

# **Mathematics of Physics and Engineering II**

## **MATH 445**

**Text:** Advanced Engineering Mathematics, 10<sup>th</sup> Ed.

This is a course that introduces topics that are useful in various Engineering and Physics courses as well as Applied Mathematics courses.

Topics will include Vector field theory: theorems of Gauss, Green and Stokes; Fourier series and integrals; complex variables; linear partial differential equations; series solutions of ordinary differential equations.

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### **GRADING POLICY**

2 Midterm exams – 40% of grade

Quizzes after deleting the 3 lowest scores – 30%

Final – 30%

## Approximate Schedule

<b>Week</b>	<b>Sections covered</b>
1	Chap.13, Sec.1-2
2	Chap. 13, Sec. 3-4
3	Chap. 13, Sec. 5-7
4	Chap. 11, Sec. 1, 2
5	Chap. 11, Sec. 4, 5, 7
6	Chap. 11, Sec. 8, 9
7	Chap.12, Sec. 1,2, 3
8	Chap. 12, Sec. 4, 5
9	Chap. 12, Sec. 6, 7, 8
10	Chap. 12, Sec. 9, 10
11	Chap. 11, Sec. 5; Chap. 12, Sec. 11
12	Chap. 14, Sec. 1, 2, 3
13	Chap. 14, Sec. 4, Chap 16, 1, 2
14	Chap. 16, Sec. 3, 4
15	Review

### Problem Assignments (These may vary)

Additional problems will be given in class, some for credit and some not.

SEC	PROBLEMS	SEC	PROBLEMS	SEC	PROBLEMS
13.1	2,9,13,19	12.1	3,5,9,11,15	14.2	9, 15, 17, 21, 23
13.2	5,11,15,23,30	12.2	none	14.3	3, 11, 13, 19
13.3	1,3,7,11,19	12.3	7, 9,11	14.4	3, 7, 9
13.4	3,7,9,17, 29	12.4	3	15.4	5, 10
13.5	3, 9 ,15 ,19	12.5	none	16.1	5, 7, 9, 25
13.6	5,19	12.6	11,15	16.2	5, 7, 13, 17
13.7	7,15,19,23,27	12.7	3, 5	16.3	5, 11, 19, 23, 25
11.1	1,3,7,15,21	12.8	none	16.4	3, 13, 17, 23, 25
11.2	9,11,17,25,27	12.9	5,7		
11.4	None	5.1	11,15		
11.5	6,7,13	5.2	See below *		
11.6	None	5.3	3, 7		
11.7	3, 11	5.4	3, 5		
11.8	1, 9	12.10	2,3,5,7, 21		
11.9	5,9,11	12.11	13,17		

5.2\* Show  $P_1$  is perpendicular to  $P_2$  and  $P_1$  is perpendicular to  $P_3$

The homework is automatically assigned and should be attempted as soon as the pertinent section is covered in the lecture. If you have questions regarding the homework you are encouraged to consult the Instructor.

The homework will not be collected. It is your responsibility.