Basic Course Information

Semester	**Fall 2014**	Instructor Name	**Mr. Voldman**
Course Title & #	**Math 230(Linear Algebra)**	Email	**alex.voldman@imperial.edu**
CRN #	**10443**	Webpage (optional)	
Room	**2721**	Office	**Room 2764**
Class Dates	**08/18/14-12/13/14**	Office Hours	**MW 10-11:30, TTH 12-12:30**
Class Days	**MW**	Office Phone #	**760-355-6299**
Class Times	**11:50-1:15**	Office contact if student will be out or emergency	**760-355-6155, 760-355-6201**
Units	**3**		

Course Description

A first course in linear algebra intended for students majoring in mathematics, the physical sciences, engineering or business. Topics included are: systems oflinear equations, matrices and determinants, vector spaces, linear transformations, eigenvalues and eigenvectors, and selected applications.

Student Learning Outcomes

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

1. Solve systems of linear equations and inequalities using elimination methods.
2. Apply the techniques of matrix algebra to the solution of systems of linear equations and inequalities.
3. Compute the determinant of a square matrix and apply determinants to matrix operations.
4. Perform vector operations in two or more dimensions and determine vector linear relationships, matrix dimension and rank.
5. Find the projection of vectors on planes in space using matrices and the Gramm-Schmidt process.
6. Demonstrate the transformations of linear systems and find the kernel and range of such transformations.
7. Compute the scalar eigenvalue and eigenvector of a square matrix and diagonalize square matrices.
8. Choose appropriate techniques of linear algebra to solve application problems from different fields.

Textbooks & Other Resources or Links

Lay, David (2011). *Linear Algebra and Its Applications* (4th/e). Addison Wesley. ISBN: 978-0321385178

Course Requirements and Instructional Methods

Homework (Online Assignments): You will need to log into https://imperial.blackboard.com/; there, you will find the homework problems, along with projects and project tutorial assignments.

Project

Purpose: To introduce technology (MATLAB)
Place to work on the project: MATHLAB (Building 2500)
No late project will be accepted!

Exams

Purpose: To review the material introduced in class and to evaluate your understanding of the material covered in the course. There will be no make-up exams given. Zeros will be given for all missed tests.

Final Exam (comprehensive)

Office Hours

Your professor urges you to avail yourself of his/hers individual instruction during office hours. Do not wait until you are in trouble. If you have been absent or late to class, please read the lesson you missed and come to his/her office prepared with questions.

Course Grading Based on Course Objectives

Grade Distribution

Project	Exams	Final
100 points	200 points	200 points

Project	**10%**
Exams	**60%**
Final	**30%**

Attendance

- A student who fails to attend the first meeting of a class or does not complete the first mandatory activity of an online class will be dropped by the instructor as of the first official meeting of that class. Should readmission be desired, the student's status will be the same as that of any other student who desires to add a class. It is the student's responsibility to drop or officially withdraw from the class. See General Catalog for details.
- Regular attendance in all classes is expected of all students. A student whose continuous, unexcused absences exceed the number of hours the class is scheduled to meet per week may be dropped. If you are 10 minutes late you will be marked absent. Do not make doctor, counseling, or any appointments during class time. Leaving during lecture will be considered an unexcused absence. If you have to leave anytime during class, other than established break times, you must inform your instructor.
- Absences attributed to the representation of the college at officially approved events (conferences, contests, and field trips) will be counted as 'excused' absences.

Classroom Etiquette

- Electronic Devices: Cell phones and electronic devices must be turned off and put away during class unless otherwise directed by the instructor.
- Food and Drink are prohibited in all classrooms. Water bottles with lids/caps are the only exception. Additional restrictions will apply in labs. Please comply as directed.
- Disruptive Students: Students who disrupt or interfere with a class may be sent out of the room and told to meet with the Campus Disciplinary Officer before returning to continue with coursework. Disciplinary procedures will be followed as outlined in the General Catalog. Disruptive and inconsiderate behavior will

not be tolerated! Absolutely no talking during lecture unless you have questions! Respect your classmates and your instructor.

- Children in the classroom: Due to college rules and state laws, no one who is not enrolled in the class may attend, including children.

Academic Honesty

- Plagiarism is to take and present as one's own the writings or ideas of others, without citing the source. You should understand the concept of plagiarism and keep it in mind when taking exams and preparing written materials. If you do not understand how to correctly 'cite a source', you must ask for help.
- Cheating is defined as fraud, deceit, or dishonesty in an academic assignment or using or attempting to use materials, or assisting others in using materials, or assisting others in using materials, which are prohibited or inappropriate in the context of the academic assignment in question.

  Anyone caught cheating or will receive a zero (0) on the exam or assignment, and the instructor may report the incident to the Campus Disciplinary Officer, who may place related documentation in a file. Repeated acts of cheating may result in an F in the course and/or disciplinary action. Please refer to the General School Catalog for more information on academic dishonesty or other misconduct. Acts of cheating include, but are not limited to the following: (a) plagiarism; (b) copying or attempting to copy from others during an examination or on an assignment ;(c) communicating test information with another person during an examination; (d) allowing others to do an assignment or portion of an assignment, (e) use of a commercial term paper service

Additional Help

- Me: Office Hours; just walk-in and get help.
- Study Guides: The bookstore has textbooks for sale
- Blackboard support center: http://bbcrm.edusupportcenter.com/ics/support/default.asp?deptID=8543
- Learning Labs: There are several 'labs' on campus to assist you through the use of computers, tutors, or a combination. Please consult your college map for the Math Lab, Reading & Writing Lab, and Learning Services (library). Please speak to the instructor about labs unique to your specific program
- Library Services: There is more to our library than just books. You have access to tutors in the learning center, study rooms for small groups, and online access to a wealth of resources.

Disabled Student Programs and Services (DSPS)

Any student with a documented disability who may need educational accommodations should notify the instructor or the Disabled Student Programs and Services (DSP&S) office as soon as possible. The DSP&S office is located in Building 2100, telephone 760-355-6313 if you feel you need to be evaluated for educational accommodations.

Student Counseling and Health Services

Students have counseling and health services available, provided by the pre-paid Student Health Fee. We now also have a fulltime mental health counselor. For information see http://www.imperial.edu/students/student-health-center/. The IVC Student Health Center is located in the Health Science building in Room 2109, telephone 760-355-6310.

Student Rights and Responsibilities

Students have the right to experience a positive learning environment and due process. For further information regarding student rights and responsibilities please refer to the IVC General Catalog available online at http://www.imperial.edu/index.php?option=com_docman&task=doc_download&gid=4516&Itemid=762

Information Literacy

Imperial Valley College is dedicated to help students skillfully discover, evaluate, and use information from all sources. Students can access tutorials at http://www.imperial.edu/courses-and-programs/divisions/arts-and-letters/library-department/info-lit-tutorials/

Anticipated Class Schedule / Calendar

Date or Week	Activity, and/or Assignment	Material, and/or Topic
Week 1 August 18-23	Syllabus & Orientation MATLAB Orientation Chapter 1, Sections 1.1-1.4	Vector and matrix equations
Week 2 August 25-30	Chapter 1 Sections 1.5-1.7	Solution sets, applications, linear independence
Week 3 September 1-6	**Monday-Holiday** Chapter 1 Sections 1.8-1.9	Linear Transformations
Week 4 September 8-13	Chapter 2 Sections 2.1-2.4	Matrix operations, the inverse of a matrix, invertible matrices
Week 5 September 15-20	Chapter 2 Sections 2.6,2.8-2.9	Applications, subspaces, dimension and rank
Week 6 September 22-27	**Exam I-Monday** Chapter 3 Sections 3.1-3.2	Determinants
Week 7 September 29-October 4	Chapter 3 Sections 3.3 Chapter 4 Sections 4.1-4.2	Cramer's Rule Vector spaces
Week 8 October 6-11	Chapter 4 continued Sections 4.3,4.5-4.6 **Project Part I-Monday**	Linear independent sets, bases, rank
Week 9 October 13-18	Chapter 4 Sections 4.7-4.9	Applications
Week 10 October 20-25	Chapter 5 Sections 5.1-5.2	Eigenvectors
Week 11 October 27-31	Chapter 5 Sections 5.3-5.4	Diagolization

Week 12 November 3-8	Chapter 5 Section 5.5 **Exam II-Wednesday**	Complex eigenvalues
Week 13 November 10-15	Chapter 5 Section 5.6-5.7 Chapter 6 Section 6.1	Applications
Week 14 November 17-22	Chapter 6 Sections 6.1-6.3	Orthogonality
November 24-29	**THANKSGIVING BREAK (NO CLASSES)**	
Week 15 December 1-6	Chapter 6 Section 6.4 **Project Part II-Monday**	The Gramm-Schmidt process
Week 16 December 8-13	**Final Exam (To be announced)**	

Note: I reserve the right to change this schedule with notification to students