VIRGINIA COMMONWEALTH UNIVERSITY
Department of Mathematics & Applied Mathematics
Math 310 – Linear Algebra (for CS majors)
Spring 2026

Instructor: Dr Larson
Office: 4106 Harris Hall
Email Address: clarson@vcu.edu
Web page: math1um.github.io/Teaching and Canvas for grades.
Classroom and Meeting: Engineering E4221, 11:00-12:15 TTh
Office Hours: 12:30-2:00 TTh

Prerequisite: Math 141 (with a C or better), CS major.

Text: *Linear Algebra with Python: Theory and Applications*, by Makoto Tsukada, *et al.*, Springer, 2023 (ISBN #9819929504). You can download a free pdf of this book on the VCU Library website: https://link-springer-com.proxy.library.vcu.edu/book/10.1007/978-981-99-2951-1

Additional Text Resources: https://www.math-game-labo.com/en/support/isbn9789819929511/

Software: We will need a Python interpreter that includes key packages like *numpy* at *matplotlib*. Google Colab is free and has everything we'll need. You can access that at: https://colab.google.com

Bulletin Description: Systems of linear equations, vector spaces, linear dependence, bases, dimensions, linear mappings, matrices, determinants, quadratic forms, orthogonal reduction to diagonal form, eigenvalues and geometric applications.

Learning Goals: Chapters 2-7 of our text.

Course Schedule: This course is based on a set of daily instructor-produced worksheets. We will do one of these in class every class day. It is generally impossible to finish these completely without in-class help and discussion. Tests are based these daily classroom worksheets and assigned homework. The pace will not be predetermined (but will depend on how things go in class from day to day).

Expectations:

- You are expected to attend class, complete homework, and ask questions during class or office hours.
- Communicating mathematics is integral to the creation and transmission of mathematics. You should give significant thought as to how to explain your homework solutions to the class.
- I encourage you to work with others on homework problems, however, any assignments to be turned in must be written up on your own. If you work with others, you must write who you worked with on your assignment.
- Please write neatly on all assignments to be graded; exceptionally messy work may not be graded.
- Only selected homework problems will be graded; other problems will be graded for completion.
- **There are no make-ups on in-class assignments.** I will drop your three lowest in-class assignments, assuming that you couldn't come to class for excusable reasons.
- Make up tests will be considered under exceptional circumstances: if you miss a test and want to be considered for a make-up, you *must* contact me immediately.

Tests and Determination of Grades:

There will be 2 equally weighted tests. Here is the *tentative* schedule:

Test #1, Thurs., Mar. 5
Test #2, Tues., Apr. 28.

• The tests are closed-book and closed-notes.
• The tests will be based *on* the in-class assignments and assigned homework.
• Use of calculators or other computing technology is not allowed on the tests.
• Tests are written under the assumption that you are studying the material at least 6 hours per week outside of class.

Your final average will be computed as follows:

Test 1, 2:   20% each
Homework: 25%
In-class assignments: 35%

Grade Scale: The 10-point scale: 90-100 A, 80-89 B, etc.

Important Dates to Know:

- Spring Break, Mar.8-15
- Last day to withdraw, Fri., April 3
- Classes end, Tues., April 28

More VCU Policies, Honor System and Syllabus Information:

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.