



Prince Sultan University
Department of Mathematical Sciences
SYLLABUS - MATH 223 (Term 112)

Title : Introduction to Linear Algebra

Textbook : Elementary Linear Algebra, 9th Edition; H. Anton.

Instructor : Dr. Jehad Alzabut

Week	Date	Sec.	Topic
1	Jan. 28--Feb. 01	1.1 1.2	Introduction to systems of linear equations Gaussian elimination
2	Feb. 04-- Feb.08	1.3 1.4 1.5	Matrices and matrix operations Inverses; Rules of matrix arithmetic Elementary matrices and a method for finding A^{-1}
3	Feb. 11— Feb. 15	1.6 1.7	Further results on systems of equations & invertibility Diagonal, triangular, and symmetric matrices
4	Feb. 18— Feb. 22	2.1 2.2 2.3	Determinants by cofactor expansion Evaluating determinants by row reduction Properties of the determinant function
5	Feb. 25— Feb. 29	2.4 3.1 3.2	A combinatorial approach to determinants Introduction to vectors Norm of a vector; Vector arithmetic
6	March 03— March 07	3.3 3.4	Dot product; Projections Cross product
7	March 10— March 14	3.5 4.1	Lines and planes in 3-space Euclidean n-space
I	MAJOR I		MARCH 17, 2012 (CHAPTERS 1,2,3)
8	March 17--March 21	4.2 4.3	Linear transformations from R^n to R^m Properties of linear transformations from R^n to R^m
Midterm vacation (March 24- MARCH 28)			
9	March 31--April 04	5.1 5.2	Real vector spaces Subspaces
April 04, 2012 Last day for dropping course(s) with grade of "W"			
10	April 07--April 11	5.3 5.4	Linear independence Basis and dimension
April 11, 2012 Last day for withdrawal from <u>all courses</u> with grade of "W"			
11	April 14--April 18	6.1 6.2	Inner products Angle and orthogonality in inner product spaces
12	April 21--April 25	7.1 7.2	Eigenvalues and eigenvectors Diagonalization
13	April 28—May 02	7.3 8.1	Orthogonal diagonalization General linear transformations
II	MAJOR II		MAY 05, 2012 (CHAPTERS 4,5,6,7)
14	May 05-- May 09	8.2 8.3	Kernal and range Inverse linear transformations
MAY 09, 2012 Last day for withdrawal from <u>all courses</u> with grade of "WP/WF"			
15	May 12-- May 16	9.1 9.3	Applications to differential equations Least squares fitting to data
17—29 May, Final Exams			

Grading Policy:

Exam I: **22.5%** , Exam II: **22.5%**, Quizzes: **10%**, Home Works: **5%** Final Exam: **40%**.

The class work grade is expected to reflect the performance of the student throughout the semester and is based on at least 7 quizzes and home works.

Class attendance:

- Students should not **miss** any class lecture unless absolutely necessary.
- In case a student **misses** a class, he must contact any one of his classmates to get all information and topics covered of classes he **missed**.
- “**DN Grade**” will be issued to a student who **misses 16 classes**. This means you cannot enter any more classes or exams. (**1st warning: 6 absences; 2nd warning: 11 absences**).
- It is your responsibility to **check** your number of absences regularly.
- It is very important that you be in class **on time**.
- The attendance will be taken during the **first 5 minutes** of the class. If you come to class after 5 minutes, you will be marked **absent**.
- From the past experience, **absence** is the biggest reason for failing, so make sure you are in class at all times.

Quizzes and Class work:

- Quizzes will be given at the **beginning** of some lessons. The quiz covers the materials discussed during the previous lectures. (There is no make up for the quizzes)
- For the best performance in the course you need to do the HOMEWORK PROBLEMS assigned by the instructor to be ready for the quizzes and the exams.
- Quizzes and home works contribute 15% to your total grade.

Exams:

- There will be Two Major Exams given during the term.
- A Final Exam at the end of the term covers all the subjects taken during the term and is worthing 40% of your total grade.

Calculators:

- Scientific Calculators are required and needed in this course. (No Graphing Calculators)

Office Hours:

- You are advised and encouraged to seek help to clarify matters that are not clear to you as soon as possible.
- Check the table posted on my door (A – 342) for the office hours in case you need assistance or you need to inquire about matters concerning your marks, absences, and so on. If you need to see me at a different time, arrange with me in advance.