Abstract Algebra 1
MAS 4301
SUMMER C 2020

Instructor: Dr. Konstantina Christododoulopoulou   **Email**: kchristod@ufl.edu

Online Office Hours in Canvas: W: 10-11am , R: 11-noon, F: 10-11am and by appointment.

All course materials will be posted in e-Learning Canvas https://elearning.ufl.edu/

Required Text: *Contemporary Abstract Algebra*, by Joseph Gallian, 9th edition. We will cover most of Chapters $0 - 15$.

Course Content and Objectives: MAS 4301 is a first course in abstract algebra. In this course we will examine basic algebraic structures and concepts such as abstract groups, symmetric groups, normal subgroups, quotient groups, etc. This course is particularly useful for future K-12 math teachers since one of the objectives of the course is to understand why the number systems and algebra operate as they do, where the standard arithmetic operations come from, and how we can modify them. We will work through many new definitions, concepts, and examples, and we will study many theorems and proofs. You will also write a lot of proofs yourselves in homework assignments and exams.

Instructional Methods:

1. **Lectures:** The course is organized into 16 Modules accessible through Canvas. Each module contains a number of lecture videos which provide the main presentation of course material. To stay current with the course, I recommend watching the videos regularly following the schedule posted on the course calendar at the end of this syllabus. You should watch the lectures and complete the corresponding readings and activities in each module before attempting homework problems. *Use pencil and paper to take notes and work through the material.* You may contact your instructor or post questions in the corresponding Canvas Discussions if you need clarification of a topic.

2. **Readings:** Reading assignments are posted in each module in CANVAS. *It is expected that you will read the relevant textbook sections before and after watching the lecture videos, so that you will be able to better grasp the material presented. Use pencil and paper to work through the material.*

3. **Assessments:** A variety of assessments will be used in this course, including discussion posts, assignments, and exams.

It is possible to get ahead in this class if you complete each assignment early. If you have other commitments, adjust your schedule to complete the assignments earlier rather than later. However, the test dates will NOT be extended.

Required Technology: Students need to have access to a personal computer or laptop with a working webcam and microphone in order to access all features of the course Canvas site, and to participate in online office hours and Q&A sessions. Broadband internet access and a scanning app in order to upload assignments to Canvas are required. Proctoring services are provided by Honorlock. Students are expected to review the Honorlock system requirements and use their compatibility tool before

the end of the drop/add period by visiting `https://honorlock.com/support/` and scrolling down to the Simple Single-Click Test section of that page. The student guide to testing with Honorlock can be accessed via `https://honorlock.com/wp-content/uploads/2019/09/Canvas_Student_Guide_Accessible.pdf`

Course Communications and Technology: This section of MAS4301 is 100% online and largely asynchronous, meaning that there are no scheduled class meetings. Content will be delivered via pre-recorded lecture videos and assigned readings. Note that there are specific due dates for homework assignments, activities, discussion posts, and exams, meaning that you will need to stay on track and complete assigned work on schedule to do well in this class. I will be available to assist you via online office hours, and periodic Q&A conferences. The preferred way to reach me outside office hours is via Canvas e-mail or direct e-mail. All students are expected to check the course web site on Canvas `http://elearning.ufl.edu` on a daily basis. In addition, I may use your UF e-mail for specific communications and, therefore, you should check it daily as well. You should enable Canvas notifications for this class, so that you are notified immediately about grading, assignment feedback, due date changes, announcements, etc.

Please review the UF Resources and Policies for available technical assistance, resources and UF policies.

Office Hours: I encourage you to take advantage of my online office hours. If you cannot make my posted hours I will also be happy to set a meeting time that is convenient for the both of us. Online office hours will use Zoom Conferences, available through the course Canvas shell.

1-week policy: I will update Canvas regularly with class announcements, homework assignments, activities, and additional materials. All grades are posted in the Canvas gradebook. You are responsible for verifying that those grades are accurate. **You have one week after a score has been posted to contact me to resolve any grade concerns. We will not consider any grading disputes nor make any grade adjustments at the end of the semester. Be sure to save all original documents in case of grading questions.**

What is Expected of You? You are expected to actively engage in the course throughout the term. Your participation fosters a rich course experience for you and your peers that facilitates overall mastery of the course objectives.

Grading:

Discussion Posts & Activities	10%
Homework	15%
Three Exams	75% (25% each)

The following grading scale applies.

A	$\geq 90\%$	C	$\geq 70\%$
A−	$\geq 87\%$	C−	$\geq 67\%$
B+	$\geq 84\%$	D+	$\geq 64\%$
B	$\geq 80\%$	D	$\geq 60\%$
B−	$\geq 77\%$	D−	$\geq 56\%$
C+	$\geq 74\%$	E	$< 56\%$

Grades will not be rounded and there will not be any extra assignments to raise your grade.

Homework: Homework assignments will consist of problems to be turned in for grading and a list of recommended problems. I will regularly assign problems or proofs to be turned in by each individual. I expect all proofs to be written in full sentences and grammatically correct. Each proof or problem will be graded on the following scale:

5	Correct mathematical proof and very well written
4	Small mathematical errors and/or grammatical errors
3	Contains good ideas, but overall an incorrect mathematical proof
2	Significant mathematical errors
1	Come and see me for help!

If you receive a grade≤ 4 on any proof, you may turn that proof in again for an entirely new grade. I will keep only the highest score. Resubmissions are due exactly one week from when homework is graded.

You may work with your peers to prepare problems but you must write up solutions individually. Do not turn in what are essentially Xerox copies of each other's homework. Late homework submissions will only be accepted if there is an acceptable excuse consistent with university policies `https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx` and appropriate documentation is provided in a timely fashion.

In addition, I expect you to work on the recommended problems for each module and ask questions in office hours, in Discussions in Canvas, etc., if you need help.

Submitted Work Expectations: Submitted assignments should be neat, organized, and clearly presented. Papers not meeting these standards may have the scores reduced or may not be accepted for grading.

Using the Web: Please refrain from searching for proofs on the internet or using someone's notes from a previous semester. Your job in this course is to write proofs in algebra, not learn how to do a web search. It is very obvious to me when you have a proof that you did not write yourself, and this will not help you succeed in the course. It is also a violation of the UF Honor Code to present other people's work as your own and all such behaviors will be reported to SCCR. If you are having trouble with a proof ask me for help.

Discussion Posts & Activities: Each module contains activities related to the course material and a link to a discussion board where you can ask and answer questions about course material, activities, and homework. Questions must be appropriate and relate to course material to earn credit. Activities will

be graded for completeness and you will earn credit for an activity when it appears that you have put adequate thought and work into it (not necessarily if it is right or wrong).

Exams: Two mid-term exams and a final exam are scheduled for this course. The mid-term exams are scheduled for Wednesday, June 10, and Wednesday, July 22, and the final exam is scheduled for Friday, August 14. **The exams cannot be rescheduled unless you meet the University requirements; see** `https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx`. Absolutely no collaboration on exams is allowed.

Honorlock will proctor your exams in this class this summer. Honorlock is an online proctoring service that allows you to take your exam from the comfort of your home. You DO NOT need to create an account, download software or schedule an appointment in advance. You will need a computer, a working webcam, and a stable Internet connection.To get started, you will need Google Chrome and to download the Honorlock Chrome Extension. You can download the extension at `www.honorlock.com/extension/install`. When you are ready to test, log into Canvas, go to your course, and click on your exam. Clicking "Launch Proctoring" will begin the Honorlock authentication process, where you will take a picture of yourself, show your ID, and complete a scan of your room. Step-by-step instructions can be found here: `https://honorlock.com/wp-content/uploads/2019/09/Canvas_Student_Guide_Accessible.pdf`. Honorlock will be recording your exam session by webcam as well as recording your screen. Honorlock also has an integrity algorithm that can detect search-engine use, so please do not attempt to search for answers, even if it's on a secondary device. Honorlock support is available 24/7/365. If you encounter any issues, you may contact them by live chat, phone (855-828-4004), and/or email(support@honorlock.com).

Make-up policy: There are no regularly scheduled class meetings. There are, however, scheduled assignments and exams. Requirements for exams, assignments, and make-up work in this course are consistent with university policies that can be found at: `https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx`

Make-up work will be allowed:

- In case of illness, upon receipt of a doctor's note or equivalent, or by following the procedure outlined here: `https://care.dso.ufl.edu/instructor-notifications`.

- In case of religious holidays, by informing me via e-mail ahead of time.

- In case of military duty, jury duty, participation in academic conferences, or participation in official university or UAA events, by providing appropriate evidence ahead of time.

- In case of family emergencies or other extenuating circumstances, by following the procedure outlined here: `https://care.dso.ufl.edu/instructor-notifications`.

In all other cases, or if you are unsure, please e-mail me as soon as feasible. Absences are generally not excused for non-emergency travel and personal schedule conficts. Students are still responsible for turning assignments in on time unless an extension has been requested via e-mail and approved by the instructor prior to the deadline. In case of true documented emergencies, the instructor may waive this requirement.

Technical difficulties are not generally an excuse for missing an assessment or assignment; students should have contingency plans in case any such issues arise.

IMPORTANT: While taking this class online, you MUST take the exams on the dates shown on the course calendar and you MUST have steady internet access. You may receive a score of ZERO on the test if your internet connection drops during the test, for which a make-up exam may not be offered.

Students with Disabilities: Students with disabilities who experience learning barriers and would like to request academic accommodations should connect with the disability Resource Center by visiting `https://disability.ufl.edu/students/get-started/`. It is important for students to share their accommodation letter with their instructor and discuss their access needs, as early as possible in the semester.

Academic Honesty: UF students are bound by The Honor Pledge which states, "We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code." On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: "On my honor, I have neither given nor received unauthorized aid in doing this assignment." The Honor Code (https://sccr.dso.ufl.edu/process/student-conduct-code/) specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor in this class.

In addition, we remind you that *lectures and the course materials given in this class are the property of the University/faculty member and may not be taped/shared without prior permission from the lecturer and may not be used for any commercial purpose. Students found to be in violation may be subject to discipline under the Honor Code.*

Online Course Evaluation: Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at `https://gatorevals.aa.ufl.edu/students/`. Students will be notified when the evaluation period opens, and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or `https://viaufl.bluera.com/ufl/`. Summaries of course evaluation results are available to students `https://atgatorevals.aa.ufl.edu/public-results/`.

Tips for the Course:

- *Mathematics is not a spectator sport.* Your participation and engagement with the material is essential.
- Discuss the topics with your classmates by forming a study group.
- Take advantage of my office hours. This time is set aside for me to help you.
- Don't hesitate to ask questions in class.
- Be reminded that 2 student hours devoted to assignments and preparation for every hour of classroom time is a reasonable expectation for an average student.
- If you are in trouble see me immediately. If you think you are in danger of failing (or of getting a grade that you do not want) you should see me immediately. I will not give you an extra credit assignment or an incomplete to help you avoid failing, but I can make recommendations regarding drops, study habits, test taking skills, future courses, etc.

Campus Resources:

Health and Wellness U Matter, We Care: If you or someone you know is in distress, please contact `umatter@ufl.edu`, 352-392-1575, or visit `https://umatter.ufl.edu/` to refer or report a concern and a team member will reach out to the student in distress.

Counseling and Wellness Center: Visit `https://counseling.ufl.edu/` or call 352-392-1575 for information on crisis services as well as non-crisis services.

Student Health Care Center: Call 352-392-1161 for 24/7 information to help you find the care you need, or visit `https://shcc.ufl.edu/`.

University Police Department: Visit `https://police.ufl.edu/`or call 352-392-1111 (or 9-1-1 for emergencies).

UF Health Shands Emergency Room / Trauma Center|: For immediate medical care call 352-733-0111 or go to the emergency room at 1515 SW Archer Road, Gainesville, FL 32608; `https://ufhealth.org/emergency-room-trauma-center`*.*

MAS 4301 Calendar, Summer C 2020

Monday	Wednesday	Friday
May 11 Module 0 Preliminaries	13 Module 0 Preliminaries	15 Module 1 Introduction to groups
18 Module 2 Definition and Examples of Groups	20 Module 2 Elementary properties of Groups	22 Module 3 Order and Subgroup Tests
25 Memorial day	27 Module 3 Examples of Subgroups	29 Module 4 Cyclic Groups
June 1 Module 4 Cyclic Groups	3 Module 4 Cyclic Groups	5 Module 5 Permutation Groups
8 Catch-up/Review	10 Exam 1	12 Module 5 Permutation Groups
15 Module 6 Isomorphisms	17 Module 6 Isomorphisms	19 Module 7 Cosets and Lagrange's Theorem
22 HAPPY	24 SUMMER	26 BREAK
29 HAPPY	July 1 SUMMER	3 BREAK
6 Module 7 Cosets and Lagrange's Theorem	8 Module 8 Direct Products	10 Module 9 Normal Subgroups and Factor Groups
13 Module 9 Normal Subgroups and Factor Groups	15 Module 10 Group Homomorphisms	17 Module 10 Group Homomorphisms
20 Catch-up/Review	22 Exam 2	24 Module 11 Fundamental Theorem of Finite Abelian Groups
27 Module 11 Fundamental Theorem of Finite Abelian Groups	29 Module 12 Introduction to Rings	31 Module 13 Integral Domains
Aug 3 Module 14 Ideals and Factor Rings	5 Module 14 Ideals and Factor Rings	7 Module 15 Ring Homomorphisms
10 Module 15 Ring Homomorphisms	12 Catch-up/Review	14 Final Exam

This syllabus is subject to change. You will be notified if any changes are made.
Updated 5/7/2020