



## MATH 543 Abstract Algebra I

COURSE SYLLABUS: FALL- 2024

### INSTRUCTOR INFORMATION

Instructor:	Padmapani (Pani) Seneviratne
Office Location:	BIN 316
Office Hours:	T: 11:00 – 2:00 pm, R: 11:00 – 1:00 pm, W: 5:00-6:00 Virtually on Zoom, or by appointment request
Office Phone:	903-886-5952
Office Fax:	903-886-5945
University email:	<a href="mailto:padmapani.seneviratne@tamuc.edu">padmapani.seneviratne@tamuc.edu</a>
Preferred Communication:	email
Response time:	within 24 hours during weekdays
Class Location:	online – D2L
Class Time:	Online, MyLeo-Online -

### COURSE INFORMATION

This class is fully online class: All lectures, assignments and projects will be available through D2L (MyLeo-online).

**Textbook (optional):** I will be using primarily, Abstract Algebra, Dummit and Foote (3<sup>rd</sup> edition), Wiley, ISBN-10: 0471433349, ISBN-13: 978-0471433347.

**Software :**We will use Magma computational algebra system for computations. The software will be provided to students freely.

**Calculator:** optional.

### Course Description

**Course Description:** Groups, Subgroups, quotient Groups and Homomorphisms,

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Group Actions.

Prerequisites: MATH 334 or MATH 550, or Consent of Instructor.

**STUDENT OUTCOMES:** Upon successful completion of this course a student will:

- 1). Define, and interpret basic concepts, fundamental properties and the algebraic structures of groups, subgroups, quotient groups, group homomorphisms and group actions.
- 2). Verify and prove some important theorems in group theory including Lagrange's Theorem, Cayley's Theorem, isomorphism theorems, and the classifications of finite groups with small number of elements.
- 3). Define and explain the basic concepts, properties and examples of subgroups, cyclic groups, symmetric groups, and dihedral groups.
- 4). Define, explain and analyze basic concepts and properties and examples concerning cosets, normal subgroups, and quotient groups.
- 5). Use a computer algebra system to construct and evaluate groups.
- 6). Learn applications of groups and related structures.

## **COURSE REQUIREMENTS**

### **Minimal Technical Skills Needed**

Access MyLeo online. Learn and use a computer algebra system such as magma for computations.

### **Instructional Methods**

Recorded video lectures are available on MyLeo online.

### **Student Responsibilities or Tips for Success in the Course**

Read class notes and listen to video lectures, Do all homework and projects, use office hours regularly.

## **GRADING**

Final grades in this course will be based on the following scale:

Midterm Exams:	40%
Quizzes/HW:	30%
Magma projects	10%

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Final Exam:	20%
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Total:	100%

- A = 90%-100%
- B = 80%-89%
- C = 70%-79%
- D = 60%-69%
- F = 59% or Below

**Exams:** There will be two midterm exams and a comprehensive final exam for this course.

**Exam 1: Wednesday, October 2<sup>nd</sup> at 5:00 – 6:30 pm, virtually.**

**Exam 2: Wednesday, November 13<sup>th</sup> at 5:00 – 6:30 pm, virtually.**

**Final Exam: Wednesday, December 11<sup>th</sup> 5:00 – 7:00pm.**

### **Exams/Proctoring**

Exams will be a proctored. More information will be provided later. Exam proctoring may be done through remote online proctoring or in-person at a testing center. If a student use a testing center, the center might charge a fee. Students are responsible for fees associated with testing center fees.

### **.Home Work and projects:**

**Please submit the home work and magma projects in pdf format. Write clearly and keep space between lines. Save the file as lastname\_HW#.pdf** Submit homework through the assignment link at D2L. The assignment that you submit must be your own work. Plagiarism is prohibited.

**Late Home Work:** It is essential that you submit your homework by the due date. Late homework will not be graded.

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# TECHNOLOGY REQUIREMENTS

## LMS

All course sections offered by Texas A&M University-Commerce have a corresponding course shell in the myLeo Online Learning Management System (LMS). Below are technical requirements

LMS Requirements:

<https://community.brightspace.com/s/article/Brightspace-Platform-Requirements>

LMS Browser Support:

[https://documentation.brightspace.com/EN/brightspace/requirements/all/browser\\_support.htm](https://documentation.brightspace.com/EN/brightspace/requirements/all/browser_support.htm)

YouSeeU Virtual Classroom Requirements:

<https://support.youseeu.com/hc/en-us/articles/115007031107-Basic-System-Requirements>

## ACCESS AND NAVIGATION

You will need your campus-wide ID (CWID) and password to log into the course. If you do not know your CWID or have forgotten your password, contact the Center for IT Excellence (CITE) at 903.468.6000 or [helpdesk@tamuc.edu](mailto:helpdesk@tamuc.edu).

**Note:** Personal computer and internet connection problems do not excuse the requirement to complete all course work in a timely and satisfactory manner. Each student needs to have a backup method to deal with these inevitable problems. These methods might include the availability of a backup PC at home or work, the temporary use of a computer at a friend's home, the local library, office service companies, Starbucks, a TAMUC campus open computer lab, etc.

## COMMUNICATION AND SUPPORT

If you have any questions or are having difficulties with the course material, please contact your Instructor.

### Technical Support

If you are having technical difficulty with any part of Brightspace, please contact Brightspace Technical Support at 1-877-325-7778. Other support options can be found here:

<https://community.brightspace.com/support/s/contactsupport>

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# **COURSE AND UNIVERSITY PROCEDURES/POLICIES**

## **Course Specific Procedures/Policies**

You are expected to attend all classes.

### **Syllabus Change Policy**

The syllabus is a guide. Circumstances and events, such as student progress, may make it necessary for the instructor to modify the syllabus during the semester. Any changes made to the syllabus will be announced in advance.

## **University Specific Procedures**

### **Student Conduct**

Appropriate classroom behavior is required to attend this class.

All cell phones must be put on silent during class.

All students enrolled at the University shall follow the tenets of common decency and acceptable behavior conducive to a positive learning environment. The Code of Student Conduct is described in detail in the [Student Guidebook](#).

<http://www.tamuc.edu/Admissions/oneStopShop/undergraduateAdmissions/studentGuidebook.aspx>

Students should also consult the Rules of Netiquette for more information regarding how to interact with students in an online forum:

<https://www.britannica.com/topic/netiquette>

### **TAMUC Attendance**

For more information about the attendance policy please visit the [Attendance](#) webpage and [Procedure 13.99.99.R0.01](#).

<http://www.tamuc.edu/admissions/registrar/generalInformation/attendance.aspx>

<http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/academic/13.99.99.R0.01.pdf>

### **Academic Integrity**

Students at Texas A&M University-Commerce are expected to maintain high standards of integrity and honesty in all of their scholastic work. For more details and the definition of academic dishonesty see the following procedures:

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[Undergraduate Academic Dishonesty 13.99.99.R0.03](#)

<http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/undergraduates/13.99.99.R0.03UndergraduateAcademicDishonesty.pdf>

[Graduate Student Academic Dishonesty 13.99.99.R0.10](#)

<http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/graduate/13.99.99.R0.10GraduateStudentAcademicDishonesty.pdf>

### **Students with Disabilities-- ADA Statement**

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 disabilities. If you have a disability requiring an accommodation, please contact:

#### **Office of Student Disability Resources and Services**

Texas A&M University-Commerce

Gee Library- Room 162

Phone (903) 886-5150 or (903) 886-5835

Fax (903) 468-8148

Email: [studentdisabilityservices@tamuc.edu](mailto:studentdisabilityservices@tamuc.edu)

Website: [Office of Student Disability Resources and Services](#)

<http://www.tamuc.edu/campusLife/campusServices/studentDisabilityResourcesAndServices/>

### **Nondiscrimination Notice**

Texas A&M University-Commerce will comply in the classroom, and in online courses, with all federal and state laws prohibiting discrimination and related retaliation on the basis of race, color, religion, sex, national origin, disability, age, genetic information or veteran status. Further, an environment free from discrimination on the basis of sexual orientation, gender identity, or gender expression will be maintained.

### **Campus Concealed Carry Statement**

Texas Senate Bill - 11 (Government Code 411.2031, et al.) authorizes the carrying of a concealed handgun in Texas A&M University-Commerce buildings only by persons who have been issued and are in possession of a Texas License to Carry a Handgun. Qualified law enforcement officers or those who are otherwise authorized to carry a concealed handgun in the State of Texas are also permitted to do so. Pursuant to Penal Code (PC) 46.035 and A&M-Commerce Rule 34.06.02.R1, license holders may not carry a concealed handgun in restricted locations.

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For a list of locations, please refer to the [Carrying Concealed Handguns On Campus](#) document and/or consult your event organizer.

Web url:

<http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/34SafetyOfEmployeesAndStudents/34.06.02.R1.pdf>

Pursuant to PC 46.035, the open carrying of handguns is prohibited on all A&M-Commerce campuses. Report violations to the University Police Department at 903-886-5868 or 9-1-1.

## **A&M-Commerce Supports Students' Mental Health**

The Counseling Center at A&M-Commerce, located in the Halladay Building, Room 203, offers counseling services, educational programming, and connection to community resources for students. Students have 24/7 access to the Counseling Center's crisis assessment services by calling 903-886-5145. For more information regarding Counseling Center events and confidential services, please visit [www.tamuc.edu/counsel](http://www.tamuc.edu/counsel)

## **AI use policy**

Texas A&M University-Commerce acknowledges that there are legitimate uses of Artificial Intelligence, ChatBots, or other software that has the capacity to generate text, or suggest replacements for text beyond individual words, as determined by the instructor of the course.

Any use of such software must be documented. Any undocumented use of such software constitutes an instance of academic dishonesty (plagiarism).

Individual instructors may disallow entirely the use of such software for individual assignments or for the entire course. Students should be aware of such requirements and follow their instructors' guidelines. If no instructions are provided the student should assume that the use of such software is disallowed.

In any case, students are fully responsible for the content of any assignment they submit, regardless of whether they used an AI, in any way. This specifically includes cases in which the AI plagiarized another text or misrepresented sources.

13.99.99.R0.03 Undergraduate Academic Dishonesty

13.99.99.R0.10 Graduate Student Academic Dishonesty

## **COURSE OUTLINE / CALENDAR**

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## Weekly Schedule (Tentative)

Week 1-3: chapters 0, 1

Week 4-6: chapter 2

Week 7-9: chapter 3

Week 10-12: chapter 4

Week 13-15: chapters 5,7

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