Essential Information

Instructor	Ed Bueler elbueler@alaska.edu
Course websit	bueler.github.io/math314/
Canvas site	canvas.alaska.edu/courses/7017
Prerequisite	MATH F252X Calculus II.
Required text	G. Strang, *Introduction to Linear Algebra*, 5th Edition, Wellesley-Cambridge Press 2016

Description, Course Goals & Student Learning Outcomes

Linear algebra is the branch of mathematics which covers vectors, matrices, and linear equations. It is central to all areas of applied and pure mathematics because vectors are the precise way to describe complicated things by using many numbers. Linear algebra is used in all sciences, and fields of engineering, when modeling natural phenomena and computing efficiently using models. Even nonlinear systems are approximated at first-order, using derivatives, by linear algebra objects.

All real-world linear algebra problems are solved using computers. In this course will use, and introduce, Matlab for this purpose. Matlab was designed for teaching linear algebra, but it is now a standard tool for engineering and science, and you may be expected to use it in your other courses. On the other hand, understanding linear algebra will require doing by-hand calculations with simple numbers and in low dimensions.

By the end of the course you will have a solid understanding of the fundamental concepts and algorithms of linear algebra, including well-known theorems and matrix factorizations. You will have seen significant applications in diverse fields.v You will be well-equipped to use linear algebra in more-advanced mathematics, and to use vectors and matrices in science and/or engineering.

Schedule and Online Materials

The course website contains a Schedule listing the textbook sections to be covered each class, the dates each Homework is due, plus the dates for the Midterm Exams and the Final Exam. You should consult this schedule frequently. I will announce any Schedule adjustments in class.

Most course materials (Syllabus, Homework assignments, etc.) will be posted on the course web-page. Some course materials (grades, announcements, etc.) will be available on the Canvas site. Each website links to the other.

Class Time

There are three hours of class meetings with your instructor every week: MWF 9:15 am – 10:15 pm Gruening 413. You are expected to attend class and to participate. Exams (below) and worksheets, including group activities, will occur in-class.

Office Hours and Communication

My Office Hours are online at bueler.github.io/OffHrs.htm. Students can also schedule meetings with me outside of regular office hours. I will use Canvas to send announcements. If I need to contact you outside of class times, I'll try to email via Canvas. Please set the email address in Canvas to one that you check regularly!

Evaluation and Grades

Grades are determined as follows. (Each component of the grade is discussed below.)

CORRECTED FINAL DATE!!

Homework	30%
Midterm Exam 1: Mon 2/14, in-class	20%
Midterm Exam 2: Mon 3/28, in-class	20%
Final Exam: **Friday 4/29** 8–10am	30%
total	100%

A	93–100%	C	68–75%
A-	90–92%	C-	not given
B+	87–89%	D+	65–67%
B	82–86%	D	60–65%
B-	79–81%	D-	57–59%
C+	76–78%	F	$\leq$ 56%

These ranges are a guarantee and a lower bound. I reserve the right to increase your grade above these ranges based on the actual difficulty of the work and/or on average class performance. Any such increases will preserve grade ordering by weighted total score.

Homework

The weekly Homework assignments will include a selection of problems from the textbook, plus problems I have written (the "**P**" problems). Each Homework assignment should be turned in as a PDF via Gradescope, accessed via Canvas. (Help with scanning homework can be found on the Calculus II Tech Help page.) Assignments are due by 11:59pm on the dates stated on the Schedule. The list of Homework problems is at the Homework webpage.

Complete worked solutions to all textbook Homework problems are already available online at the author's website. (See the Resources page.) Thus this part of the Homework will be graded for **completion**. The "**P**" problems will be graded for **correctness**.

Problems very similar to the Homework problems will appear on the in-class Exams.

Exams

There are two Midterm Exams this semester, to be held on the dates shown in the schedule. Midterms are given during the class time. Make-up Midterms will be given only for documented extenuating circumstances, at my discretion.

The cumulative Final Exam will be held at the day/time listed in the online schedule: **8:00am–10:00am Wednesday April 27**.

Tutoring and Resources

The Math and Stat Lab, Chapman Building Room 305, offers tutors. For schedules and availability see www.uaf.edu/dms/mathlab/.

Free one-on-one (or small group) tutoring is available in Chapman Room 201. You must schedule an appointment; see www.uaf.edu/dms/mathlab/.

Rules and Policies

Incomplete Grade

Incomplete (I) will only be given in DMS courses in cases where the student has completed the majority (normally all but the last three weeks) of a course with a grade of C or better, but for personal reasons beyond his/her control has been unable to complete the course during the regular term. Negligence or indifference are not acceptable reasons for granting an incomplete grade.

Late Withdrawals

A withdrawal after the deadline from a DMS course will normally be granted only in cases where the student is performing satisfactorily (i.e., C or better) in a course, but has exceptional reasons, beyond his/her control, for being unable to complete the course. These exceptional reasons should be detailed in writing to the instructor, Department Chair and the Dean.

No Early Final Examinations

Final examinations for DMS courses shall not be held earlier than the date and time published in the official term schedule. Normally, a student will not be allowed to take a final exam early. Exceptions can be made by individual instructors, but should only be allowed in exceptional circumstances and in a manner which doesn't endanger the security of the exam.

Academic Dishonesty

Academic dishonesty, including cheating and plagiarism, will not be tolerated. It is a violation of the Student Code of Conduct and will be punished according to UAF procedures.

COVID-19 statement

Students should keep up-to-date on the university's policies, practices, and mandates related to COVID-19 by regularly checking this website:

sites.google.com/alaska.edu/coronavirus/uaf

Students are expected to adhere to the university's policies, practices, and mandates and are subject to disciplinary actions if they do not comply.

Student protections statement

UAF embraces and grows a culture of respect, diversity, inclusion, and caring. Students at this university are protected against sexual harassment and discrimination (Title IX). Faculty members are designated as responsible employees which means they are required to report sexual misconduct. For more information on your rights as a student and the resources available to you to resolve problems, please go to the following site:

catalog.uaf.edu/academics-regulations/students-rights-responsibilities/

Disability services statement

I will work with the Office of Disability Services (www.uaf.edu/disabilityservices/) to provide reasonable accommodation to students with disabilities.

Student Academic Support

- Speaking Center (907-474-5470, uaf-speakingcenter@alaska.edu, Gruening 507)
- Writing Center (907-474-5314, uaf-writing-center@alaska.edu, Gruening 8th floor)
- UAF Math Services, Chapman 210 (www.uaf.edu/dms/mathlab/)
- Developmental Math Lab, Gruening 406
- The Debbie Moses Learning Center at CTC (907-455-2860, 604 Barnette St, Room 120, (ctc.uaf.edu/student-services/student-success-center/)
- For more information and resources, please see the Academic Advising Center Student Resources list (www.uaf.edu/advising/student-resources/).

Student Resources

- Disability Services (907-474-5655, uaf-disability-services@alaska.edu, Whitaker 208)
- Student Health & Counseling [6 free counseling sessions] (907-474-7043, www.uaf.edu/chc/, Whitaker 203)
- Center for Student Rights and Responsibilities (907-474-7317, uaf-studentrights@alaska.edu, Eielson 110)
- Associated Students of the University of Alaska Fairbanks (ASUAF) or ASUAF Student Government (907-474-7355, asuaf.office@alaska.edu, Wood Center 119)

Nondiscrimination statement

The University of Alaska is an affirmative action/equal opportunity employer and educational institution. The University of Alaska does not discriminate on the basis of race, religion, color, national origin, citizenship, age, sex, physical or mental disability, status as a protected veteran, marital status, changes in marital status, pregnancy, childbirth or related medical conditions, parenthood, sexual orientation, gender identity, political affiliation or belief, genetic information, or other legally protected status. The University's commitment to nondiscrimination, including against sex discrimination, applies to students, employees, and applicants for admission and employment. Contact information, applicable laws, and complaint procedures are included on UA's statement of nondiscrimination available at www.alaska.edu/nondiscrimination. For more information, contact:

UAF Department of Equity and Compliance
1760 Tanana Loop, 355 Duckering Building, Fairbanks, AK 99775
907-474-7300 uaf-deo@alaska.edu

[syllabus version: April 8, 2022]