| MAT 242 | ELEMENTARY LINEAR ALGEBRA | Generic |

Class Number: _____ **Days:** ____ **Time:** _____ **Classroom:** _____

Instructor:	Office:
Telephone: Phone: **FAX:** 480–965–8119 (Be sure to write my name on anything you FAX to me.)	Office Hours:
Instructor Web Page:	E-mail:

Course Description: Introduces matrices, systems of linear equations, determinants, vector spaces, linear transformations, and eigenvalues. Emphasizes development of computational skills.

Prerequisite: MAT 210, MAT 251, MAT 265 or MAT 270 with C or better.

Textbook: C. H. Edwards, Jr, and David E. Penney, *Elementary Linear Algebra* (Prentice Hall; one edition (January 1, 1988, reprinted later); ISBN-13: 978–0132582605) [REQUIRED], or C. C. Heckman, *Linear Algebra Without Theory* [OPTIONAL but HELPFUL].

Tentative Schedule

Week	Sections Covered
Week 1	Introduction, Matrices
Week 2	Gaussian Elimination
Week 3	Gauss-Jordan Elimination
Week 4	G-J E, Matrix Arithmetic
Week 5	Inverses, Determinants
Week 6	R^n and Subspaces
Week 7	Review and Test 1
Week 8	Linear Combinations and Linear Independence
Week 9	Bases for Vector Spaces, Row/Column/Null Spaces
Week 10	Coordinates, Change of Basis, Eigenvalues
Week 11	Diagonalization, Linear Transform Representation
Week 12	Kernal and Image
Week 13	Review and Test 2
Week 14	Orthogonal Vectors, Gram-Schmidt
Week 15	Projection and Least Squares, and Review
Week 16	Final Exam

Homework consists of written homework, due weekly, and online homework. Currently, the online homework system is WeBWorK (http://webwork.asu.edu/)

Exams: There will be two midterms and one final exam given during the semester. All midterms will be taken in the classroom on the dates indicated on the given table. Your calculator memory may be randomly viewed during any exam and will be cleared if anything suspicious is written therein. The instructor has the right to regard finding suspicious material in your calculator memory as cheating. Makeup exams are given at the discretion of the instructor and only in the case of verified medical or other emergency, which must be documented, but the instructor must be notified **before** the test is given. Call the instructor or the Math Department Office (480–965–3951) and leave a message or directly notify your instructor.

Grade Allocations	
Tests (Total)	50%
WeBWorK	10%
Written HW	15%
Final Exam	25%

Grade Assignment	
A+	97%+
A	93%–96.99%
A-	90%–92.99%
B+	87%–89.99%
B	83%–86.99%
B-	80%–82.99%
C+	77%–79.99%
C	70%–76.99%
D	60%–69.99%
E	< 60%

Final Exam: Location and time to be announced. The final exam is NOT comprehensive.

ASU Learning Support Services (LSS): The LSS (https://studentsuccess.asu.edu/) provides counseling, tutoring in math (and many other subjects), supplemental instruction, and other types of support to students. LRC resources are available in many residence halls and in the Memorial Union, Room 14. See the LRC web page for further information.

Graphing Calculator: A graphing calculator is required for this course. If you already have a graphing calculator, you may use it. Examples of highly recommended models are the TI 83/84 calculators or Casio fx-9750 Plus. Calculators with QWERTY keyboards or those that do symbolic algebra, such at the Casio FX2, Casio 9970Gs, TI-89,or TI-92 cannot be used during an exam.

Attendance: Attendance is mandatory. Your instructor reserves the right to take attendance and to incorporate your attendance as part of your overall grade. For classes that meet two days a week, the maximum number of absences is four (4). Students who exceed the number of allowed absences will receive a grade of EN.

Cell Phones: No cell phone use allowed during lecture or during tests. Having a cell phone out while taking a test might result in an automatic E for the class.

Note: The syllabus is tentative and should not be considered definitive. The instructor reserves the right to modify it (including the dates of the tests) to meet the needs of the class. It is the student responsibility to attend class regularly and to make note of any change. The Instructor also reserves the right to change class policies concerning homework due date, late assignments, etc.

Suggested Problems for MAT 242

Topic		Edwards & Penney		Heckman
Introduction to Linear Systems	1.1	1, 3, 5, 7	1.0	(none)
Matrices and Gaussian Elimination	1.2	1, 9, 11, 13, 15 – 21, 23, 25	1.1	1–6
Gauss-Jordan Elimination	1.3	1, 3, 5, 11, 19, 21, 29	1.2	1–10
Matrix Operations	1.4	3, 7, 9, 19, 21, 23, 29	2.1	1–9
(continued)			2.2	1–5, 7, 8
Inverses of Matrices	1.5	3, 5, 11, 15, 21, 23, 27, 32, 34	2.3	1–4
Higher-Order Determinants	2.2	1, 3, 5, 9, 15, 17, 25, 26	3.1	1–4, 7–9
Linear Combinations and Linear Independence	4.2	1, 5, 7, 9, 13, 15, 19, 21, 23, 25, 27	4.2	1–10
Bases for Vector Spaces	4.3	1, 3, 5, 7, 9, 13, 19, 25	4.3	1–6
Row and Column Spaces	4.4	1, 3, 9, 11, 13, 17, (25)	4.5	1–3
Coordinates and Change of Basis	7.3	3, 5, 7, 9, 11, 13, 15, 17	4.4	1–4, 9–10
Introduction [to Eigenvalues and Eigenvectors]	6.1	1, 5, 13, 17, 19, 23	5.1	1–6
Diagonalization of Matrices	6.2	1, 3, 15, 17, 23, 25	5.2	1–6
(continued)			5.A	1, 4
Matrix Transformations	7.1	1, 3, 5, 13, 17, 19	8.1	1, 2, 5–8
Properties of Linear Transformations	7.2	5, 7, 11, 13, 15, 19	8.2	1–4
Orthogonal Vectors in R^n	5.1	3, 13, 15, 19, 21	6.1	1–6, 9–10
Orthogonal Bases and Gram-Schmidt	5.4	1, 5, 7, 11, 17	6.2	1–3, 6–8, 11–12
Orthogonal Projections and Least	5.2	1, 5, 7, 15, 17, 21	6.3	1–4
Squares Solutions			6.4	1–4
Linear Equations and Curve Fitting	1.6	1, 3, 7, 9	1.A	4–12
Least Squares Curve Fitting	5.3	1, 3, 5, 11, 13, 15, 17	6.A	1–2 ($n = 1, 2$)

Note that, for Heckman's *Linear Algebra Without Theory*, many problems are given; you should do enough to understand how to solve them. For chapters 1 and 2, problems which do not have integer solutions are not given, but can be attempted as well.

Departmental and University Policies and Procedures

Withdrawal: A student may withdraw from a course with a grade of W during the withdrawal period. The instructor's signature is not required. It is the student's responsibility to verify that he or she has officially withdrawn from the class.

The grade of Incomplete: A grade of incomplete will be awarded only in the event that a documented emergency or illness prevents the student who is doing acceptable work from completing a small percentage of the course requirements. The guidelines in the current general ASU catalog regarding a grade of incomplete will be strictly followed.

Instructor-Initiated Drop: At the instructor's discretion, any student who has not attended class during the first week of classes may be administratively dropped from the course. However, students should be aware that non-attendance will NOT automatically result in their being dropped from the course. Thus, a student should not assume they are no longer registered for a course simply because they did not attend class during the first week. It is the student's responsibility to be aware of their registration status.

Final Exam Make-up Policy: The final exam schedule listed in the Schedule of Classes (http://students.asu.edu/final-exam-schedule) will be strictly followed. Except to resolve those situations described below, no changes may be made in this schedule without prior approval of the Dean of the college in which the course is offered. Under this schedule, if a conflict occurs, or a student has more than three exams on one day, the instructors may be consulted about an individual schedule adjustment. necessary, the matter may be pursed further with the appropriate dean(s). This procedure applies to conflicts among any combination of Downtown Phoenix campus, Tempe campus, Polytechnic campus, West campus, and/or off campus class. Make-up exams will NOT be given for reasons of a non-refundable airline tickets, vacation plans, work schedules, weddings, family reunions, and other such activities. Students should consult the final exam schedule before making end-of-semester travel plans.

Honor Policy: The highest standards of academic integrity are expected of all students. The failure of any student to meet these standards may result in suspension or expulsion from the University or other sanctions as specified in the University Student Academic Integrity Policy. Violations of academic integrity include, but are not limited to, cheating, fabrication, tampering, plagiarism, or facilitating such activities. See the following website for more details: http://www.asu.edu/studentaffairs/studentlife/judicial/academic_integrity.htm

Academic Dishonesty: In the "Student Academic Integrity Policy" manual, ASU defines plagiarism as "using another's words, ideas, materials or work without properly acknowledging and documenting the source. Students are responsible for knowing the rules governing the use of another's work or materials and for acknowledging and documenting the source appropriately." You can find this definition at: http://www.asu.edu/studentaffairs/studentlife/judicial/academic_integrity.htm. Academic dishonesty, including inappropriate collaboration, will not be tolerated. There are severe sanctions for cheating, plagiarizing and any other form of dishonesty.

The grade of XE: A grade of XE is reserved for "failure for academic dishonesty." The XE grade may be petitioned after 1 year.

Disability Accommodations: If you have a disability that needs accommodating, please report this privately to the instructor by the end of the first week of class. You should also contact the Disability Resource Center at 480–965–1234 (voice) or 480–965–9000 (TTY). All efforts will be made to ensure you have equal opportunity to succeed in the course.

Classroom behavior: Under no circumstances should you allow your cell phone to ring during class. Any disruptive behavior, which includes ringing cell phones, listening to your mp3 player, text messaging, constant talking, eating food noisily, reading a newspaper will not be tolerated. Students who engage in disruptive classroom behavior may be subject to various sanctions. The procedures for initiating a disruptive behavior withdraw can be found at http://clas.asu.edu/classroom/disruptive.

Academic Integrity: ASU expects and requires all its students to act with honesty and integrity, and respect the rights of others in carrying out all academic assignments. For more information on academic integrity, including the policy and appeal procedures, please visit http://provost.asu.edu/academicintegrity and the Student Conduct Statement below.

Student Conduct Statement: Students are required to adhere to the behavior standards listed in Arizona Board of Regents Policy Manual Chapter V (Campus and Student Affairs: Code of Conduct) (http://www.abor.asu.edu/1_the_regents/policymanual/chap5/5Section_C.pdf), ACD 125: Computer, Internet, and Electronic Communications (http://www.asu.edu/aad/manuals/acd/acd125.html), and the ASU Student Academic Integrity Policy (http://www.asu.edu/studentaffairs/studentlife/srr/index.htm). Students are entitled to receive instruction free from interference by other members of the class. If a student is disruptive, an instructor may ask the student to stop the disruptive behavior and warn the student that such disruptive behavior can result in withdrawal from the course. An instructor may withdraw a student from a course when the student's behavior disrupts the educational process under USI 201-10 http://www.asu.edu/aad/manuals/usi/usi201-10.html