

King Fahd University of Petroleum and Minerals
Department of Mathematics & Statistics
Syllabus Math 260, 2013 (123)

Instructors: Muhammad A. Bokhari & Mohamed Khamisi

Course: Math 260 (Introduction to Differential Equations and Linear Algebra)

Text Book: Differential Equations and Linear Algebra, C. H. Edwards and D. E. Penny, Prentice Hall, Third Edition (2010).

Objectives: This course introduces elementary differential equations and linear algebra to the students of Computer Science, Computer Engineering, System Engineering and Earth Sciences.

Wk.	Date	Section	Material	Homework	Important Note
1	June 8-13	1.1	Differential Equations & Mathematical Models	2, 12, 22, 30, 36, 40	(1) Review the class lecture & read the solved examples from the text before solving the Homework Problems.
		1.2	Integrals as General & Particular Solutions	4, 6, 15, 18	
	(Thursday) June 13	1.4	Separable Equations & Applications	1, 10, 24, 27, 33	
		1.5	Linear First-Order Equations	4, 12, 24, 28, 32	
2	June 15-20 (Thursday) June 20	1.6	Substitution Methods & Exact Equations	2, 10, 22, 40, 60	
		3.1	Introduction to Linear Systems	2, 22, 24, 26	
		3.2	Matrices and Gaussian Elimination	4, 8, 14, 28	
		3.3	Reduced Row-Echelon Matrices	3, 10, 24, 35	
3	June 22-26	3.4	Matrix Operations	3, 10, 20, 24	
		June 23 (Sunday): Review for Exam I (Sec 1.1-3.3)			
		June 23 (Sunday): Major Exam I, Time:7:15 -9:15 pm			
		3.5	Inverse of Matrices	4, 12, 20, 28	
		3.6	Determinants	2, 4, 12, 30, 40,43	
		4.1	The Vector Space \mathbb{R}^3	1, 6,13, 16, 24,26, 30	
		4.2	The Vector Space \mathbb{R}^n & Subspaces	3, 8, 16, 19	
4	June 29-30 July 01-03	4.3	Linear Combination & Independence of Vectors	1, 6, 12, 17, 26	
		4.4	Bases & Dimension for Vector Spaces	3, 8, 13, 16, 22	
		5.1	Second-Order Linear Equations	1, 11,16, 19, 25, 28, 44	
		5.2	General Solutions of Linear Equations	2, 8, 13, 24, 26	
5	July 06-10	5.3	Homogeneous Eqs with Constant Coefficients	1, 4, 14, 22, 28, 33, 38	
		5.5	Nonhomogeneous Eq. (Method of Undetermined Coefficients)	4, 12, 26, 32, 36	
			(Method of Variation of Parameters)	47, 52, 57, 60	
		6.1	Introduction to Eigenvalues	2, 15, 24, 28, 36	
6	July 13-17	6.2	Diagonalization of Matrices	2,14, 25, 28	
		Review for Exam II (Saturday): Review for Exam I (Sec 3.4-5.3)			
		Sunday, July 14: Major Exam II, Time:9:30 -11:30 pm			
		6.3	Applications involving Powers of Matrices	2, 10, 20, 26, 36	
		7.1	First-Order Systems & Applications	2, 8, 13, 18, 21	
7	July 20-24	7.2	Matrices & Linear Systems	2, 4, 12, 16, 20,25	
		7.3	The Eigenvalue Method for Linear Systems	4, 9, 18, 24, 26	
		7.5	Multiple Eigenvalue Solutions	4, 10, 16, 28, 30	
July27 (Last day of class): Review for Final Exam					
Final Exam: Date & Time to be announced					

Grading Policy:

- **Major Exam-I 25% (100 points)**
- **Major Exam-II 25% (100 points)**
- **Final Exam 35% (140 points) Comprehensive**

All exams will be a combination of written & multiple choice types:

- Exam I: Written: 67% MCQ: 33%
- Exam II: Written: 67% MCQ: 33%
- Final Exam: Written: 40% MCQ: 60%

- **Class Work: 15% (60 points):** Based on Quizzes (Minimum 4 quizzes) & Homework etc.

Attendance:

KFUPM attendance policy will be enforced. **DN grade** will be awarded to any student who accumulates 7 unexcused absences.

Exam Questions:

The questions of the common exams are based on the examples, homework problems and the exercises of the textbook (with changed parameters in some cases).

Missing one of the Two Common Major Exams-I or II:

No makeup exam will be given under any circumstance. When a student misses Exam-I or Exam-II for a legitimate reason (such as medical emergencies), his grade for this exam will be determined based on the existing formula which depends on his performance in the non-missing exam and in the final exam.

Academic Integrity:

All KFUPM policies regarding ethics apply to this course.