

Syllabus for MATH 6171 Advanced Applied Mathematics I

Text: Advanced Engineering Mathematics, Ninth Edition, by E. Kreyszig

Lecture(s)	Section(s)	Contents
1	5.1	Power Series Method
2	5.3	Legendre's Equation
3	5.4	Frobenius Method
4	5.5	Bessel's Equation
5	6.1–6.2	Laplace Transform, Differential Equations
6	6.3–6.4	Unit Step Function, Dirac's Delta Function
7	6.6, 6.8–6.9	Differentiation and Integration of Transforms
8		Review
9		Test 1
10	9.1–9.3	Inner Product, Vector Product
11	9.4	Vector and Scalar functions and Fields
12	9.7–9.8	Gradient of a Scalar Function, Divergence of a Vector Field
13	9.9, 10.1	Curl of a Vector Field, Line Integrals
14	10.2	Path Independence of Line Integrals
15	10.4, 10.6	Green's Theorem, Surface Integrals
16	10.7, 10.9	Trip Integrals, Theorem of Gauss, Stokes's Theorem
17		Review
18		Test 2
19	11.1–11.2	Fourier Series
20	11.3–11.4	Even and Odd Functions, Half-Range Expansions
21	11.7–11.9	Fourier Integral and Transform
22	12.1–12.3	Wave Equation, Solution by Separating Variables
23	12.4–12.5	D'Alembert's Solution, Heat Equation
24	12.6	Solution by Fourier Integrals and Transforms
25	12.7–12.8	Rectangular Membrane, Double Fourier Series
26	12.10	Laplace's Equation in Spherical Coordinates
27	12.11	Solution by Laplace Transforms
28		Review
29		Catch Up
30		Test 3

MATH 6171-001 Fall 2006

MW 2:00 p.m. – 3:15 p.m. Cameron Applied Research Center 119

Text: Advanced Engineering Mathematics, by E. Kreyszig (9-th Edition), 2006.

Instructor: Prof. You-lan Zhu

Office: 390F Fretwell, Phone: 704-687-4909,

E-mail: yzhu@uncc.edu, Web: www.coe.uncc.edu/~yzhu/classes,

Office Hours: MW 12:30 p.m.-1:45 p.m. and by appointment.

Homework will be assigned every lecture. There are two types of homework problems, with * and without *. Every Monday students should turn in all the homework problems with * assigned during the previous week for grading. However you also need to do the problems without * because these materials are also required and certainly will appear on the tests. Homework counts 30% of your grade.

There will be three tests but no final exam. No makeup tests will be given without a reasonable, documented excuse. Each of the first two tests counts 20% of your grade and the third test 30%. You should expect that an average of 90% or better will be needed for an A, 89% - 80% for a B. Otherwise a C (79% - 60%) or U (below 60%) will be given.

As with most mathematics classes, the material covered in one class usually depends heavily on the material from previous classes. It is very important that you try to keep up with class assignments. If you have any questions, do not hesitate to ask me.

P.S.

	Estimated Dates	Percentages	Chapters
Test 1	9/20 or so	20%	5-6
Test 2	10/25 or so	20%	9-10
Test 3	12/6, 11, 2:00-3:15p.m.	30%	11-12