MATH 237-005-Introduction to Linear Algebra

Spring 2026

Credit Hours: 3

Lecture

THE UNIVERSITY OF
ALABAMA

Contact Information

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Course Description

Fundamentals of linear algebra and matrix theory are covered. Topics include vectors in Euclidean spaces, solving systems of linear equations, matrix algebra, inverses, determinants, eigenvalues, and eigenvectors. Also vector spaces and the basic notions of span, subspace, linear independence, basis, dimension, linear transformation, kernel and range are considered. Computing proficiency is required for a passing grade in this course.

Core Attributes: Computer Science

Prerequisite(s): C- or higher in MATH 126 or C- or higher in MATH 146

Other Course Materials

- **CALCULATOR POLICY:** Only the following calculator models are approved for use during tests and the final exam:

  - **Casio fx-260 SOLAR II**

  - **Texas Instruments TI-30X IIS Solar**

  Using an unapproved calculator during tests or the final exam is strictly prohibited and may result in academic misconduct charges. Practice with your approved calculator to ensure you are comfortable using it, as no calculator assistance will be provided during the exam.

- WEBASSIGN ACCESS: Homework will be completed through WebAssign. An access code is required and is included with your UA billing through the Access Granted Program. The access code provides students with access to the publisher's website, where all assignments must be completed. Also, the entire textbook is available online through WebAssign, and students can print up to 10 pages at a time. While a hard copy of the textbook may be purchased, it is not required for this course.

- CENGAGE UNLIMITED (Alternative): If you are enrolled in multiple courses that use WebAssign/Cengage, a Cengage Unlimited subscription may be a more cost-effective option. If you choose to purchase a Cengage Unlimited subscription, you can opt out of the Access Granted Program using the link provided in Blackboard (Access Granted Materials - OPT OUT ONLY). NOTE: Students must first access WebAssign by opening the Blackboard Learn Course Home Page and clicking the "Access WebAssign" link. The first time you click that link this semester, you will be prompted to create a Cengage account using your Crimson email address. This one-time step is necessary, even if you already have a Cengage account, and will connect this course with your previous Cengage courses.

- DISABILITY STATEMENT: The University of Alabama is committed to ensuring the full participation of all students in its programs. Students who require accommodations must register with ODS each semester at www.ods.ua.edu. Once approved, students will need to go into the ODS portal and email the Faculty Notification Letter to instructors for accommodations. Your math instructor must receive this letter at least 3 business days prior to a test to ensure your accommodations are in place for that and subsequent tests. After you send the Faculty Notification Letter, you will receive an email from your math instructor with details about providing your accommodations.

  You will need to make an appointment with ODS for each test, including the final exam. You may want to do this as soon as possible since the ODS building has limited spots for each test. Your test will be held at your regularly scheduled test time in the ODS building. If you have time extension but unable to stay later due to another class, email your instructor to reschedule a test time. This usually means taking the test before your regularly scheduled test time. This should also be done at least one week prior to a test to allow for accommodations on that test.

- Course Email: Students are responsible for all important content sent to them in course emails by the instructor. Students should check and read their UA email often.

- MATLAB: Students will use MATLAB to complete projects in this course. Current students can download MATLAB for free through the UA Office of Information Technology. Link: https://oit.ua.edu/software/matlab/

Required Texts

BLACKBOARD EWORK VIA ACCESS GRANTED / MATH 237 EWORK (POOLE/WEBASSIGN FOR POOLE'S LINEAR ALGEBRA, 1 TERM)
Subtitle: BLACKBOARD EWORK VIA ACCESS GRANTED / MATH 237 EWORK (POOLE/WEBASSIGN FOR POOLE'S LINEAR ALGEBRA, 1 TERM)

ISBN: 978-0-01-401117-7

Required or Recommended: Required

Student Learning Outcomes

• Students will be able to perform matrix and vector operations.

• Students will be able to find the eigenvalues and eigenvectors of matrices with real coefficients.

• Students will be able to find bases for the range and the null-space of matrices with real coefficients.

• Students will be able to interpret geometrical properties of matrices such as eigenvalues, eigenvectors, null-space, and range.

• Students will be able to determine if a set of vectors is linearly independent, orthogonal, or form a basis for a vector space.

• Students will be able to prove that a set of vectors is a subspace including the range and the null-space of a linear transformation.

Outline of Topics

•Chapter 1. Sec 1.1 (Review)

• Chapter 2. Sec 2.1-2.3

• Chapter 3. Sec 3.1-3.3, 3.5-3.6

• Chapter 4. Sec 4.1-4.4

• Chapter 5. Sec 5.1-5.3

• Chapter 6. Sec 6.1-6.2, 6.4-6.5

• Chapter 7. Sec 7.1, 7.2, 7.3/7.4 (The last few sections may be lectured if time permits.)

Exams and Assignments

In this course, there will be three midterm exams, three projects, weekly homework, graded WebAssign homework, and a comprehensive final exam.

- **Midterm Exams and Final Exam:**

There will be three midterm exams and a comprehensive final exam during the semester. The exams are in-person at class time, except for the final exam. There will be an opportunity on each test and the final to earn a 5% bonus to the test score. If you are not able to take in-person tests, then you should drop the course. All tests will be taken in your scheduled classroom. Students registered with ODS, please refer to 'Disability Statement' under the section 'Other Course Materials'.

Exam Schedule:
----------Math 237-005-----------

Midterm Exam 1: Thursday, February 4th, at scheduled class time
Midterm Exam 2: Thursday, March 4th, at scheduled class time
Midterm Exam 3: Thursday, April 8th, at scheduled class time
Final Exam: Friday, May 1st, 08:00 a.m. to 10:00 a.m.

You must be able to take the final exam at [the scheduled time](#) unless you satisfy the university's rules for resolving exam conflicts, etc., as given in [the Final Exam Policy](#). If you cannot, then you should drop the course.
In order to take a test, you must bring your university ID with you. If your ID is on your phone, you must show it at the start of the test and then turn off your phone and put it away.

- **WebAssign Homework:**

    Homework will be assigned throughout the course. Homework assignments will be completed online using WebAssign. You will have unlimited submissions for many homework questions.

    Homework can be done on any computer with internet access. To get to your course: Log in to ualearn.blackboard.com using your mybama information, click on your course, click on the WebAssign link. Enter our class key (can be found in Blackboard). If you do not already have a WebAssign account, then select "I need to create a WebAssign account" and create one. Complete the profile section by providing your full name and email address. Choose a Username and Password that you can remember. The Institution is ua.

- The course software may work better with some browsers than others. If you have trouble, try a different internet browser.
- Always SAVE or SUBMIT your work before logging out of WebAssign. Unsaved work will be LOST.

- **Written Assignments:**

  There will be six (6) written assignments throughout the semester. Approximately one assignment per chapter topic. Each assignment will be graded both for completeness and correctness. These assignments contain more challenging and more in-depth questions than would be seen on standard homework. Students are encouraged to work on these assignments in advance, as it will likely take more time than expected to complete the assignments. Neat and organized work is expected. (Collaboration with other students in this class is permitted, but each student must turn in their own work.)

- **Projects:**

  The three projects will involve using MATLAB or another programming language and will be assigned in Blackboard. Students are expected to use a text editor to write the report and submit a PDF file in Blackboard before the deadline. Further details will be provided when the projects are assigned.

Grading Policy

Grade Composition:

- WebAssign Homework: 10%
- Projects: 5%
- Written Assignments: 10%
- Midterm Exams: 45% (15% each)
- Final Exam: 30%

Grades will be based on the following scale.

Final Grade Range	Letter Grade
[97,100]	A+
[93,97)	A
[90,93)	A-
[87,90)	B+
[83,87)	B
[80,83)	B-
[77,80)	C+
[73,77)	C
[70,73)	C-
[67,70)	D+
[63,67)	D
[60,63)	D-
[0,60)	F

Policy on Missed Exams and Coursework

Any assignments not attempted will be scored 0.

WebAssign Homework: If homework assignments are missed or not completed for any reason, you may request an automatic extension in WebAssign up to 7 days after the original due date and may complete questions within 7 days after the extension is requested. Extended questions can be completed for up to 50% partial credit. At the end of the semester, your lowest 3 homework scores will be automatically dropped.

- Even though WebAssign may extend an assignment past the end of the semester, all extended work must be submitted by 8:00am on the Monday of final exam week to count towards your final grade.

Written Assignments: There are no make-ups or extensions for written assignments. One written assignment score will be dropped.

Projects: These projects can be done by groups of up to 3 members. There will be no extensions or makeups.

Midterm Tests: If a test is missed due to any circumstance, no deadline extension or makeup test will be given. The lowest midterm-test score will be replaced with the final exam score, provided the final exam score is higher. **Test scores penalized due to academic misconduct will not be eligible to be replaced**. The final exam score cannot be replaced. If you have special circumstances* that cause you to miss more than one midterm test, you may submit an official explanation and any supporting documents to mtlc.ua.edu/petition/.
 * Student travel plans for personal reasons are not considered sufficient grounds for missing assignments or tests.

Final Exam: To pass the class, the final exam must be taken at the scheduled time. The comprehensive Final Exam cannot be dropped.

Students who will miss work due to official University business or military business must make other arrangements 3 days before the assignment deadline. Submit official UA/Military documentation at mtlc.ua.edu/petition/

Attendance Policy

Attendance is expected. Exams will be based on problems presented in the lecture and on the homework, so coming to lecture is very important for doing well on the exams. Students that miss class are responsible for all announcements and material discussed in class meetings.

Generative AI Tools

Students are welcome to explore generative AI tools (such as Copilot, ChatGPT, Sora, etc.) to seek support for some of their assignments (not exams). However, students should follow the "verify everything" approach to the content generated by these AI tools. These tools learned the models from the public internet, which means they may reproduce substantial text from other sources. It is the student's responsibility to check the original sources to be sure they are not plagiarizing someone else's work. Students should also cross-check the content and citations generated by these tools to ensure they are accurate and properly referenced.

Students should incorporate the subsequent statement in their assignments when using a Generative AI Tool: "For this assignment's preparation, the author(s) have utilized [Generative AI Tool Name], a language model created by [Generative AI Tool Provider]. Within this assignment, the [Generative AI Tool Name] was used for purposes such as [e.g., brainstorming, grammatical correction, writing paraphrasing, citation, specific sections of the assignment]."

Notification of Changes

The instructor will make every effort to follow the guidelines of this syllabus as listed; however, the instructor reserves the right to amend this document as the need arises. In such instances, the instructor will notify students in class and/or via email and will endeavor to provide reasonable time for students to adjust to any changes.

Department of Mathematics Academic Misconduct Policy

1. During tests you may only use a calculator that has been specifically approved by the instructor. Using or being in possession of an unauthorized calculator will be considered academic misconduct.

2. Taking a test for another student will be treated as academic misconduct by both parties. In particular, showing an instructor a fake ID or another student's ACT card will be treated as academic misconduct.

3. Receiving or providing assistance of any kind during an exam will be treated as academic misconduct by both parties.

4. Cellphones must be turned completely off and placed with other belongings on the floor. All watches must be taken off and put away. DO NOT put your phone or watch in your lap or on your chair or desk. Physically holding or concealing on your person a phone, watch or other unauthorized technological device (including but not limited to headsets, earphones, earbuds, microphones, cameras, or scanning pens) will be treated as academic misconduct.

5. If you are seen using an unauthorized device, the instructor may request that you turn it over. It will be returned at the end of the exam. However, the instructor does not have to request your device in order to charge you with academic misconduct.

6. If for any reason you must have access to your phone while taking a test, you must inform an instructor prior to accessing your phone. The instructor must be present

while you use the phone. Failure to do so will be treated as academic misconduct.

7. If necessary, scratch paper will be provided. No other paper is allowed; being in possession of any unauthorized papers will be treated as academic misconduct.

8. You may review your test before leaving the exam. You may not photograph your exam or write down or copy any information pertaining to the test, nor may you share any information about the test with anyone by any means. This includes sharing information by word of mouth, written correspondence, electronic device or any type of social media. Providing information about the test to other students will be treated as academic misconduct. Also, having in your possession information about any test prior to the test that was not given to you by the instructor will be treated as academic misconduct.

9. You may not leave your place during a test for any reason. This includes getting water or going to the restroom. You must take care of these things before the start of the test. If you leave your test without permission, your test will be collected and you will not be allowed to continue working on it.

10. Interrupting the exam or creating a disturbance to cause a distraction during the exam will be treated as academic misconduct.

In order to enforce these rules, an instructor may require you to do any of the following. Failure to comply will be treated as academic misconduct.

1. Sit in assigned seats prior to the start of the exam.
2. Require you to move to a new seat during the exam.

If you experience a disability requiring adaptive technology that could be mistaken for an unauthorized electronic device, please notify your instructor prior to the test.

MTLC Specific Policies

1. In the MTLC, you may only use a calculator approved for use in the math lab. If you are not sure which calculators are acceptable, ask your instructor at least a couple of days before you need one for an exam or assignment.
2. In the MTLC, swiping another student's ACT card will be treated as academic misconduct.

3. In the MTLC having any other website other than the test open during a test will be treated as academic misconduct.

4. In the MTLC, if you leave your computer during a test without permission, your exam will be closed and you will forfeit any remaining exam time.

Statement on Academic Misconduct

Students are expected to be familiar with and adhere to the official [Academic Misconduct Policy](#).

Statement On Disability Accommodations

The University of Alabama is committed to ensuring the full participation of all students in its programs. If you have a documented disability (or think you may have a disability) and need reasonable accommodation(s) to participate in this class, contact the Office of Disability Services (or ODS; 205-348-4285, ods@ua.edu, Houser Hall 1000, www.ods.ua.edu) as soon as possible. If you have been approved to receive accommodations through ODS, please meet with your instructor or College designee during office hours or by appointment to review your accommodation letter and discuss how accommodations can be implemented in this course.

Severe Weather Protocol

Please refer to the Severe Weather Guidelines located on the [Office of Emergency Management website](#).

Pregnant Student Accommodations

Title IX protects against discrimination related to pregnancy or parental status. If you are pregnant and will need accommodations for this class, please review the University's FAQs on the [UAct website](#).

Religious Observances

Under the Guidelines for Religious Holiday Observances, students should notify the instructor in writing or via email during the first two weeks of the semester of their intention to be absent from class for religious observance. The instructor will work to provide reasonable opportunity to complete academic responsibilities as long as that does not interfere with the academic integrity of the course. See full guidelines at [Religious Holiday Observances Guidelines](#).

UAct Statement

The University of Alabama is committed to an ethical, inclusive community defined by respect and civility. The [UAct website](#) provides extensive information on how to report or obtain assistance with a variety of issues, including issues related to dating violence, domestic violence, stalking, sexual assault, sexual violence or other Title IX violations, illegal discrimination, harassment, hate or bias incidents, child abuse or neglect, hazing, threat assessment, retaliation, and ethical violations or fraud.

Student Resources

The University of Alabama provides resources and support for the benefit of all students. An up-to-date list of these resources is located on the [Division of Student Life website](#), which includes information regarding counseling, health and wellness, career planning, and accessibility services.