MATH 666 – Topics Abstract Algebra II

General Algebra and Categories MoWe 14:30–15:45, MDD 208

Instructor:	Arturo Magidin
Office Hours:	MoWe 13–14, Tu 11–12, Th 11–12, 14–15 or by appointment.
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Course homepage:	`http://userweb.ucs.louisiana.edu/~avm1260/math666.html`
Course Moodle page:	Spring 2025 Advan Topic in Abstract Alg II (MATH-666-001, MATH-498-003)

PREREQUISITES: Math 666, or permission of the instructor.

MAIN SOURCES: The main book will be George M. Bergman's *An Invitation to General Algebra and Universal Constructions*, 2nd Edition, Universitext, Springer-Verlag, 2015, ISBN 978-3-310-11477-4 (softcover). The book is not going to be available in the bookstore. You can get a PDF of a very close version of the text from the author's website, at:
`https://math.berkeley.edu/~gbergman/245/` We will begin in Chapter 8, and cover as much of the remaining of the book as we can.

MY OFFICE AND OFFICE HOURS: My office is in Maxim Doucet Hall Room 404. I will have five office hours a week, tentatively set as above. We can also meet by appointment if you cannot make the regular office hours. You may e-mail me to set up an appointment, or talk to me right before or right after class. **Feel free to ask for an appointment, especially if you cannot make the regular office hours for some reason.**

A QUESTION A DAY: Each class meeting will have an assigned reading, either from the text or from class notes I will make available through Moodle. You are expected to read through the assigned reading before each class meeting.

Every student taking the course is required to hand in, by the day of the class, one question concerning the reading for the day. Ideally, you should submit the question by e-mail by noon on the day of the class. If you do, I will do my best to work the answer into the lecture for the day.

If you cannot submit it before that time, or you cannot submit it through e-mail, you may submit it in writing at the start of the class. I will generally answer it by e-mail if we do not manage to cover the point in class.

The e-mail, or paper with your question, should have the following information on it, in this order: your name, the point in the notes that your question refers to, and whether your question is "urgent", "important", "unimportant", or "pro forma."

The first three indicate how important it is for you to have the question answered, especially as it relates to your understanding of the material.

The fourth classification is used when there was nothing in the reading that you feel needs to be clarified. In that case, the "pro forma" question can be something that puzzled you initially but that you worked out on your own.

Note: If you submit a "pro forma" question, then you must *also* provide the answer to the question.

You may ask more than one question on the reading. You may also ask questions about prior readings, and you absolutely may ask questions in class. But you must submit at least one question related to the reading assignment of the day.

HOMEWORKS: Homework is a major part of this course, and very important. Mathematics is learned almost exclusively by doing, and that is what homework is for: to help you understand the material, and to help you zero in on the material you are finding difficult. Do not be afraid to ask for help from your fellow students, or most especially **from me.** In fact, that's mainly what my office hours are for.

I cannot assign as much homework as I think you should do, because the volume would be too much for us all to handle. So you should try to do more than the assigned problems.

Homework will be assigned almost every week, usually on Wednesday, and due the Wednesday after they are assigned. I may change the schedule a bit, but if I do I will give you advance notice of the change.

I will give you worked out solutions to the homework problems as you turn them in. Be sure to read them, and compare it with your graded assignments. **Homework is due at the beginning of class, as you come in. I will not accept late homeworks for any reason.** If you are not attending the live lecture, you may submit the question as a PDF file or as scans of your homework via a Moodle "assignment", but please contact me and alert me of the situation ahead of time.

TESTS: As this is an advanced course, I do not plan to have a midterm or a final written exam. Depending on how the course goes, I **may** assign a final homework due the day of the final (Thursday May 9) as a "take-home" exam. You will be kept informed.

GRADING: Your final grade will be based on your homeworks and class participation. I will drop your lowest two homework scores. (If there is a final homework as outlined above, it cannot be one of the dropped homeworks)

I do not have a rigid correspondence between numerical grades and letter grades; this is where consideration for people who have improved (or not) throughout the semester comes in, or for people who did exceedingly well in the final, etc. For your reference, however, the following are good approximations:

Letter grade	Approximate Range		
A	900	–	1000
B	775	–	875
C	650	–	750
D	550	–	625
F	0	–	550.

TIME REQUIREMENTS: Expect to spend about 9–10 hours a week on this course, in addition to the two lectures. This includes working on homework, reading, and reviewing. If you find yourself regularly spending considerably more time than this, let me know!

MAKE-UP WORK: I do not receive late homeworks and will not allow anyone to make up any homeworks not turned in. If you cannot make it to class, you should either have someone drop off the homework for you, or send it to me via e-mail postmarked no later than the beginning of the class. I will also not allow you to make up the "question of the day"

ChatGPT AND OTHER SYNTHETIC TEXT EXTRUDERS. Note that ChatGPT and other (mislabeled) "artificial intelligence" products are *not* search engines and are *not* intelligent. They work by trying to predict the most likely next word in light of previous words in the sentence and the given prompt, on the basis of its training data. They are not reproducing "information", nor are they making sense (any sense that is perceived in their output is the creation of those reading that output). They are also not very good at writing proofs or solving numerical problems. **Use of these products in this class is a violation of course policy, and will result in at least a zero grade in the assignment even if clearly labeled as the output of a synthetic text extruder.** Repeat offenses may result in more severe penalties, up to and including a grade of F for the course.