

Math 2600-02: Linear Algebra
TR 1:10–2:25pm in SC 1320
Spring 2020

Instructor: Spencer Dowdall

Office: SC 1525
Office phone: 615-322-1555
email: spencer.dowdall@vanderbilt.edu

Office Hours:
Tue 4:00–5:00
Wed 1:30–2:30
Thu 10:00–11:00
and by appointment

Course Information

Description: Linear algebra is an important bridge to more advanced topics in mathematics; it also has widespread applications to the physical and social sciences, engineering, economics, data science and many other fields. Topics to be covered include: vector spaces, bases, linear transformations, matrices, row operations, determinants, systems of linear equations, eigenvalues and eigenvectors, inner product spaces, and orthonormal bases.

Math 2600 also serves an important role in Vanderbilt's curriculum in that it provides many students their first introduction to abstract and theoretical mathematics. The course will involve **rigorous proofs of theorems**, and students will be required to understand and reproduce proofs; assignments and tests will emphasize both proof writing and computational problem solving. For these reasons, Math 2600 is considered to be a very challenging course. Students should be prepared to invest considerable amounts of time and energy in understanding the material and doing the homework.

Text: *Linear Algebra, 5th edition* by Stephen Friedberg, Arnold Insel, and Lawrence Spence. We will cover most of chapters 1 through 5 and potentially chapter 6 or 7. **Reading the textbook** is essential for understanding the material. For a different perspective on the material, I recommend the free textbook *Linear Algebra* by Jim Hefferon, available at <http://joshua.smcvt.edu/linearalgebra/>.

Course webpage: <https://math.vanderbilt.edu/dowdalsd/Sp2020math2600/>

View the webpage for course information (including this document), current announcements, instructor information, homework assignments, and the current schedule of topics. Grades for completed assignments, as well as selected solutions, will be available in Brightspace.

Grading: Final grades will be computed according to the following breakdown:
Homework–20%; Participation–15%, Midterms–18% each, Final Exam–29%.

Midterm Exams: There will be two in-class exams on: **February 6** and **March 19** (both Thursdays).

Final Exam: There will be a comprehensive final exam at 3:00pm on **Wednesday April 29**, as designated by the university registrar (see <http://registrar.vanderbilt.edu/calendar/exams/>).

Make-up policy: There will be no make-up exams. It is your responsibility to arrange your schedule to be able to take the exams at the scheduled times. Absences from exams due to illness or other extraordinary circumstances must be adequately documented and, except in genuine emergencies, a student must notify me of their absence in advance.

Group work: We will periodically use class time to break into small groups in which students will collaborate on worksheets. This will allow you to practice *doing* mathematics and develop skill in constructing proofs and explaining your reasoning to others. During the group work sessions, a few students will be selected to present their group's solutions to the class. Collaborating on the worksheets

and presenting to the class will count towards the *Participation* portion of final grades.

Homework: Homework assignments will be given in class and posted to the course webpage. Assignments will generally be due at the beginning of class on Thursdays — **late homework will NOT be accepted** without prior approval. Your **lowest homework score will be dropped**. Solutions should be *neat, legible, and stapled*. You are encouraged to work together in groups and discuss homework problems with other students, but your *solutions must be written up independently and in your own words*. Copying answers from another student or source, or allowing your answers to be copied, will be considered a violation of the Honor Code.

I consider homework an essential part of this class. It is often said that the best way to learn mathematics is to do mathematics. To succeed in this class you should take the homework seriously and think carefully—and independently—about each problem. You should also study any distributed solutions and be sure that you understand them. Doing additional exercises is recommended.

Attendance: Attendance is very important for this class, as it will help you better understand the material. I strongly encourage you to actively participate by asking questions and engaging in class discussion. I also encourage you to read the text in advance as this will allow lectures to be more interactive and focused on the topics you find most challenging.

Students are expected to attend all scheduled classes and are responsible for all announcements, assignments, and material covered in class. Consult the daily schedule on the course webpage for the list of sections to be covered. See Vanderbilt's 'Class Attendance' policy in the Undergraduate Catalog.

Technology Policy: Please do not use cell phones or computers in class. It is distracting. You may not use calculators or any other electronic devices for tests.

While I do not recommend you rely on computers, you may use calculators or advanced computer programs to guide your way or check answers in homework problems. However, your solution needs to be self-contained and must demonstrate an understanding of what's going on. And remember that on exams you will have to work without computational aids.

Registration deadlines: Students may change course enrollments in YES until Monday, January 13th. Between January 14th and 20th, withdrawals and adjustments in level or grading status must be made using a paper Change of Course Request form. If only the "DROP" section of the form is completed, the instructor may sign the form. If the "ADD" section of the form is completed (whether or not the "DROP" section is also completed), then the student must see the DUS (John Rafter) or Assistant DUS (Jakayla Robbins) in person. By Math Department policy, the only change to a math course that will be approved is a change in level (e.g., switching from Math 1301 to Math 1300 or vice versa).

Accommodations: If you have a physical, psychological, medical, or learning disability that may impact your course work, please contact Student Access Services (www.vanderbilt.edu/student-access/). They will determine with you what accommodations are appropriate and communicate them to the instructor. This service is confidential.

Honor Code: Vanderbilt's Honor Code governs all work in this class. All work submitted for credit must be the student's own and should reflect the student's own understanding of the material.