Abstract Algebra 1
MAS 4301
SUMMER C 2019

Classroom: LIT 207 **Meeting Times**: MWF 2 (9:30-10:35AM)

Instructor: Dr. Konstantina Christododoulopoulou **Office Phone**: (352) 294- 2315

Office Location: 370 LIT **Email**: kchristod@ufl.edu

Office Hours: M: 11am– noon, W: noon– 1pm , R: 11:30-1pm, and by appointment.

Open Door Policy: You are welcome to drop by to discuss any aspect of the course, anytime.

All course materials will be posted in e-Learning CANVAS https://lss.at.ufl.edu

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Text: *Contemporary Abstract Algebra*, by Joseph Gallian, 9th edition. We will cover most of Chapters $0-11$, plus additional material, time permitting.

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 their proofs. You will also write a lot of proofs yourselves in homework assignments and exams.

It is essential that you work on the material outside the classroom. Carefully read the textbook before coming to class and use pencil and paper to work through the material.

Reading: A tentative course calendar (subject to revision during the semester) is available at the end of the syllabus and also in the course homepage in CANVAS. There you can find which sections will be covered during each lecture. *It is expected that you have read the relevant textbook sections before each lecture, so that you will be able to better grasp the material presented. In addition, supplementary material not found in the textbook may be presented during lecture to complement your reading.*

Office Hours: I encourage you to take advantage of my office hours and my **open door** policy. You are welcome to drop by my office to talk about the course anytime I am in my office and my door is open. In addition, I will hold regular office hours for your convenience. 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.

Course Web Page: I will update CANVAS regularly with class announcements, homework assignments, 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.**

Grading:

Homework	25%
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	$< 56\%$

Homework: I will regularly assign problems or proofs to be handed 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!

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.

Submitted work expectations: Submitted assignments should be neat, organized, and clearly presented. Homework must be on letter-size paper only and papers with multiple pages should be stapled. Papers not meeting these standards may have the scores reduced or may be returned ungraded.

Participation: You are expected to participate in class discussions. Therefore, *it is absolutely essential that you attend class*. Excused absences are consistent with university policies in the undergraduate catalog `https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx` and require appropriate documentation.

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. Also, you will not have access to the internet on tests. 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. If you are having trouble with a proof ask your instructor or a classmate for help. In the end it is you who will have to explain your proof to your peers and your instructor. If you don't understand it, we will know.

Exams: Two mid-term exams and a final exam are scheduled for this course. The mid-term exams are tentatively scheduled for Wednesday, June 12, and Wednesday, July 17, and the final exam is scheduled for Friday, August 9. **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.

Make-up policy: Requirements for class attendance, 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

Acceptable absences include but are not limited to the following: you are participating in a UF-sponsored event and provide me with documentation at least a week in advance; you were verifiably ill during the exam and notified me within 24 hours of its conclusion; you are observing a religious holiday and have notified me of this during the first two weeks of classes; you have a court-ordered obligation and have provided me documentation a week in advance. Please note that "I just didn't feel well" without documentation, travel plans, and personal schedule conflicts are NOT excused.

Class guidelines: It is expected that everyone in our class will act in a respectful manner:

- Please be respectful of your classmates and me while in class or office hours.
- I expect that you are committed to learning and will not miss class. Arriving late (after we have started class) or leaving early is disruptive and disrespectful. If however, you cannot avoid it, please arrange it in advance with me.
- Turn off all cell phones before the start of class.
- Laptops are not to be used in class.

Students with learning disabilities: Students requesting class and exam accommodations must first register with the Dean of Students Office Disability Resource Center(DRC), `www.dso.ufl.edu/drc/`. That office will provide a documentation letter to the student to present to the instructor, Dr. Christodoulopoulou in Little 370. This must be done as early as possible in the semester, **at least 7 business days before the first exam**, so there is adequate time to make proper accommodations.

Academic honesty: Remember that you committed yourself to academic honesty when you registered at the University of Florida. All students are bound to

The Honor Pledge
We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty 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."

Academic Honesty Guidelines: "All students are required to abide by the Academic Honesty Guidelines which have been accepted by the University. The academic community of students and faculty at the University of Florida strives to develop, sustain and protect an environment of honesty, trust, and respect. Students are expected to pursue knowledge with integrity. Exhibiting honesty in academic pursuits and reporting violations of the Academic Honesty Guidelines will encourage others to act with integrity. Violations of the Academic Honesty Guidelines shall result in judicial action and a student being subject to the sanctions in paragraph XIV of the Student Code of Conduct."

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 Student Conduct Code.

6. ONLINE COURSE EVALUATION

Students are expected to provide feedback on the quality of instruction in this course by completing online evaluations at `https://evaluations.ufl.edu`.

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.
- Take advantage of my office hours. This time is set aside for us 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.
- Barring unforeseen medical or other serious conditions, I expect you to be in class on time every day. If you must miss a class, please let me know as soon as possible and be sure to contact a classmate to find out what you missed.
- 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.

Counseling and Wellness Center Contact information for the Counseling and Wellness Center:

http://www.counseling.ufl.edu/cwc/Default.aspx, 392-1575; and the University Police Department: 392-1111 or 9-1-1 for emergencies.

This syllabus is subject to change. You will be notified if any changes are made.

Version 1

MAS 4301 Calendar, Summer C 2019

Monday	Wednesday	Friday
May 13 Ch. 0 Review	15 Ch 0 Review	17 Ch. 1 Introduction to groups
20 Ch. 2 Definition and Examples of Groups	22 Ch. 2 Elementary properties of Groups	24 Ch. 3 Order and Subgroups
27 **Memorial day** **No class**	29 Ch. 3 Subgroups	31 Ch. 4 Cyclic Groups
June 3 Ch. 4 Fundamental Theorem of Cyclic Groups	5 Ch. 4 Fundamental Theorem of Cyclic Groups	7 Ch. 5 Symmetric Group
10 Catch-up/Review	12 Exam 1	14 Ch. 5 Disjoint Cycles and Even Permutations
17 Ch 5 Alternating Group	19 Ch. 6 Cayley's Theorem	21 Ch. 7 Properties of Isomorphisms
24 **HAPPY** **No class**	26 **SUMMER** **No class**	28 **BREAK** **No class**
July 1 Ch. 7 Cosets	3 Ch. 7 Langrage's Theorem	5 Ch. 7 Langrage's Theorem
8 Ch. 7 Applications of Lagrange's Theorem	10 Ch. 8 Direct Products	12 Ch. 9 Normal Subgroups and Factor Groups
15 Ch. 10 Group Homomorphisms and Properties	17 Exam 2	19 Ch. 10 First Isomorphism Theorem
22 Ch. 11 Fundamental Theorem of Finite Abelian Groups	24 Ch. 12 Introduction to Rings	26 Ch. 13 Integral Domains
29 Ch. 14 Ideals	31 Ch. 14 Prime and Maximal Ideals	Aug 2 Ch. 14 Prime and Maximal Ideals. Drop/Withdraw deadline
5 Ch. 15 Ring Homomorphisms	7 Catch-up/Review	9 Final Exam