

King Fahd University of Petroleum and Minerals
Department of Mathematical Sciences
Syllabus Math 260
Semester: Summer Session 2008 (083)
(Instructor: Dr. M. Z. Abu-Sbeih)

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 2001

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

Week	Date	Section	Topic	Suggested Homework
1	July 11 –15	1.1	Differential Equations & Mathematical Models	2, 11, 20, 30, 32, 39
		1.2	Integrals as General & Particular Solutions	4, 6, 15, 18
		1.4	Separable Equations & Applications	1, 10, 24, 27, 29
		1.5	Linear First-Order Equations	4, 12, 24, 28, 32
2	July 18 – 22	1.6	Substitution Methods & Exact Equations	2, 10, 22, 40, 48
		3.1	Introduction to Linear Systems	2, 22, 24, 26
		3.2	Matrices and Gaussian Elimination	4, 8, 14, 28
3	July 25 – 29	3.3	Reduced Row-Echelon Matrices	3, 10, 24, 35
		3.4	Matrix Operations	3, 10, 20, 24
		3.5	Inverse of Matrices	4, 12, 20, 28
		3.6	Determinants	2, 4, 12, 30, 40, 43
Wednesday, Jul 29: Date for major exam 1				
4	Aug 1 – 5	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
		4.3	Linear Combination & Independence of Vectors	1, 6, 12, 17, 26
		4.4	Bases & Dimension for Vector Spaces	3, 8, 13, 16, 22
5	Aug 8 - 12	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
		5.3	Homogeneous Equations with Constant Coefficients	1, 4, 14, 22, 28, 33, 38
		5.5	Method of Undetermined Coefficients	4, 12, 26, 32, 36
6	Aug. 15 – 19	5.5	Method of Variation of Parameters	47, 52, 57, 60
		6.1	Introduction to Eigenvalues	2, 15, 24, 28, 36
		6.2	Diagonalization of Matrices	2, 14, 25, 28
		6.3	Applications involving Powers of Matrices	2, 10, 11
Wednesday, August 19: Date for major exam 2				
7	Aug. 22 – 26	7.1	First-Order Systems & Applications	2, 8, 13, 18, 21
		7.2	Matrices & Linear Systems	2, 4, 12, 16, 20, 25
		7.3	The Eigenvalue Method for Linear Systems	4, 9, 18, 24, 26
8	Aug. 29 – 31	7.5	Multiple Eigenvalue Solutions	4, 10, 14, 28, 30
The date and place of the final examination will be arranged by the Registrar. The final examination will be <i>comprehensive</i>.				

King Fahd University of Petroleum and Minerals
Department of Mathematical Sciences
Dr. Mohammad Z. Abu-Sbeih
Summer 2008 (083)

Math 260: Introduction to Differential Equations and Linear Algebra (3 – 0 – 3)

Course Title: Introduction to Differential Equations and Linear Algebra
Course Number: Math 260
Textbooks: Differential Equations and Linear Algebra, C. H. Edwards and D. E. Penny, Prentice Hall 2001
Prerequisite: Math 201
Objectives: This course introduces elementary differential equations and linear algebra to students of Computer Science, Computer Engineering, System Engineering and Earth Sciences.
Instructor: Dr. Mohammad Z. Abu-Sbeih.
Office Location: 5-309
Phone Number: 2697.
Office Hours: Saturday, Monday, Wednesday: 10:30 - 11:30 AM (or by appointment.)

Grades:	(1)	2 Major Exams (25 points each)	50%
	(2)	4 Quizzes (out of 5)	20%
	(3)	Comprehensive Final	30%
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		Total:	100%

Attendance: The university regulations on attendance say: students are expected to attend all classes. However, valid excuses are accepted for eligible reasons.

1. The only acceptable excuse for absence is the one authorized by the Deanship of Student Affairs on their prescribed form.
2. The excuse should be presented to the instructor no later than one week following the resumption of class attendance.
3. **If the unexcused absences reach 7 classes, the student will get a “WF” grade.**
4. Coming late to the class is not acceptable. However it will be counted as $\frac{1}{2}$ absence.

Academic Honesty: The principles of truth and honesty are fundamental in the academic work. Any type of academic dishonesty will not be forgiven.

1. If a student copy the homework from a friend, he will get ZERO on all homework's of the course.
2. A cheating in a quiz will result in a ZERO grade on all quizzes.
3. If a student cheats in a major Exam or a final, he may get an “F” in the course and he will be reported to the Dean of the College for further disciplinary action.
4. Any attempt of cheating is considered as an act of academic dishonesty.

Homework: The students are expected to do the assigned homework problems by themselves because it is an integral part of the teaching process. It teaches the students on how to write and communicate thoughts and ideas. That is why the homework should be written in a clear and detailed manner as if you are writing to explain the problem to a friend not to the instructor. **LATE HOMEWORK WILL NOT BE ACCEPTED.**

IMPORTANT NOTE: It is the student's responsibility to keep informed of any announcements, syllabus adjustments or policy changes made during scheduled classes.