

Instructor information:

Instructor: Dr. Allison H. Moore

Office: Harris Hall 4149

Office hours: Wednesday 9-10 AM

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Course information:

MATH 310 - 001. Linear Algebra (Mathematics).

Term: Spring Semester, 2022. CRN: 13793

Class Meetings: 9:30 am - 10:45 am TTH, Harris Hall Room 2117

Modality: Hybrid Synchronous

Hybrid synchronous modality

VCU defines the hybrid synchronous modality as follows: *A minimum of 30% of the course time is completed by the instructor and student physically sharing the same physical space/location at the same time. The remainder of the course time is completed in an online/remote environment (i.e., learning management system). Required to take place on a specific day and time.*

Hybrid synchronous **does not mean** that you can take the class virtually while other students attend in person. This is primarily an in-person class with extra material support online. Lectures and class activities will be held in-person, in our Harris Hall classroom on Tuesdays and Thursdays. Homework assignments will be conducted online, through Canvas & WebAssign. Exams will be held in-person, barring any further complications from the pandemic. On occasion, regular lectures may need to be conducted over Zoom; when this happens, I will notify the class through Canvas and we will use the following Zoom URL:

<https://vcu.zoom.us/j/94137950746> Meeting ID: 941 3795 0746

During the Spring 2022 semester, masks are required for all VCU students and faculty regardless of vaccination status. Please remember your masks when you attend class in person.

Prerequisites:

MATH 201 with a minimum grade of C.

Textbook:

The official textbook is *Elementary Linear Algebra, Eighth Edition* by Larson.

ISBN: 978-1-305-65800-4

Note: You are *not* required to purchase or rent a physical copy of the textbook for class. What is recommended is that you obtain a digital subscription to WebAssign, which comes with access to an eBook version of the textbook online; this is required in order to do the homework. Some students prefer a paper edition for studying; for this, you can rent the textbook, purchase it, or alternatively, find a cheaper paper version of an older edition textbook online.

Course website:

A Canvas page is set up for the course. (See <https://canvas.vcu.edu>)

Important announcements, a copy of the syllabus, lecture notes, study guides, videos, homework and (if necessary) take-home exams will be posted to Canvas. Check this website regularly and make sure you receive email announcements that go through Canvas. We will use WebAssign for online homework, and it is integrated with Canvas.

Learning Objectives

The purpose of this class is to introduce students to the fundamental objects and concepts in linear algebra, including scalars, vectors, matrices, diagonal matrices, symmetric matrices, inverse matrices, singular & nonsingular matrices, permutation matrices, linear combination, linear dependence & independence, vector spaces, subspaces, the dimension of a vector space, bases of vector spaces, rank, nullity, the four fundamental subspaces associated with a matrix, projections, determinants, permutations and cofactors, and eigenvectors & eigenvalues, and the fundamental operations on these objects including the dot product, matrix multiplication, matrix transpose, Gaussian elimination, Gauss-Jordan elimination, LU decomposition, matrix factorizations, reduction of a matrix to row reduced echelon form (RREF), the solution of systems of linear equations in an arbitrary number of unknowns, the least squares procedure and the Gram-Schmidt procedure.

Lecture Notes and Videos

I will lecture and conduct activities in real time in the classroom. However, I understand that there may be times when students need to quarantine, or do not feel comfortable coming to campus. As back-up support, I will provide lectures notes in Canvas, and I have prepared a series of YouTube videos for each week's material. The YouTube videos are supplemental, intended to help if you start to feel behind, miss class, or want just want repeated information. The videos are numbered compatibly with the lecture notes and the corresponding homework assignments. So for example, Videos 3.1, 3.2 and 3.3 go with the the Lecture 3 PDF notes, and homework assignment 3 will cover this same material. Videos, notes, and homework assignments are accessible through Canvas and YouTube. A YouTube playlist containing all lecture videos for the semester (in order, and to be updated regularly) can be found at the following URL:

<https://www.youtube.com/watch?v=tcRBZRXgVIg&list=PL1oREv7xaaknZHxESRhMP24GeL9-xABFi>

Cengage/WebAssign Homework

Online homework is to be accessed and submitted for automatic grading with Cengage WebAssign. Log into Canvas, and look for "Assignments" in the left menu. Clicking this will take you to a list of all assignments in our class. After selecting an assignment, click through to WebAssign. If you have a "Cengage Unlimited" account, you should have automatic access to WebAssign. Otherwise, you can opt to purchase a single-class subscription to WebAssign for the semester (it costs about \$100). There is a grace period of about two weeks during which students can access WebAssign without paying; if you are unsure whether you want to stick with the class, you can use the grace period to try out online homework before committing.

I recommend that you work out homework problems with paper and pencil before submitting online, and keep track of your work in a folder or binder with your class notes. Remember that homework is mainly for practice to help you understand the material, and you may want to review your work when studying for exams. You are permitted to work with other students on the homework, and to discuss your work and solutions to homework with others before submitting. Homework is for practice, and talking to others will help you learn the material.

Late homework policy: Homework assignments are due on Sunday nights. Every student in the class will be permitted to request (within WebAssign) a maximum of 4 homework extensions. The first 4 extensions will be granted for up to one week without question. Beyond this, homework will not be accepted late unless there is an extremely serious reason (e.g. you are sick with Covid, or are experiencing a family emergency). Being enrolled in other classes with assignments or projects, taking exams, and balancing your own work/school responsibilities do not qualify as emergency-level reasons for requesting extensions beyond the maximum number allowable.

Exams:

Expect exams to be timed and conducted in-person during class periods.

The final exam will tentatively be conducted in-person. Final exam times are set by VCU here: <https://rar.vcu.edu/exams/index.html>.

Midterm 1	Thursday, February 17	in-person exam
Midterm 2	Thursday, March 31	in-person exam
Midterm 3	Thursday, April 28	in-person exam
Final Exam	Thursday, May 5	in-person exam

At-home back-up plan: If the pandemic forces us online, we will switch to an ‘at-home’ exam implementation. In this case, I will provide a PDF of the exam on Canvas, and students will be given a fixed amount of time to complete the exam and submit solutions to Canvas. Whether in-person or at-home, the use of the internet, or any other method of asking for and receiving help from another individual or resource will be strictly forbidden on exams. **You are NOT allowed to post exam questions anywhere online, including but not limited to the websites Stackexchange, Chegg, Quora, Slader, Coursehero or anywhere on social media.** Doing so is considered cheating, and the penalties for being caught cheating can be quite severe. Be aware that many of these websites now cooperate with universities to provide information about users and account activity.

Make-up exams: If you miss an exam and have a valid excuse, I will work with you to coordinate a make-up exam. Likewise, if the final exam for our class creates a conflict with your other final exams or projects, I will work with you to find an alternate time. If the exam is held in person you will **not** be permitted to take the makeup virtually.

Real-Time Group Work

We will have group work practice problems on some weeks. Participating in group work is highly recommended, though not strictly required, and I may decide to offer extra credit points for group work participation.

Grades:

Your grade will be determined by the following:

Homework	25%	Averaged together	Lowest category dropped
Midterm 1	25%	Non-cumulative exam	
Midterm 2	25%	Non-cumulative exam	
Midterm 3	25%	Non-cumulative exam	
Final	25%	Cumulative exam	

The “lowest category dropped” policy means that if your homework and first three midterm exam scores are high enough to earn an A, that you will be **guaranteed** an A at the end of the semester, and are effectively exempted from taking the final. Likewise, if you have fallen behind on homework assignments, but have a high exam performance, this is another strategy for success.

About curves: The default bracketing of letter grades is as follows: $A : 90 - 100\%$, $B : 80 - 89\%$, $C : 70 - 79\%$, $D : 60 - 69\%$, and $F : 0 - 59\%$. You should plan on estimating your progress throughout the semester with this letter grade distribution.

Depending on the severity of the midterms and final exam performance, I may choose to apply a “curve” at the **end of the semester**. What this means is that I reserve the right to adjust the letter grade brackets. However, your letter grade will **never** drop below the initial generic bracketing. While my typical curve might improve your letter grade over the raw numerical score a little bit, it usually doesn’t change the grade much. So in general, it is not a good strategy to count on the curve to raise your grade.

Hybrid content and pacing

This course is designed to be partially online, with extra material support and deadline flexibility in order to accommodate disruptions to your health or schedule due to the pandemic. It is more important than ever to stay on top of the course material and to manage your time accordingly. Self-pacing is absolutely critical. Attendance during weekly meetings is highly recommended. Catching up with the videos and reading lecture notes ahead of time is also a good way to stay on top. Exams and quizzes will be based largely upon the content of the lectures, notes, and videos, which we will discuss during our weekly meetings. Course content is organized into weekly modules and homework will be assigned weekly. It is intended to keep you on pace.

Academic Help:

Our in-person and Zoom meetings are your first stop. I am happy to answer questions, work examples and help you understand the homework. I can also do this in a one-on-one Zoom appointment or during office hours.

The Campus Learning Center at VCU offers appointment, drop-in and group tutoring in undergraduate courses across the disciplines: <https://clc.vcu.edu/tutoring/>

Tips for success: Make yourself a calendar with all of your due dates across ALL of your courses. Plan for when you will work on each assignment. Add lectures and Zoom meetings to your weekly calendar. Plan ahead: Study as you go instead of at the last minute. Keep a tidy folder, spiral or

binder of your notes and your homework solutions that you can use when studying for midterms and the final.

Honor System: upholding academic integrity

The VCU Honor System policy describes the responsibilities of students, faculty and administration in upholding academic integrity. According to this policy, “Members of the academic community are required to conduct themselves in accordance with the highest standards of academic honesty, ethics and integrity at all times.” Students are expected to read the policy in full and learn about requirements here: <https://conduct.students.vcu.edu/vcu-honor-system/>

Our shared learning environment

Everyone should know that I am grateful for your presence and appreciate your input in our in-person and online classes. You are welcome here, and our diverse backgrounds make us stronger together. I am dedicated to providing a welcoming and inclusive environment for all students, independent of your immigration status, country of origin and/or citizenship, race, ethnicity, religious affiliation, gender/sex, gender identity, sexual orientation, age, ability or disability, socioeconomic status, or perspective. Thank you for joining my class and bringing your unique experience and background to our intellectual community!

Students with disabilities:

Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990, as amended, require that VCU provide “academic adjustments” or “reasonable accommodations” to any student who has a physical or mental impairment that substantially limits a major life activity. To receive accommodations, students must register with the Office of Student Accessibility and Educational Opportunity on the Monroe Park Campus (828-2253) or the Division for Academic Success on the MCV campus (828-9782). Please also visit the Student Accessibility and Educational Opportunity website via <https://saeo.vcu.edu/> and/or the Division for Academic Success website via <https://das.vcu.edu/> for additional information.

Once students have completed the registration process, they should schedule a meeting with their instructor (s) and provide their instructor (s) with an official accommodation letter. Students should follow this procedure for all courses in the academic semester.

Requesting accommodations

The university recognizes that some students who previously did not need Section 504 Academic Accommodations, and who have a qualifying condition or disability, may need support or assistance during the return to campus process. A modified approach for the temporary and more permanent need for accommodation has been developed and implemented to provide students with full access to programs and activities related to their academic majors. Because every case is different, student requests are evaluated on a case-by-case basis. Please share your need for an accommodation with the Student Accessibility and Education Office, or for MCV Campus students, the Division for Academic Success, after you have worked directly with your faculty member.

Extended Syllabus:

Students should visit <http://go.vcu.edu/syllabus> and review all syllabus statement information. The full university syllabus statement includes information on safety, registration, the VCU Honor Code, student conduct, withdrawal and more.