

Math 2270-2 Linear Algebra

Instructor.

Professor Grant B. Gustafson

Email: See the online door card: [Here](#).

Office: JWB 113

Syllabus: [PDF Here](#).

Course Web page, access to all files: [Here](#)

Office Hours: MWF after class in JWB 113

Additional office hours [Here](#).

Meetings.

Time: MWF 8:00am until 9:20am

Location: AEB 320

Prerequisites. MATH 2210 OR MATH 1260 OR MATH 1280

Textbook. *Linear Algebra and Its Applications, Fifth Edition* by David C. Lay et al, ISBN 978-0-321-98238-4 and ISBN 0-321-98238-X.

Supplement: *Student Study Guide for Linear Algebra and Its Applications* 5th Edition, David C. Lay et al (2015). ISBN-13: 978-0321982575 and ISBN-10: 0321982576.

Reference: A fundamental textbook is

Linear Algebra, fourth edition by Gilbert Strang, ISBN 978-0-980232-71-4.

The book is used in MIT's OpenCourseWare project. There are video lectures and sample exams with solutions for Strang's book on the MIT website: [OpenCourseWare Course 18.06 Linear Algebra](#).

Course Description. Euclidean space, linear systems, Gaussian elimination, determinants, inverses, vector spaces, linear transformations, quadratic forms, least squares and linear programming, eigenvalues and eigenvectors, diagonalization. Includes theoretical and computer lab components.

Technology.

Course announcements may be made via email. You are responsible for monitoring your University assigned email address. No notes, books, calculators or computers may be used during exams. Weekly homework assignments are to be submitted on paper in class. Answer checks may be done by computer assist, when that is possible (maple, mathematica, matlab, scilab, ruby, R, python, C, C++).

There will be a computer lab component of the course which will require use of the Maple Computer Algebra System. Maple is available in the Math Department computer labs, most departmental computer labs, the Union computer labs and the Marriott Library computer labs. Login information is available at the Math Department student computer labs in the Math Center, located on the lowest level between buildings JWB and LCB.

Quality and Quantity of Work.

You are expected to conduct yourself in a professional manner. This includes classroom etiquette, email correspondence, and written reports such as homework, projects, labs and exams.

Submitted work is expected to be neat, legible, and clearly written. Suggestions for writing reports can be found [Here](#).

University policy 6-100 Section 2:

"A university credit hour shall represent approximately three clock hours of the student's time a week for one semester."

The average work load is two hours outside of class for every hour spent in class. This is a four credit class,

so please plan to spend approximately eight hours outside of class every week studying and doing homework. The assigned homework problems are the *minimum*. Beyond the minimum, expect to continue working similar problems until they become routine.

Evaluation

Homework. Weekly homework assignments will be submitted on paper in class. Late homework will be accepted with an excuse acceptable to the university administration (illness, interview, marriage, funeral). Extra credit problems may be applied to correct scores from missing work. Homework is scored **complete** or **not complete**. Scores of 50 percent or higher are considered to be **complete**.

Homework Packages. A package is collected every Friday beginning in Week 2 and ending in the last week of classes. This package is sent to a grader, who decides the credits. Work not in the package sent to the grader is recorded as a zero. Extra credit work can cancel the zeros.

Extra Credit. There is a limited selection of extra credit problems, independent of the book, available [Here](#). These problems can replace missed homework problems.

Computer Projects. There are six small computer lab projects, with individual due dates.

A Semester Group Project is organized by group leaders in the class, by agreement with the instructor. Once a group is formed, deadline February 3, then others may join it or leave it, with agreement from the group leader. A group size of one is fine. Some **topics and sample projects** can be found on the **Projects Page** [Here](#).

The semester group project is due in final form by Monday May 2, by email in PDF format or paper format under the door 113 JWB.

Maple Tutorials and Help

Maplesoft Quick Reference Cards [Click Here](#)

Douglas Meade's Quick Reference Card for Maple 12 [Click Here](#)

A one-page pdf Matlab cheat sheet from Strang's linear algebra course at MIT [Click Here](#)

A rookie maple tutorial for the impatient from Indiana University [Click Here](#)

Utah Maple tutorial 2017 in html format [Here](#)

Used in LCB115 maple intro lectures.

Details for maple 2016 under unix, windows, OS/X [How to use maple 2016](#) (, txt)

Maple graphics and low speed internet [Maple at home](#) (, txt)

Math Dept Computer Lab. <http://www.math.utah.edu/ugrad/lab.html>

Exams. There are two **midterm exams**, February 24 and April 7. The comprehensive **final exam** is on Friday April 28 from 7:30am to 10:00am. All exams are in the regular classroom AEB 320.

Exam samples will be supplied.

Grading.

Homework 15%

Computer Labs 10%

Two Midterms 30%

Semester Group Project 15%

Final Exam 30%

Grading Scale

Grading Scale: The internally-used scale is uses GPA increments, which step 1/3 from 0.0=E to 4.0=A. Briefly, A=95, B=82, C=67, D=52. In detail:

A = 95-100, A- = 90-94, B+ = 85-89, B = 80-84,
B- = 75-79, C+ = 70-74, C = 65-69, C- = 60-64,
D+ = 55-59, D = 50-54, D- = 45-49, E = 0-44.

For Homework and Computer Help:

Tutoring Lab

[T. Benny Rushing Mathematics Student Center](#)

Private Tutoring.

[University Tutoring Services](#)

There is also a list of tutors at the [Math Department](#) office, JWB 233

Students with Disabilities

The University of Utah seeks to provide equal access to its programs, services and activities for people with disabilities. If you will need accommodations in the class, reasonable prior notice needs to be given to the Center for Disability Services, 162 Olpin Union Building, 801-581-5020 (V/TDD). CDS will work with you and the instructor to make arrangements for accommodations.

All written information in this course can be made available in alternative format with prior notification to the Center for Disability Services.

Syllabus Edits: *The syllabus is not a binding legal contract. It may be modified by the instructor when the student is given reasonable notice of the modification.*