

# Syllabus for Math 453, Spring 2023

## Instructor information

**Instructor Name:** Cartwright, Dustin

**Office Hours:** Mon 2:30–3:30, Thu 11–12, and by appointment in Ayres 210. Office hours by Zoom are available by appointment.

**Email:** cartwright@utk.edu

**Course Webpage:** All further information, including updates to this syllabus, will be on the Canvas webpage for this course.

**Course Communications:** Most announcements will be made in class. I will use Canvas if I want to reach you between classes or if I want to be sure to reach everyone. I will only email you for urgent messages.

The best way for you to contact me is by email. I will reply within 24 hours during the work week and usually faster, especially during working hours.

## Student Learning Objectives

By the end of this course, a student should be able to write proofs using the basic properties of vector spaces, bases, inner product spaces, orthogonality, Jordan canonical forms, normal operators, and positive operators. Students should be prepared to pass the diagnostic exam in linear algebra.

## Learning Environment

I expect you to attend every lecture, pay attention, and participate in discussions. If something doesn't make sense, ask questions. During lectures, you should not use your laptop, cell phone or any other electronic devices. Taking notes on a tablet is allowed.

You should treat the other students in the class with respect, in the classroom and in anything connected to it.

## Text

*Linear Algebra Done Right*, draft fourth edition, by Sheldon Axler. A PDF is available on Canvas.

This is a draft textbook. Do not share the textbook with anyone outside of class. If you notice mistakes or have comments that you feel would improve the book, feel free to contact the author.

## Course Assessment

- 35% homework
- 20% midterm
- 15% practice diagnostic
- 30% in-class final

**Homework:** Homework is due by 8:00am on Tuesdays. You will submit your homework by uploading a PDF on Canvas. Assignments will be available on Canvas at least a week in advance.

Your homework will be graded based on a representative subset of the problems. Your lowest homework grade will be dropped.

I may use your submitted answers to make solutions and distribute those to the class. If you do *NOT* wish to have your answers shared, you may request that with your submission or by email. Otherwise, your homework submission is giving me permission to include it in solutions.

**Citation policy:** You must write your own homework solutions and you must credit any person or source who helped you understand the solution.

- You must credit any person you discuss the homework with. You may do this for the assignment as a whole, or on specific problems.
- Any other source, such as the Internet or books other than the course textbook, must be credited for specific problems, and with enough specificity for me to find your source. For an Internet source, this means giving the URL. You may cite using submission comments.

In all cases, you should make sure you understand your answer and write

your answers in your *own words*. You will find sources that use different notation or conventions, so you should make sure your answers are correct for the conventions used in our course.

**Exams:** The midterm and final must be taken without any books, notes, or electronic devices. The final is cumulative.

**Practice diagnostic:** The practice diagnostic will be a 2 hour, take-home exam taken online at a time of your choosing. You will scan and upload your answers. You should not use any books, notes, or electronic devices during this exam. The exam will consist of 6 questions, similar to a diagnostic exam, but restricted to the material we have covered so far.

## Make up Policy

Late homework will generally not be graded or counted for credit. Instead, I will drop the lowest homework grade.

Missed exams will be excused only in circumstances which unavoidably prevent you from taking the exam, such as a medical or family emergency. All excuses must be documented, to be approved by the Dean of Students. Accommodation is at my discretion and may take the form of a make-up or by having the final exam replace that component of your grade. Please let me know as soon as possible if you are unable to attend an exam.

## How to be Successful in this Course

Go over the lecture material after each class, either from your own notes, or the corresponding section in the textbook. Talk to other people in the class. Come to office hours. Ask questions in class. Read the textbook. Read Wikipedia or other sources.

Start the homework early. Try to solve each problem on your own before looking for hints. Work with other people on the homework. Share your ideas while you're working to get more feedback and learn how other people think. When you get homework or exams back, look at the feedback and the solutions and understand what you did wrong.

If you find yourself struggling or falling behind, adjust sooner rather than later. Come to office hours. Go back over the material you're struggling with.

Look at the syllabus for the diagnostic exam. Look at the past exams and sample problems.

## Course Outline and Schedule

- Thu, Mar 9: midterm
- Tue, May 2: deadline for completing practice diagnostic
- Wed, May 17, 1–3pm: final exam

We will cover most of the textbook. The approximate schedule of daily topics is listed on the Canvas page “Daily schedule.”

### Campus Syllabus

*If the instructor finds it necessary to make informational changes (e.g. office hours, schedule adjustments) due to students’ needs or unforeseen circumstances, students will be notified in writing/email of any such changes.*