



Texas A&M University - San Antonio

Department of Science and Mathematics

Math 4340 – Spring 2022

Instructor: Hoan Duong

Class Meeting: Tue Thu 11:00 am - 12:15 pm

Classroom: Classroom Hall 209

Office hours: MW 2:00-3:15pm; TR 12:30-1:50pm

Credit hours: 3

Office phone: (210) 784-2253

Office: Classroom Hall 334

E-mail: hduong@tamusa.edu

Course Description and Materials

Course Description. A study of basic algebraic structures with applications from algebraic or analytic number theory. Topics include: properties of the Integers, prime factorization, congruences, groups, subgroups, quotient groups, homomorphisms, integral domains and rings.

Course Objectives. MATH 4340 helps students develop Critical Thinking, Communication, and Empirical and Quantitative Skills by focusing on student understanding of key concepts and appropriate applications of modern algebra

Learning Outcomes. Upon completion of this course, students will be able to:

1. Demonstrate understanding and knowledge of properties of groups, which include groups, cyclic groups, cosets, subgroups, symmetric groups, normal subgroups, group homomorphisms, quotient groups, and group actions.
2. Demonstrate understanding and knowledge of properties of rings, which include rings, ideals, ring homomorphism, domains, and fields.
3. Demonstrate understanding and knowledge of applications in cryptography.
4. Demonstrate the ability of applying mathematical proving techniques in simple modern algebra problems.
5. Appreciate and understand the foundation of modern algebra..

Pre-requisites. MATH 3325 and one of MATH 3415, MATH 3370, MATH 3340 OR MATH 4341 with a grade of “C” or higher.

Textbooks and other materials.

My lecture notes are posted at www.algebrahd.org.

Free online text book <http://abstract.ups.edu/download/aata-20160809.pdf>

To buy a hardcopy <http://abstract.ups.edu/sage-aata.html>

Second source <http://www2.math.umd.edu/~jcohen/402/Pinter%20Algebra.pdf>

COURSE CONTENT

Chapter 1: 1.1, 1.2

Chapter 2: 2.1, 2.2

Chapter 3: 3.1,3.2,3.3,3.5

Chapter 4: 4.1,4.2

Chapter 5: 5.1,5.2

Chapter 6: 6.1,6.2,6.3

Chapter 7 and 8. (Self-Reading)

Chapter 9: 9.1,9.2

Chapter 10: 10.1,10.2

Chapter 11: 11.1,11.2

Chapter 12: 12.1

Chapter 13: 13.1

Chapter 14: 14.1

Chapter 15: 15.1

Chapter 16: 16.1, 16.2

Examinations: There will be three exams and a comprehensive final exam during finals week. Students are expected to take all examinations at scheduled times. Exceptions for a legitimate reason may be granted if approved by the instructor. Your instructor may be notified by phone [including voice-mail], e-mail, or in person. Inform your instructor in advance to make arrangements if you know in advance that you will be unable to take an exam at the regular time. Students who fail to follow the prescribed procedures will receive a grade of zero on the missed exam.

Evaluation of Student Performance

Three Tests total 70% ; and

Final Exam 30%.

One lowest test score will be replaced with the final exam score if the latter is higher; missed tests will be replaced with the final exam scores

NO MAKE-UP EXAMS

Course grades will be based on percentage of total points earned –

A:90-100%, B: 80-89.9%, C: 70-79.9%, D: 60-69.9%, F: < 60%.

At least a “C” grade is awarded if the score of the final exam is 75% or better.

Non-graphic non-programmable calculator is allowed in tests

Tests are graded based on proper writing of the solutions (70%) that demonstrate a student’s understanding of the subject and correct answers (30%)

Course Requirements and Expectations

Withdraw from the course. It is the student’s responsibility to drop a course.

Please contact the Welcome Center at 210-784-1300 if you desire to drop the course

General Policies

Financial Aid and Verification of Attendance

According to the following federal regulation, 34 CFR 668.21: U.S. Department of Education (DoE) Title IV regulation, a student can only receive Title IV funds based on Title IV eligibility criteria which includes class attendance. If Title IV funds are disbursed to ineligible students (including students who fail to begin attendance), the institution must return these funds to the U.S. DoE within 30 days of becoming aware that the student will not or has not begun attendance. Faculty will provide the Office of Financial Aid with an electronic notification if a student has not attended the first week of class. Any student receiving Federal financial aid who does not attend the first week of class will have his/her aid terminated and returned to the DoE. Please note that any student who stops attending at any time during the semester may also need to return a portion of his/her federal aid.

Jaguar Writing Center

The Jaguar Writing Center provides writing assistance to graduate and undergraduate students in all three colleges. Writing tutors work with students to develop reading skills, prepare oral presentations, and plan, draft, and revise their written assignments. Students can make individual or group appointments with a writing tutor. The Writing Center has two locations: Central Academic Building, Suite 208 and Brooks City-Base, Room 104. Both locations can be reached by emailing tutoring@tamusa.edu or calling (210)-784-1332. Appointments can also be made through JagWire using TutorTrac, which is found under the services tab.

University Email Policy and Course Communications

All correspondence between professors and students must occur via University email accounts. You must have Jaguar email account ready and working. If it is not working, contact the help desk at sahelp@tamusa.edu or at 210-784-4357.

The Six-Drop Rule

Students are subject to the requirements of Senate Bill (SB) 1231 passed by the Texas Legislature in 2007. SB 1231 limits students to a maximum of six (6) non-punitive course drops (i.e., courses a student chooses to drop) during their undergraduate careers. A non-punitive drop does not affect the student's GPA. However, course drops that exceed the maximum allowed by SB 1231 will be treated as "F" grades and will impact the student's GPA.

Students with Disabilities

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disability. If you believe you have a disability that may require accommodations, please contact Disability Support Services (DSS) for the coordination of services. DSS is located at the Main Campus on the 2nd floor of the Central Academic Building in room 210 and at the Brooks City-Base Campus in room 149. The phone number for DSS is (210) 784-1335 and email is dssupport@tamusa.edu.

Student Misconduct

Appropriate conduct is essential to the effective functioning of the University. University policy defines unacceptable conduct, both academic and non-academic misconduct, and penalties for such behavior in The Student Handbook and The Student Code of Conduct.

Academic Misconduct Policy

Students at Texas A&M University-San Antonio are expected to adhere to the highest standards of academic honesty and integrity. Academic misconduct for which a student is subject to penalty includes cheating, plagiarism, fabrication, multiple submissions, misrepresentation of academic records, facilitating academic dishonesty, unfair advantage, violating known safety requirements and ethical misconduct. This includes holding other students to the same standards and reporting any incidents of alleged violation of the honesty policy to the instructor involved or, if necessary, to the appropriate academic department head. All students are responsible for being familiar with the Academic Misconduct Policy, which may be found in the Texas A&M University-San Antonio Student Handbook.

University policy prescribes serious consequences for acts of academic misconduct including, but not limited to, a grade of 'F' on the particular paper or assignment or a failing grade in the course. Also, a referral may be issued to the Office of Student Rights and Responsibilities where the sanctions can vary up to possible expulsion from the University. Considering the potential consequences of academic misconduct, it is obviously in students' best interests to avoid even the appearance of such behavior. If you are ever unclear whether a specific act might constitute academic misconduct, please contact your instructor for an assessment of the situation.

All student term papers and other written assignments are subject to analysis by anti-plagiarism software.

Services (Please check due to Covid-19)

Tutoring Services. It is a free, appointment-based tutoring program

Central Academic Building, Room 208

Brooks City Base Campus, Room 104

(210)784-1332

tutoring@tamusa.tamus.edu

<http://www.tamusa.tamus.edu/studentengagementsuccess/tutoringservices/index.html>

Office of Military Services

Patriots' Casa, Suite 202

military@tamusa.edu

VACertification@tamusa.edu

<http://www.tamusa.edu/militaryaffairs/>

Student Counselling & Wellness Services.

Patriots' Casa, Suite 212

Brooks City Base Campus, Room 148

(210)784-1331

StuCounseling@tamusa.edu

<http://www.tamusa.edu/studentengagementsuccess/studentcounseling>

University Police Department

Ronald Davidson, Chief of Police

Main Campus Building, Room 120B

(210)784-1900