Math 2270-2 Linear Algebra

Instructor.

Professor Grant B. Gustafson
Email and Phone: See the online door card: Here.
Syllabus: PDF Here.
Course Web page: Web access to all files: **Here**
Office: JWB 113
Office Hours: MWF after class in JWB 113
Additional office hours **Here**.

Meetings.
Time: MWF 8:00am until 9:20am
Location: JFB-B1

Prerequisites. MATH 2210 OR MATH 1260 OR MATH 1280

Required Textbook. *Linear Algebra and Its Applications, Fifth Edition* by David C. Lay et al, ISBN-13: 978-0-321-98238-4 or ISBN-10: 0-321-98238-X.
Optional Supplement: *Student Study Guide for Linear Algebra and Its Applications* 5th Edition, David C. Lay el (2015). ISBN-13: 978-0321982575 and ISBN-10: 0321982576.
Optional Reference: A fundamental linear algebra 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.

CANVAS will be used primarily to communicate grades on homework, exams and computer labs. It is not used as a means of communication, so please send messages by email only, using the address found **Here**.

Course announcements will 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++).

Computer Labs.
There is 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 maybe 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 solving similar problems until they become routine.

Evaluation

Homework.

Weekly homework assignments are submitted on paper in class.
A **Homework Package** is collected every Friday from Week 1 to Week 15.
The package is sent to a grader, who scores each homework problem as **complete** (100) or **not complete** (50).
Work not in the package is recorded as a **zero** (0).
Late homework is acceptable with an excuse recognized by the university administration: illness, interview, marriage, funeral.
Extra Credit.
Each missed homework problem can be replaced by submitting an extra credit problem.
Details **Here**.

Computer Projects.
There are six small computer lab projects, with individual due dates. All projects start with a **Tuesday** meeting in computer classroom LCB 115 at 7:30am.

Semester Group Project.

Projects are organized by group leaders in the class, by instructor agreement.
Once a group is formed, **deadline February 2**, then others may join it or leave it, with agreement from the group leader. A group size of one is fine.
Projects are published PDF and computer source files at the course WEB site. You will never submit the project on paper.

Some **topics and sample projects** can be found on the **Projects Page** **Here**.

Class Presentations of selected projects are on April 20 and 23.
The semester group project is due by email in PDF format by Midnight May 6.

Exams.

There are two **midterm exams**, February 23 and April 6, 7:30am to 9:25am in JFB-B1.
The comprehensive **final exam** is on Monday April 30 from 7:30am to 10:00am in JFB-B1.

Exam study material includes a sample exam.

Grading

Homework 15%
Computer Labs 10%
Two Midterms 30%
Semester Group Project 15%
Final Exam 30%

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:

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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.
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Homework and Computer Help

Free Tutoring Lab, basement between LCB and JWB
T. Benny Rushing Mathematics Student Center
Private Tutoring.
University Tutoring Services
There is a list of private tutors at the Math Department office, JWB 233

Maple/Matlab Tutorials and Help

Utah Maple tutorial 2018 in html format Click Here [Used in Tuesday LCB115 maple lab meetings]
First use details for maple 2018 under unix, windows, OS/X How to use maple 2018
Maplesoft Quick Reference Cards Click Here
Douglas Meade's Quick Reference Card for Maple 12 Click Here
A rookie maple tutorial for the impatient from Indiana University Click Here
Maple graphics and low speed internet Maple at home

MatLab one-page pdf cheat sheet from Strang's linear algebra course at MIT Click Here
MatLab official documentation from The MathWorks Click Here

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

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 accommodation.

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.*