Basic Course Information

Semester:	**Fall 2022**	Instructor Name:	**Jeffrey Burt**
Course Title & #:	**Intro Linear Algebra w/Apps.**	Email:	**Jeff.burt@imperial.edu**
CRN #:	**10065**	Webpage (optional):	**NA**
Classroom:	**2721**	Office #:	**2765**
Class Dates:	**8/15-12/10**	Office Hours:	**TBA**
Class Days:	**T/TH**	Office Phone #:	**(760)355-6489**
Class Times:	8:00-9:25	Emergency Contact:	**email**
Units:	3		

Course Description

A first course in linear algebra intended for students majoring in mathematics, the physical sciences, engineering or business. This course develops the techniques and theory needed to solve and classify systems of linear equations. Solution techniques include row operations, Gaussian elimination, and matrix algebra. Investigates the properties of vectors in two and three dimensions, leading to the notion of an abstract vector space. Vector space and matrix theory are presented including topics such as inner products, norms, orthogonality, eigenvalues, eigenspaces, and linear transformations. Selected applications of linear algebra are included. (C-ID MATH 250)

Course Prerequisite(s) and/or Corequisite(s)

MATH 194 with a grade of "C" or better.

Student Learning Outcomes

Upon course completion, the successful student will have acquired new skills, knowledge, and or attitudes as demonstrated by being able to:

1. Perform matrix operations, and compute determinants, eigenvalues,/vectors, and inverses. (ILO2)
2. Understand and apply the relationship between linear transformations, matrices and systems of equations. (ILO2)
3. Analyze, synthesize, and evaluate theorems in Linear Algebra. (ILO2)

Course Objectives

Upon satisfactory completion of the course, students will be able to:

1. Find solutions of systems of equations using various methods appropriate to lower division linear algebra.
2. Use bases and orthonormal bases to solve problems in linear algebra.
3. Find the dimension of spaces such as those associated with matrices and linear transformations.
4. Find eigenvalues and eigenvectors and use them in applications.
5. Prove basic results in linear algebra using appropriate proof-writing techniques such as linear independence of vectors; properties of subspaces; linearity, injectivity and surjectivity of functions; and properties of eigenvectors and eigenvalues.

Textbooks & Other Resources or Links

Lay, Linear Algebra and Its Applications (6th Edition) ISBN 13: 978-0135882801
A graphing calculator is helpful and can be rented from the campus for a small fee each semester.

Course Requirements and Instructional Methods

The goal of this course is for you to gain the necessary skills and knowledge to do well, and improve your mathematical abilities, so you are able to succeed in future courses. My responsibility is to help you in any way I can to accomplish these goals, however it is your responsibility to be committed to your own success and keep up with the pace of the class. To do so you need to complete assignments on time and please ask questions when you have them.

Out of Class Assignments: The Department of Education policy states that one (1) credit hour is the amount of student work that reasonably approximates not less than one hour of class time and two (2) hours of out-of-class time per week over the span of a semester. WASC has adopted a similar requirement. This means you should plan on 3 hours of class time, plus an additional 6 hours each week for working outside of class. This means you should spend at least 9 hours working on math each week.

Course Rules:
1) Late work is not accepted. If you are going to be gone, contact me before the absence to make arraignments.
2) There are no make up tests.
3) It is your responsibility to drop or withdraw the class. Failure to do so will result in a regular grade (most probably an F).
4) Regular attendance is recommended and expected. The instructor can drop you from the class if you have more than the allowed number of absences.
5) You need to ask questions whenever you have them. If not in class, please come to my office during office hours, call me, email me, go to the math lab, google it, YouTube it, etc.
6) It is your responsibility to make up the work you missed if you are absent. I highly recommend finding someone else to copy notes and material from that were covered in your absence.

Course Grading Based on Course Objectives

There will be 3 in class exams, worth 100 points each. The final is comprehensive and is worth 150 points. There are no make-ups for the exams or final. Plan to be here for the exam dates in the schedule, but also note that those dates can change, so make sure you are paying attention and staying up to date. Any missed exam will result in the grade of a '0'.

The combined total of your quizzes is worth 20% of your grade. Your lowest two quizzes will be dropped. There are no make ups.

Grading: You need at least a total of 70% for a 'C' grade. It is broken down as follows

Quizzes	20%
Exams	60%
Final	20%
Total	100%

The grade categories are as follows: A 100%-90%, B 89.9%-80%, C 79.9%-70%, D 69.9%-60%, F 59.9%-0%

Attendance, class participation and a subjective instructor's interpretation of work may be used in assigning a final grade to borderline cases.

Anticipated Class Schedule/Calendar

Tentative, subject to change without prior notice

Week 1 8/15-8/19	1.1, 1.2, 1.3
Week 2 8/22-8/26	1.4, 1.5, 1.6
Week 3 8/29-9/2	1.7, 1.8, 1.9
Week 4 9/5-9/9	1.9, 2.1, 2.2
Week 5 9/12-9/16	2.3, Exam 1
Week 6 9/19-9/23	2.3, 2.4, 2.5
Week 7 9/26-9/30	(2.6, 2.7), 2.8, 2.9
Week 8 10/3-10/7	3.1, 3.2, 3.3
Week 9 10/10-10/14	4.1, 4.2, 4.3
Week 10 10/17-10/21	4.4, Exam 2
Week 11 10/24-10/28	4.5, 4.6, 4.7, 4.9
Week 12 10/31-11/4	5.1, 5.2, 5.3, 5.4
Week 13 11/7-11/11	5.4, 5.5, 6.1
Week 14 11/14-11/18	6.2, 6.3, 6.4, 7.1
Week 15 11/21-11/25	Thanksgiving break
Week 16 11/28-12/2	Review, Exam 3
Week 17 12/5-12/9	Final Exam