Kennesaw State University
College of Science and Mathematics
Department of Mathematics
Spring Semester 2026
MATH 3260 (Section 54): Linear Algebra I

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1. (Un)popular Answers to Popular Questions

1. *What is happening when? When are things due?* See the contact information in Section 2 and the calendar in Section 8.

2. *What is my grade?* See the formula at the start of Section 5. Your grades are on D2L.

3. *What and where are the course materials?* See Section 4. Your grades and solutions to exams are password-protected on D2L. Everything else (such as the daily log, problem sets, and exam information documents) is on the course website.

4. *How should I write an email to you?* See Section 6.3. I appreciate salutations.

5. *How should I be using my time?* See Section 6.4 for a workload breakdown.

6. *I can't come to class today. What should I do?* Read, when posted, the daily log line by line (see Section 6.4 for reading guidelines); email questions and visit during office hours to discuss specific topics that you have studied in advance.

7. *All the notes are online. What's the point of coming to class?* Focus and interaction. Being in class lets you *focus* specifically on course material and *interact* with me and your classmates. Low attendance typically correlates to low grades.

8. *Can I turn in a problem set late?* No.

9. *Why are you being so picky with the formatting of the problem sets?* For your benefit and for mine: to make your work easier for you to reread later in the future and for me to parse for credit, and so that you can continue to grow into the strongest writer and expositor possible. See also Section 5.2.1.

10. *What's up with the deadlines for problem sets vs. quiz dates?* Problem sets are due on Wednesday nights and quizzes (based strictly on the problem sets) are on Friday mornings. The goal is that you have all of the problems done for a quiz well in advance of that quiz and that you have Thursday to clean up any last-minute misunderstandings.

11. *Can I make up a quiz?* Probably not. See Section 5.3.4 for the handful of exceptions.

12. *Can I make up an exam?* Quite possibly. See Section 5.4.2 for the procedures and policies regarding exam make-ups.

13. *I don't understand what we're doing, and everything feels awful. How can things get better?* First, remember that no feeling lasts forever; second, don't make major decisions when you're feeling crummy. Start by looking at Section 6. Are you coming to class? Talking with me? Putting in a solid 9 hours of work per week? Absolutely sure that you understand what every single word means and that you can give examples and nonexamples of all concepts? Try to articulate clearly to yourself and then to me how you're living your Math 3260 life, what your Math 3260 goals are, and what precisely is not right with your Math 3260 experience.

2. Contact Information

Instructor: Dr. Timothy Faver
Email: `tfaver1_AT_kennesaw.edu` (this is the best way to contact me)
Website: `https://tefaver.com/teaching/math-3260/`
Class time: MWF 12:20 pm–1:10 pm
Class location: Mathematics Room D224
Office: Mathematics Room D248
Office hours: W 3:30 pm–4:30 pm, F 10:30 am– 11:30 am

3. Learning Outcomes

Upon successfully completing this course, you will be able to do the following:

1. Determine if a linear system is consistent and find general solutions of consistent systems via elimination or matrix operations.

2. Perform matrix operations, including inversion and computing determinants.

3. Identify vector spaces and properties of bases, dimension, and subspaces.

4. Describe the fundamental subspaces of a vector space associated with a given linear transformation, including null space and range.

5. Employ properties of inner products in applications such as constructing orthonormal bases and producing least squares approximations to linear problems.

6. Analyze properties of eigenvalues and corresponding eigenvectors of a matrix for use in diagonalization and other applications.

I don't want to overpromise and say that this course is your ticket to a better life, but it's pretty close. Linear algebra pervades and permeates nearly every aspect of modern mathematics, and virtually any "applied" use of mathematics in allied disciplines will at some point involve linear algebra. In calculus we are taught to "Be wise, linearize" and use local linear approximations; linear algebra is the study of all of the "linear" structures that make life beautiful, and possible. An "operator" $\mathcal{A}$ is *linear* if we can add its inputs and outputs and multiply inputs and outputs by numbers, and if those additions and "scalar" multiplications behave "normally," and if $\mathcal{A}$ "respects" addition and scalar multiplication in that $\mathcal{A}(x+y) = \mathcal{A}x + \mathcal{A}y$ and $\mathcal{A}(cx) = c(\mathcal{A}x)$ for all inputs x and y and all numbers c. You know about this already because almost every major concept of calculus—limits, continuity, derivatives, integrals—respects linearity.

In this course, we'll use the language and notation of vectors and matrices to compress systems of linear equations efficiently and effectively, regardless of how many unknowns or equations are present. Then, once we have good notation and some new notions of arithmetic, at first we'll try to *solve* linear systems. Sometimes we'll succeed, but eventually we'll fail, and fail spectacularly. Then we'll try to *understand* linear systems, even when we can't solve them, and we'll quantify and qualify how we fail. Eventually we'll *approximate* linear systems—if your original linear system is too hard, solve an easier one that is somehow

"close" to the original problem. Along the way, we'll learn a lot of new technical vocabulary and become really, really precise in how we write and speak. And, just as in calculus, we'll celebrate the power of linearity in almost everything we do.

4. Course Materials

1. We will closely follow the book ***Introduction to Linear Algebra (Sixth Edition)*** by Gilbert Strang. The textbook's website has a variety of helpful resources (though not a free pdf of the textbook itself).

2. I will keep a **daily log** for our classes and post it on the course website. The log will contain corresponding reading from the textbook, a detailed (and idiosyncratic) discussion of what we cover in class each day, and a variety of problems, many of which I will assign and most of which you should attempt.

5. Grading

Your final numerical grade will be based on weekly problem sets and in-class quizzes, two in-class exams during the semester, and a final exam, all weighted as follows.

Problem Sets	10%
Quizzes	25%
Lower two exam scores	20% each
Highest exam score	25%

The interval to which your final numerical grade belongs determines your final letter grade.

Numerical grade	**[90,100]**	**[80,90)**	**[70,80)**	**[60,70)**	**[0,60)**
Letter grade	A	B	C	D	F

5.1. Attendance. *Regular and engaged attendance is essential for your learning; failures in my classes are strongly correlated with low attendance or attendance with weak engagement.* I will take attendance on each of the days that we meet and do not have an exam. While attendance will not count numerically toward your final grade, it is all but impossible to pass the class without regular *and engaged* attendance. If you stop coming to class and do not submit work at some date past the withdrawal deadline, I will score missing work as 0 and compute your final grade from that; it is therefore highly likely that you will fail the class.

5.2. Problem sets (10%). *Regular work on weekly problem sets will strengthen your understanding of concepts and techniques and extend your awareness of course concepts beyond the scope of class meetings. Success in this class will be impossible without diligent, thorough completion of the problem sets.* There will be 12 problem sets assigned on Wednesdays and due at 11:59 pm on the following Wednesdays; see the calendar (Section 8).

5.2.1. Preparation of problem sets. You will submit your solutions to the appropriate slot on D2L, and it is your responsibility to ensure that your D2L submissions are correctly formatted and organized according to the submission instructions. The goal of these stringent formatting requirements is twofold. First, I want your work to be as easy for you to revisit and parse as possible, and part of that is making sure your work is clearly organized and

formatted. Second, I want your work to be easy for me to review so that you get appropriate credit and so that I am sure you are doing the work that is meant to strengthen you.

5.2.2. Collaboration and consultation on problem sets. You are most welcome to consult with me throughout the week about the preparation of your problem sets; see Section 6.2 for advice on office hours and Section 6.3 for email policy. While you are welcome and encouraged to discuss problems with other students, your final work must be your own; you should write the final version of your solutions by yourself, without consulting others.

5.2.3. Solutions. A solutions manual for the textbook is available on the book website and D2L and linked on the course website. Your understanding will be much stronger and more complete if you avoid consulting these solutions until after you have prepared a draft of your own work. The solutions in this manual are often terse, and you should strive for significantly more detail and narration in your own work.

5.2.4. Grading of problem sets. I will drop your lowest 3 problem set scores, so that the problem set component of your final grade will be the average of your 9 best problem set scores. I will grade problem sets for completeness only and score problems from 0 to 2 points, with 0 points for no work, 2 points for complete work, and 1 point for work that, in my professional opinion, falls short of completeness. If I find that you are copying verbatim the solutions manual, I will score your work 0. I will not accept any problem sets late, nor any problem sets via email.

5.3. Quizzes (25%). There will be 9 quizzes throughout the term, all on Wednesdays during the first 20 minutes of class; see the calendar (Section 8). There will be two types of problems on quizzes.

5.3.1. Problems from the textbook and daily log. These problems will come directly from the problem set that was due on the Friday preceding the quiz; if a problem has multiple parts or steps, I may excerpt only a portion of that problem for the quiz. Solutions will be available from the book's solutions manual or, in the case of problems assigned from the daily log, on D2L. *You have all of these problems in advance.*

5.3.2. Vocabulary problems. At the start of a day's material in the daily log, I will provide a list of vocabulary corresponding to that day. (Some days may have no words.) You are responsible for memorizing the precise definition of those concepts and being able to provide examples and nonexamples as appropriate. You may find the vocabulary guide on the website helpful for organizing vocabulary. Vocabulary tested on quizzes will be *cumulative*, and so I may ask questions about vocabulary from any of the weeks preceding that quiz.

5.3.3. Grading of quiz problems. Problems will be scored from 0 to 5 points, with 0 points for no work, 5 points for essentially complete and correct work, and, in general, a 1-point deduction for each serious error.

5.3.4. Absences from quizzes. I will drop your lowest 2 quiz scores, so that the quiz component of your final grade will be the average of your 7 best quiz scores. I will not offer make-ups for quizzes outside of excused absences for university-related events.

5.4. Exams (65%). *Exam preparation will help you connect discrete course topics; completing an exam under time constraints is one way of evaluating your fluency with course*

material and your intellectual independence. There will be two in-class exams (Exams 1 and 2) during the term and a cumulative final exam. The final exam will only be given at the university-specified time, which cannot be changed. See the calendar (Section 8).

5.4.1. Exam information documents and reflections. I will provide a detailed document giving information about an exam's content at least a week in advance of each exam. You will earn 5 points on each exam from a reflection activity that you will do based on the study guide.

5.4.2. Absences from exams. In order to be excused from an exam, you must (1) notify me before the start of the exam (or as soon after as the circumstances allow) and (2) provide official documentation (a doctor's note, a proof of COVID test, a note from your employer, etc.) excusing your absence in a timely manner. An absence may or may not be "excused." Important family commitments, religious obligations, feeling ill, COVID exposure/infection, emergency car trouble, legal issues, an essential work commitment, and university-sponsored athletics, trips, or programs are all sufficient reasons for an excused absence. Making up work in another class, oversleeping, traffic, and vacations (. . .early spring break. . .) are not. If your absence from an exam is excused, then you will take a make-up exam either before I return graded exams to the class, or, if that is not possible, during the final exam conflict period (see the calendar in Section 8); if your absence is not excused, you will score a 0 on that exam. In general, I will not permit a make-up if you notify me of your absence *after* the class has taken exam, barring exceptional circumstances that make prior communication absolutely impossible.

In the (hopefully) unlikely event that you first have an excused absence from Exam 1 and later have an excused absence from Exam 2, then you will take a make-up for Exam 2 within one week of returning to class. Failure to do so will result in a score of 0 on Exam 2. This is to prevent you from having too much work at the end of the term.

5.5. SDS accommodations. Please discuss any accommodations with me promptly at the start of the term. If you want to use extended time accommodations via SDS, you must make an appointment with SDS for them to proctor the exam or quiz.

5.6. Midterm grades. I will submit midterm grades by March 27 to help you assess your progress in the course. Your midterm numerical grade will be determined by the following breakdown:

$$10\% \text{ problem sets} + 40\% \text{ quizzes} + 50\% \text{ Exam 1}.$$

I will not drop any problem sets or quizzes here. Note that the weights here are, overall, quite different from what will determine your final grade; a good midterm grade is not a promise of a good final grade, but a bad midterm grade should serve as a warning that something is amiss in your current approach to the course. Midterm letter grades will follow the numerical correspondence for your final grade.

5.7. Incomplete grades. The catalogue specifies that an "incomplete grade may be awarded only when the student was doing satisfactory work prior to the last two weeks of the semester but for nonacademic reasons beyond the student's control, was unable to meet the full requirements of the course." I define "satisfactory work" to mean that you can obtain a score on your remaining work that will allow you to pass the class.

The catalog subsequently states that a "grade of 'I' must be removed by completing the course requirements within one calendar year from the end of the semester in which the 'I'

was originally assigned. In addition, should the student enroll in classes at KSU during the calendar year, the grade of 'I' must be removed by the end of the first semester of enrollment during that calendar year."

If you are awarded an incomplete for this course, it will be to your advantage to complete all remaining work as soon as possible. Based on your circumstances, we will agree on a mutually convenient and appropriate timeline for completing your work. Failure to follow this timeline without a justifiable excuse may result in failing grades for the missed work and possibly the course. Ideally, you would complete all work by the end of May 2026.

6. Strategies for Success and/or Failure

6.1. Attendance and participation. Failures in my classes are strongly correlated with low attendance *or* attendance with minimal engagement; students who both attend class regularly and engage with me in and/or outside class tend to succeed.

6.2. Office hours. During office hours, we can discuss specific examples, problems, or techniques from class, the daily log, or the textbook. More broadly, we can talk about your study habits, time management, and mathematical reading skills. Before coming to office hours, think carefully about what you want to discuss so that we use our time well.

If my office hours conflict with your other classes, we can make an appointment for a different time. If the currently scheduled office hours conflict with the availability of students who most frequently want to see me, I may change the weekly hours to accommodate the preferences of the majority. If you would like to meet virtually, please let me know in advance, and I will send a Teams link.

6.3. Email communication. You are welcome to email me questions about any aspect of the course at any time. Feel free to send a photo or scan of work and indicate where you're stuck. A short hint from me can make a big difference for you.

I will (typically) respond to email within 24 hours, but I cannot guarantee a response to questions about problem sets or exams late on Thursday evenings. Those final hours before an exam or quiz need to be about perfecting what is already good in you, not about learning it for the first time.

Please observe the following courtesies in writing emails.

1. Please include the words "Math 3260" in the subject of your email. I filter emails and may not respond to your message promptly, or may miss it entirely, without these key words.

2. Please use your "students" email, not D2L email. I will not respond to messages sent from D2L.

3. Please begin your email with a salutation (e.g., "Hi, Dr. Faver") before the body of text; this is simply good manners (and will put me in a good mood, which will be helpful for you). Please also address me by my name ("Dr. Faver," not just "Professor").

6.4. Workload breakdown. In general, it is reasonable (and usually necessary) for you to spend about three hours per credit hour outside of class on work for a course. Since our course is 3 credits, you should spend about 9 hours per week on your coursework. Here is a recommended arrangement of your worktimes for this class for weeks when a problem set is

due, which will be most weeks.

2–3 hours: *active (re)reading of class notes and the daily log and selections from textbook (see the daily log).* I define "*active* reading" to mean reading each and every word (possibly *aloud*—this always helps me), clarifying any unknown word or phrase, and redoing each calculation or argument with pen and paper. I expect that you will be patching up gaps from class, working through the examples from the textbook (which will typically differ from what we do in class), and embedding vocabulary, examples, and nonexamples into your memory for regular deployment. You may find the vocabulary guide on the website helpful for organizing vocabulary.

3–4 hours: *working on required problem sets and recommended problems.* These are the problems assigned from the daily log and the textbook that I will grade, as well as recommended problems from the textbook (listed in the problem sets) and all problems marked (!) and, eventually, ($\star$) in the daily log. I expect you to do whatever you need to in order to understand every step of the solution to every problem. This timeframe by no means expects that you are spending 3 to 4 hours in isolated contemplation of the required problems. I expect that you are rereading (yet again) relevant sections of the daily log and textbook, discussing your work with classmates, and consulting me once you have made some independent progress.

1–2 hours: *writing up your solutions to the weekly problem set for submission.* This really means *rewriting* your initial work. The first thing that you write down when working on a problem should not be what you submit! Reread Section 5.2.1.

This scheme will vary from week to week and person to person, but it will be to your benefit to spread these activities out throughout the week. You should have at least 6 hours of work per week, but there will probably be weeks during which you are able to do all of the above without taking 9 hours. Treasure those weeks! Those are good times to patch up your understanding of prior vocabulary, notation, and concepts and sticky points from class or problem sets that you never resolved to your satisfaction.

6.5. How to fail. The following strategies have helped prior students fail my classes.

1. Don't come to class regularly; in particular, show up only for exams.

2. Be physically present but intellectually disengaged in class. Avoid talking with me.

3. Don't do the problem sets or any recommended practice problems.

4. Save all your Math 3260 work for only one day each week, preferably the day before assignments are due.

5. Ask for, but then completely ignore, my advice on improving your course performance.

6. Fail the first exam and make absolutely no changes in your life after that.

7. Don't internalize any idiosyncratic vocabulary or notation. Do problems without knowing

what the words and symbols in them mean!

8. Think about the course as an obstacle, not an opportunity. Definitely don't look for beauty, surprises, or things that might fill you with wonder and curiosity.

7. University Policies and Formal Matters

7.1. Federal, BOR and KSU Student Policies. You should be familiar with the policies detailed via the links below, including the academic integrity statement.

`https://www.kennesaw.edu/curriculum-instruction-assessment/academic-program-planning-development/resources/required-syllabus-information.php`

7.2. Course catalogue description.
3 Credit Hours
MATH 1190 or (MATH 1179 and MATH 1189)
This course is an introduction to linear algebra and some of its applications. Topics include systems of linear equations, matrix operations, vector spaces, linear transformations, inner product spaces and orthogonality, eigenvalues and eigenvectors, and diagonalization.

8. Calendar

You are responsible for knowing all of the due dates for assignments and scheduled dates for exams listed below. All submissions to D2L are due at 11:59 pm on the stated day. If class is canceled on the day of a quiz or exam, we will take it during our next meeting, unless I specify otherwise. If the university cancels class, I may assign some short independent reading and/or eventually prepare a video lecture to make up for the lost time.

M January 19	No class—Martin Luther King, Jr. Day
F January 23	Problem Set 1 due on D2L
W January 28	Quiz 1 in class
F January 30	Problem Set 2 due on D2L
W Feburary 4	Quiz 2 in class
F February 6	Problem Set 3 due on D2L
W February 11	Quiz 3 in class
F February 13	Problem Set 4 due on D2L
M February 16	Exam 1 reflection due on D2L
F February 20	Exam 1 in class
F February 27	Problem Set 5 due on D2L
W March 5	Quiz 4 in class
F March 6	Problem Set 6 due on D2L
M–F March 9–13	No class—Spring Break
W March 18	Quiz 5 in class
F March 20	Problem Set 7 due on D2L
W March 25	Quiz 6 in class
F March 27	Problem Set 8 due on D2L
W April 1	Quiz 7 in class
F April 3	Problem Set 9 due on D2L
M April 6	Exam 2 reflection due on D2L
F April 10	Exam 2 in class
F April 17	Problem Set 10 due on D2L
W April 22	Quiz 8 in class
F April 24	Problem Set 11 due on D2L
W April 29	Quiz 9 in class
F May 1	Problem Set 12 due on D2L
Sa May 2	Final Exam reflection due on D2L
T May 5	Exam make-ups 3:30 pm–4:30 pm
F May 8	Final Exam 1:00 pm–3:00 pm