheating or plagiarism) will be handled in accordance with the University's policies and procedures. Refer to the Student Code of Conduct at http://www.unt.edu/csrr/student_conduct/index.html for complete provisions of this code.

Attendance and Participation Policy:

The University attendance policy is in effect for this course. Class attendance and participation is expected because the class is designed as a shared learning experience and because essential information not in the textbook will be discussed in class. The dynamic and intensive nature of this course makes it impossible for students to make-up or to receive credit for missed classes. Attendance and participation in all class meetings is essential to the integration of course material and your ability to demonstrate proficiency. Students are responsible to notify the instructor if they are missing class and for what reason. Students are also responsible to make up any work covered in class. It is recommended that each student coordinate with a student colleague to obtain a copy of the class notes, if they are absent. **Excessive absences (more than 3 classes) may result in being dropped from the class or receiving an F for the course.**

Diversity/Tolerance Policy:

Students are encouraged to contribute their perspectives and insights to class discussions. However, offensive & inappropriate language (swearing) and remarks offensive to others of particular nationalities, ethnic groups, sexual preferences, religious groups, genders, or other ascribed statuses will not be tolerated. Disruptions which violate the Code of Student Conduct will be referred to the Center for Student Rights and Responsibilities as the instructor deems appropriate.

Copyright Policy: The handouts used in this course are copyrighted. By "handouts," I mean all materials generated for this course, which include but are not limited to syllabi, lecture notes, quizzes, exams, in-class materials, review sheets, projects, and problems sets. Because these materials are copyrighted, you do not have the right to copy and distribute the handouts, unless I expressly grant permission.