Zachary Hamaker

College of Liberal Arts and Sciences

MAS4105

MAS4105: Linear Algebra 1

Meetings: Online MWF 1:55-2:45pm

Instructor: Zachary Hamaker

Email: zhamaker@ufl.edu

Office: link forthcoming

Office hours: TBA

TA: Julien Sorci

Email: jsorci@ufl.edu

Office hours: TBA

Office hours: TBA

Text: *Linear algebra with applications* by Otto Bretscher

Course Objectives:

We will cover core topics in linear algebra, including matrix algebra, vector spaces, linear transformations, concepts of dimension, change of basis, the determinant and eigenvalues/spaces/vectors. Students participating in the class will:

- master computational and theoretical aspects of the aforementioned mathematical topics
- independently produce key constructions from the theory of linear algebra
- develop an appreciation of the value of mathematical abstraction; that sometimes making the beginning of an idea more complicated makes the conclusion **simpler**
- improve their mathematical communication skills, both written and verbal
- work effectively with others to solve challenging problems
- feel valued for their contributions to the class and its environment

These goals will be supported by me and Julien, but also by you. By participating in this class, I expect your best available effort mathematically, and also in supporting the other members of our classroom community. My goal is that you find find this class very rewarding.

If you find yourself doing significantly more than 12 hours a week of work outside of class, something is going wrong. Reach out to me and we can identify strategies so you can use your time more effectively.

Expectations:

In order to achieve these goals, participants in this course are expected to:

– read the course textbook

– work collaboratively on work sheets in class

– be respectful of each each other

– complete online and written homework (available in the Assignments section)

– give the best effort they can within the context of their other needs

Additionally, I encourage you all to collaborate extensively outside of class. To support this, we will have a class Discord server and online spaces with regular instructor participation.

Curriculum:

The course will have two parallel components. One follows the course text. The second follows worksheets developed at the University of Michigan. The text is more computational, while the worksheets are where we develop a theoretical understanding of linear algebra. There are two main reasons we do this:

1) To independently develop the core topics of linear algebra with minimal guidance.

2) To understand the interplay between computation and proof, and learn how they can support each other.

I believe that an active learning approach to mathematics is the best way to master material. There is strong evidence in the education literature supporting this belief.

Technology:

(Disclaimer: the current plan is subject to change, based on student feedback. If you have alternative technology suggestions, please let me know!)

We will use a variety of technology to support this course. Mandatory class meetings and office hours will be run through:

gather.town

Our class site will be password protected and available at all hours. In the interest of privacy and economy (they charge by the user), I as that you not share the site password with people outside of the class. Note this site is only supported on certain browsers, including Chrome and Firefox and can be difficult to access on a tablet. If you don't have access to a computer, which UF requires) and reliable internet access during class time, please reach out to me immediately so that we can work towards a solution! You may also want to check out Aid-a-Gator.

Most of class time will be spent working collaboratively, with my and (on Thursdays) Julien's support. To facilitate that work, you will use shared whiteboards and shared Google documents, both accessible through gather.town and linked to on the class discord. Classes will not be recorded. You will likely want a writing tablet for the whiteboards. If you don't have one, consider buying a cheap one – adequate digital writing pads run as cheap as $30 and a 7″ Amazon Fire is ~$70 new.

Written homework will be submitted as a PDF through Canvas. Online homework will use WebWork:

https://ftcourses.webwork.maa.org/webwork2/ft-ufl-mas4105

Your account name is your UFL email address (so mine would be zhamaker), and your initial password is your student ID, but you can change it in User Settings. Accounts may not be available until the start of classes. Assigned readings appear in the title of reading assignments, which will be updated throughout the term.

We will also have a class Discord server that I will be participating in extensively. In the interest of privacy, only members of this course may participate in this Discord. If you are having difficulty accessing Discord, please let me know.

Evaluation:

We will have three different types of homework, each serving a different purpose. They are

– reading homework: to encourage independence and prepare students for class

– online homework: to hone computational skills and core concepts, with immediate feedback available.

– written homework: to develop mathematical writing skills and delve deeper into theoretical issues.

Additionally, we will have weekly quizzes to encourage consistent effort, as well as two midterms and a final.

Grading:

Grades will be computed as follows:

Online homework (15%)

Written homework (25%)

Quizzes (10%)

Midterms (30%)

Final (20%)

The final grades will be curved, but will be no tougher than the 10-point scale: 90%–100% will be some form of A, 80–90% will be at least some form of B, etc. After each midterm, you will receive a projected grade.

If you have a disagreement with the grading of one of your solutions, I ask that you submit a written request for reconsideration within one week.

Grading will be in accord with the UF policy stated at https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx.

Online homework:

There will be a brief online homework assignment due before each class period. The intent of these assignments are to encourage you to do the assigned readings.

There will also be weekly online homework assignments that are more computational in nature.

Written homework:

There will be a weekly written homework assignment, assigned on Wednesday and due the following Tuesday. Questions on these assignments are predominantly proof-based, and some will be very difficult, so I encourage you to begin working in advance. I will drop your lowest homework score.

Quizzes:

Quizzes:

We will have brief weekly quizzes every Thursday except on weeks with a midterm. They will focus on the most recent material, and follow a regular template: one definition, one brief computation and one very short proof-type question. I will drop your two lowest quiz scores.

Midterms:

There will be two midterms. Each will be a take-home exam, designed to last two hours. They will be posted on a Wednesday before class, due before 1:45pm the following day. If you have issues with these dates, please contact me at least a week in advance so we can make other arrangements. You may **not** be consult any outside resources during the exam. Exam dates are:

October 7 (Wednesday)

November 9 (Monday)

Final exam:

The final exam will be during the allotted time period.

Additional information

Honor code: 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." TheHonor Code (Links to an external site.) 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.

Class Attendance: Attendance will not be monitored. Requirements for class attendance and make-up exams, assignments, and other work in this course are consistent with university policies that can be found at: https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx. (Links to an external site.)

Accommodations for Students with Disabilities: Students with disabilities requesting accommodations should first register with the Disability Resource Center (352-392-8565, https://www.dso.ufl.edu/drc/ (Links to an external site.)) by providing appropriate documentation. Once registered, students will receive an accommodation letter which must be presented to the instructor when requesting accommodation. Students with disabilities should follow this procedure as early as possible in the semester.

Online Evaluations: Students are expected to provide feedback on the quality of instruction in this course by completing online evaluations at https://evaluations.ufl.edu. Evaluations are typically open during the last two or three weeks of the semester, but students will be given specific times when they are open. Summary results of these assessments are available to students

at https://evaluations.ufl.edu/results/. (Links to an external site.)

Complaints: The official UF policy for filing a complaint about the course may be found here (Links to an external site.).

Contact information for the Counseling and Wellness Center: http://www.counseling.ufl.edu/cwc/Default.aspx (Links to an external site.), 392-1575; and the University Police Department: 392-1111 or 9-1-1 for emergencies.

U Matter, We Care: Your well-being is important to the University of Florida. The U Matter, We Care initiative is committed to creating a culture of care on our campus by encouraging members of our community to look out for one another and to reach out for help if a member of our community is in need. If you or a friend is in distress, please contact umatter@ufl.edu so that the U Matter, We Care Team can reach out to the student in distress. A nighttime and weekend crisis counselor is available by phone at 352-392-1575. The U Matter, We Care Team can help connect students to the many other helping resources available including, but not limited to, Victim Advocates, Housing staff, and the Counseling and Wellness Center. Please remember that asking for help is a sign of strength. In case of emergency, call 9-1-1.

Department diversity statement:

The Mathematics Department is committed to diversity and inclusion of all students. We acknowledge, respect, and value the diverse nature, background and perspective of students and believe that it furthers academic achievements
It is our intent to present materials and activities that are respectful of diversity: race, color, creed, gender, gender identity, sexual orientation, age, religious status, national origin, ethnicity, disability, socioeconomic status, and any other distinguishing qualities.

Footer Menu