Instructor: Dr. Dana E. Madison, demadison2@alaska.edu

Office Hours: M-R 11:00am – 12:00pm or by appointment. Please note that the best way to reach me is by email.

Class Dates and Times: July 8 – August 15, 12:00pm – 1:50pm


Prerequisites: A grade of C or better in MATH 201. Students not meeting this prerequisite are not eligible to take this course and will be dropped from the class.

Course Description:
This is a first course in linear algebra that starts with the basic objects – vectors, matrices, systems of linear equations, and vector spaces – and follows with the elements of matrix algebra and solving systems of equations. With all topics in this course, you will be asked to master both computational skills and gain a theoretical understanding.

More specifically, the particular topics we cover include matrix algebra, Gaussian elimination, linear independence of vectors, matrix factorizations, determinants, vector spaces (abstract and concrete), basis for a vector space, eigenvalues and eigenvectors, and orthogonality. This corresponds roughly to chapters 1-6 in the textbook.

Linear algebra is concerned with the study of systems of linear equations. It is a remarkable blend of both practical and theoretical knowledge, and is used extensively throughout mathematics and many quantitative fields. Just a sampling of its many applications would necessarily include image processing, analysis of population growth models, least squares fitting to data, Markov chains, etc.

Instructional Methods: This course will be primarily lecture based with homework assigned from the textbook. Students will be expected to participate in class discussions in an inquisitive, thoughtful, and constructive manner. It will be helpful if you bring a calculator to class for computations. MATLAB will be used regularly during lecture to illustrate new material and concepts.

Evaluation:
Grading: Students will be continually evaluated during the course. There will be two exams, a final exam, and homework assignments that together will determine the student’s grade. Each exam is worth 25% of the final grade. Missed exams can be made up only in cases of documented emergencies. Material presented in class is testable even though it may not be in the textbook. Likewise, all material in the textbook is testable even though it may not be presented in class. Homework assignments are worth a total of 25% of the final grade and will be collected.
and graded. These assignments will be a representative sample of the types of problems that might appear on exams. Homework will not be accepted if it is more than two class periods late unless there is a documented emergency. The grading scale used will be the normal letter grades (90-100% = A, 80-89% = B, 70-79% = C, 60-69% = D, and below 60% = F). There will be no curved grades. Makeup work will not be given unless due to circumstances beyond your control. Incompletes will only be given in cases of documented circumstances beyond your control. Students that have not participated substantially in the course will be dropped. After the drop date, students who do not wish to continue with the course will be responsible for withdrawing themselves. Students not continuing the course who do not withdraw by the withdraw date will receive a grade of F in the course.

**Course Policies:**

**Attendance:** Since a majority of skills and knowledge needed for success in the course will be presented in class or come from class discussions, daily attendance is important. When circumstances make attendance impossible, it is the student's responsibility to contact the instructor as soon as possible. Since this is a college course, if you choose not to attend class, that is your right. You will be responsible for any material covered during classes that you miss.

**Homework Assignments:** Homework assignments will be given periodically. The purpose for these assignments is to be a representative sample of the types of problems that might appear on exams and to reinforce material presented in class. Students will be given opportunities to ask questions about these assignments.

**Exams:** There will be three exams throughout the course. The dates are firm and are listed on the schedule given on the first day of class. You will have a full class period (110 minutes) to complete each exam. **Missed exams can be made up only in cases of documented emergencies.** The final exam will not be given early under any circumstances.

**Important Dates to Remember:**

- Wednesday, July 10  Last day to register/add
- Friday, July 12  Last day to drop
- Wednesday, July 31  Last day to withdraw
- Thursday, August 15  Last day of instruction

**Disabilities Services:** The Office of Disability Services implements the Americans with Disabilities Act (ADA), and insures that UAF students have equal access to the campus and course materials. The instructor will work with the Office of Disabilities Services (203 WHIT, 474-7043) to provide reasonable accommodation to students with disabilities.