

SM316 - ENGINEERING MATHEMATICS

Fall 2011-2012 Semester

Textbooks:

1. *Probability & Statistics for Engineers & Scientists, 9th Ed*, Walpole, et al, Pearson, 2012.
2. *Linear Algebra, 4th Ed*, S. Lipschutz & M. Lipson, Schaum's Outline, McGraw Hill, 2009.

At the beginning of the semester, your instructor will inform you of his or her policy regarding grading, homework, quizzes, examinations, tables and calculators. The final exam will be a common one for the course. It is your responsibility to study the assigned sections and complete the assigned problems from the texts.

Lesson	Section	Topic	Date	Problems
1	(Text #1) 2.1, 2.2	Sets and Sample Spaces	08/22	2.1, 2.2,2.3,2.4,2.14
2	2.2,2.3	Set operations; Counting	08/24	2.8,2.15, 2.21, 2.22, 2.23
3	2.3,2.4	Permutations & Combinations; Probability	08/26	2.26,2.30,2.34,2.49,2.50, 2.53
4	2.5,2.6	Probability and Conditional Probability	08/29	2.48,2.52,2.56, 2.58, 2.61,2.73,2.74
5	2.6,2.7	Conditional Probability, Tabular Venn Diagrams(TVD)	08/31	2.77, 2.82,2.95,2.97

6	2.7	Independence, Bayes' by TVD	09/02	2.79, 2.89, 2.99, 2.101
7	3.1,3.2	RV's Discrete RV's PMF	09/06 (Mon.sched.)	3.1, 3.2, 3.3,3.5.3.11
8	3.2,3.3	Discrete CDF & Continuous RV's: PDF	09/07	3.12,3.13,3.7.3.9
9	3.3	Continuous RV's & CDF	09/09 (Mon)	3.14, 3.21,3.29
10	REVIEW		09/12	
11		EXAM I	09/14	
12	4.1	Mean of a RV	09/16	4.5,4.6,4.7,4.12
13	4.1,4.2	Mean of a Funct. of a RV & Variance	09/19	4.13, 4.17,4.20 4.33.4.34
14	4.2,4.3	Variance & Properties of Mean & Varaince	09/21	4.37,4.53,4.57,4.59
15	4.3 & 5.1-5.3	Properties Discrete uniform & Binomial RV's	09/23	4.55, 5.2, 5.3; Find mean and variance of X in 5.3

16	5.1-5.3	Binomial RV's	09/26	5.8,5.10, 5.11,5.12
17	6.1,6.2	Continuous Uniform &Normal RV's	09/28	6.1, 6.3, 6.4, 6.5
18	6.2-6.4	Normal (Gaussian) RV	09/30	6.7,6.8,6.9, 6.13, 6.16, 6.18
19	6.6-6.7	Gamma, Exp. & Chi-Squared RV's	10/03	6.40,6.41,6.45
20	8.1, 8.2	Sample Means & Variances	10/05 (Mon)	8.1,8.4,8.5, 8.6, 8.10
21	8.3,8.4	Sampling Distributions	10/07	8.18,8.19,8.22
22	8.4	Central Limit Theorem	10/12	8.24,8.26, 8.28, 8.29,8.32
23	8.5	Sampling Distribution of S^2	10/14	8.37,8.39,8.41
24	REVIEW		10/17	
25		EXAM II	10/19	
26	8.6	t-Distribution	10/21	8.42,8.44,8.45,8.46
27	8.6,9.1-9.3	t-Distribution, Estimation & Confidence Intervals (CI's)	10/24	8.48 ,9.29
28	9.4	CI's σ known	10/26	9.2, 9.3, 9.4

29	9.4	CI's σ known, σ unknown	10/28	9.5, 9.6, 9.11
30	9.4	CI's σ unknown	10/31	9.10, 9.14
31	Applications		11/02	
32	(Text #2) 2.1-2.6	Matrix Algebra	11/04	2.38, 2.39, 2.40(a), 2.43(c), 2.44
33	2.1,3.2,3.7,3.8	Linear Systems; Gaussian elimination(rref)	11/07	3.54, 3.55(a)
34	3.8,3.11	Do 3.56(a); Gauss Jordan reduction, Homogeneous systems	11/09	3.55(b), 3.56(b), 3.59
35	2.7,2.9	Square Matrices; Matrix inverse	11/14	2.50, 2.54, 2.55, 3.53(a) solve by matrix inverse
36	2.10,3.13	Special Matrices, LU	11/16	2.59(a), 2.68, 3.69(b)
37	3.13	LU Factorization	11/18	Find LU Fact. Of 3.66 - A & B; 3.69(a), 3.70

38	4.8, 4.9(p.126), 8.2, 8.3	Linear Independence, Dependence, Rank Determinants	11/21	Determine if $u = (1,2,3)$ and $v = (3,2,1)$ are linearly dependent, 4.89, 4.104, 8.39(a),8.40(b)
39	8.6,8.10, 9.4	Determinants & Cramer's Rule Eigenvalues & Eigenvectors	11/23	8.40(d), 8.52(a),8.53(b), 9.45(a),9.48(a)
40	9.4,6.4	Eigvals & Eigvecs, Similarity and diagonalization	11/28	9.45(b),(c), 9.48(b),(c) In 9.45 & 9.48 - diagonalizable & why?
41	Applications		11/30	
42	REVIEW		12/02	
43		EXAM III	12/05	
44	REVIEW		12/07	
45	REVIEW		12/09	