



Prince Sultan University
Department of Mathematical Sciences
SYLLABUS - MATH 223 (Term 091)

Title : Introduction to Linear Algebra

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

Instructor : Dr. Muhammad Islam Mustafa

Week	Date	Sec.	Topic
1	October 3- 7	1.1 1.2	Introduction to systems of linear equations Gaussian elimination
2	October 10-14	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	October 17 -21	1.6 1.7	Further results on systems of equations & invertibility Diagonal, triangular, and symmetric matrices
4	October 24-28	2.1 2.2 2.3	Determinants by cofactor expansion Evaluating determinants by row reduction Properties of the determinant function
5	October 31-November 4	2.4 3.1 3.2	A combinatorial approach to determinants Introduction to vectors Norm of a vector; Vector arithmetic
Exam I (1.1– 2.4) on November 4, 2009			
6	November 7 - 11	3.3 3.4	Dot product; Projections Cross product
7	November 14-18	3.5 4.1	Lines and planes in 3-space Euclidean n-space
Hajj vacation (November 21- December 2)			
8	December 5-9	4.2 4.3	Linear transformations from R^n to R^m Properties of linear transformations from R^n to R^m
9	December 12-16	5.1 5.2	Real vector spaces Subspaces
Exam II (3.1 – 4.3) on December 13, 2009			
December 16, 2009 Last day for dropping course(s) with grade of “W”			
10	December 19-23	5.3 5.4	Linear independence Basis and dimension
11	December 26-30	6.1 6.2	Inner products Angle and orthogonality in inner product spaces
December 30, 2009 Last day for withdrawal from <i>all courses</i> with grade of “W”			
12	January 2-6	7.1 7.2	Eigenvalues and eigenvectors Diagonalization
13	January 9- 13	7.3 8.1	Orthogonal diagonalization General linear transformations
Exam III (5.1 -7.3) on January 13, 2009			
14	January 16-20	8.2 8.3	Kernal and range Inverse linear transformations
January 20, 2010 Last day for withdrawal from <i>all courses</i> with grade of “WP/WF”			
15	January 23-27	9.1 9.3	Applications to differential equations Least squares fitting to data
January 30- February 10, Final Exams			

Grading Policy:

Exam I: **15%** Exam II: **15%** Exam III: **15%** Quizzes and home works: **15%** 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 10 quizzes, attendance, 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 **HOMWORK PROBLEMS** assigned by the instructor to be ready for the quizzes and the exams.
- Quizzes, Home works and class work contribute 15% to your total grade.

Exams:

- There will be Three Major Exams given during the term. The date and the materials included in the exam are shown on the SYLLABUS.
- A Final exam at the end of the term covers all the subjects taken during the term and is worth 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 (E – 338) for the office hours incase 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.