

# Linear Algebra MAS4105/14G8 (Spring 2020)

Instructor Prof. Peter Sin

Time and Location MTWF Per. 4, Matherly 013.

# Office Hours:

M5 T5 (Also T6 with advance notice and other times by appointment) Little 362.

#### **Description and Goals**

The course provides a rigorous and thorough introduction to linear algebra, a subject which is basic to nearly all branches of pure and applied mathematics, with many applications in science, engineering and economics.

The student will learn to read and write proofs of theorems, and develop computational skills. This course is designed to serve majors in mathematics and those engineering and science students interested in a conceptual understanding of the subject.

## Textbook

Linear Algebra, by Insel, Friedberg and Spence (4th ed.)

#### Software

GNU octave is free, open source Matlab-like numerical linear algebra software that is easy to install and use.

Matlab is somewhat bigger, fancier, and not free.

SageMath is a free open-source mathematics software system, using a python-based language. It is easy to learn, with lots of online documentation.

You are not required to use octave, Matlab, or SageMath but they are useful tools for learning linear algebra.

#### Course Calendar (including all exam dates)

MAS4105-Calendar-Sp20

#### Homework

The list of homework problems appears below. You should try to solve **all** of the assigned problems. I will select certain problems to be written up carefully and turned in for grading. You may discuss ideas to solve homework problems with your classmates, but the written work turned in for grading must be entirely your own.

# Chapter 1: Sect. 1.2: 1, 7, 11, 12, 13, 18. Sect. 1.3: 1, 5, 8, 11, 12, 13, 15, 17, 22. Sect. 1.4: 1, 2, 3, 5, 6, 12. Sect. 1.5: 1, 3, 4, 5, 7, 10, 16, 18, 20. Sect. 1.6: 1, 2, 3, 6, 11, 26. Chapter 2: Sect. 2.1: 1, 3, 9, 12, 13, 15,1 6, 17. Sect. 2.2: 1, 2(a), 5(c), 10, 16. Sect. 2.3: 1, 2(b), 3(a), 4(a), 9, 12. Sect. 2.4: 1, 2(e,f), 6, 9, 16, 20. Sect. 2.5: 1, 2(a), 3(a), 5, 7. Chapter 3: Sect. 3.1: 1, 4. Sect. 3.2: 1, 2(a,b), 3, 5(a), 6(c) 8, 14. Sect. 3.3: 1, 2(a,b), 4(a), 9, 10. Sect. 3.4: 1, 2(a,b), 3, 9, 10. Chapter 4: Sect. 4.1: 1, 2(a,b), 4(a,b), 8, 12. Sect. 4.2: 1, 2, 5, 13, 23, 26. Sect. 4.3: 1, 2, 9, 10, 12, 15, 17, 20, 21. Chapter 5: Sect. 5.1: 1, 3(b), 4(a), 8(a), 17(a), 21(b). Sect. 5.2: 1, 2(b,d), 3(a,b), 9, 16, 13. Chapter 6:

Sect. 6.1: 1, 3, 8, 11, 13, 15, 24, 27.

Sect. 6.2: 1, 2(a), 6, 8, 19(a). Sect. 6.3: 1, 2(a), 3, 6, 7, 10, 15.

#### Exams and Grading Policy

There will be 2 class exams each worth 20 points and a final exam worth 40 points. (Check the course calendar for the dates.)

Homework is worth 20 in total. Your grade will be based on the total (out of 100) of your homework score and the

scores on these three exams. The dates of the class exams and final are given in the course calendar. No make-up exams will be given except for documented special reasons, such as medical emergencies. Exams can be rearranged for student athletes only if I am notified at least four weeks in advance.

If you think that a score has been **computed incorrectly**, please bring the matter to my attention within one day of your work being returned.

If you think that your work has been **graded incorrectly**, please submit an appeal in writing within seven days of your work being returned, explaining your reasons in detail. Appeals may result in a higher, unchanged, or lower score, depending on the merit of the appeal. Decisions on appeals are final. The final exam cannot be appealed.

## Grading Scale

Grades: A=90-100, A-=87-89, B+=83-86, B=78-82, B-=75-77, C+=70-74, C=65-69, C-=60-64, D=50-59, E=0-49

The UF regulations on grades are here: https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx

The UF policy on minus grades is here: http://www.isis.ufl.edu/minusgrades.html.

#### Samples

Sample for Test 1 Sample for Test 2 Sample for final

#### Attendance and Late Policy

**Attendance is mandatory**, except for absences allowed by UF policies. Each unexcused absence (after you are registered) carries a penalty of 1 point, subtracted from your score after the total (out of 100) has been computed.

The UF policy on attendance is here: https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx

#### Special accommodations

Students with disabilities who experience learning barriers and would like to request academic accommodations should connect with the disability Resource Center by visiting disability.ufl.edu/students/get-started. It is important for students to share their accommodation letter with their instructor and discuss their access needs, as early as possible in the semester.

#### Honor Code

UF students are bound by The Honor Pledge which states, "We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code.

On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: "On my honor, I have neither given nor received unauthorized aid in doing this assignment."

The Honor Code (http://www.dso.ufl.edu/sccr/process/student-conduct-honor-code/)

specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obliged to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor of this class.

#### **Course Evaluations**

Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at https://gatorevals.aa.ufl.edu/students/. Students will be notified when the evaluation period opens, and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via https://ufl.bluera.com/ufl/. Summaries of course evaluation results are available to students at https://gatorevals.aa.ufl.edu/public-results/.



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