

Mathematics of Physics and Engineering I

MATH 245

Fall 2013

10:00 – 10:50

VKC 100

Text: “Differential Equations, 2nd ed.” by Brannan and Boyce*

The topics covered in the course will include:

Chapters:

Sections:

- | | |
|--|---------|
| 1. Introduction | 1, 2, 4 |
| 2. First Order Differential Equations. | 1 – 5 |
| 3. Systems of Two First Order Differential Equations | 1 – 5 |
| 4. Second Order Linear Equations | 1 – 7 |
| 5. The Laplace Transform | 1 – 8 |
| 6. Systems of First Order Linear Equations | 1 – 5 |
| 7. Nonlinear Differential Equations and Stability | 1, 2, 4 |

* For Table of contents see link on course web page

Instructor: Robert Sacker

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Office hours: See “Course Web page” below.

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Course web page: <http://www-bcf.usc.edu/~rsacker/M245.html>

Course credit: 4 units

Teaching Assistant / Office Hours:

See “Course Web page” above.

Grader:

See “Course Web page” above.

Midterm Exam 1:	Wednesday	September 25	
Midterm Exam 2:	Wednesday	November 6	
Final	Monday	December 6	8:00 to 10:00

Last day to drop without “W”:

September 13

Last day to drop with “W”:

November 15

Grading Distribution

2 Midterm exams – 40% of grade

Homework –15%

Quizzes –15%

Final – 30%

	Class	Schedule
Week	Sections covered*	
1	1.1, 1.2, 1.4, 2.1	
2	2.2, 2.3	
3	2.4, 2.5, 3.1	
4	3.2 – 3.4	
5	3.5	
6	4.2, 4.3	
7	4.4 – 4.6	
8	4.6, 4.7	
9	5.1, 5.2	
10	5.3 – 5.5	
11	5.6	
12	5.8, 6.1, 6.2	
13	6.3 – 6.5	
14	7.1, 7.2, 7.4	

* This is approximate and may vary according to holidays

SECTION	PROBLEMS*
1.2	1c, 8c, 13, 18, 27, 33
1.4	1, 3, 5, 10, 14
2.1	1, 2, 6, 13a, 21, 30a-e
2.2	1, 5, 7, 10, 17
2.3	1, 4, 5, 13, 25, 30
2.4	2, 3, 9, 18, 23ab
2.5	1ab, 2ab, 7ab, 8ab, 18
3.1	1, 4, 7, 14, 15, 22, 28, 34
3.2	1, 3, 4, 10a, 16, 25
3.3	1, 8, 22
3.4	2, 4, 7, 13, 18
3.5	1, 9
4.1	1, 2, 3, 4, 5
4.2	1, 5, 9, 13, 22
4.3	1ab, 2ab, 12ab, 28, 39, 46
4.4	2, 5a, 10, 13, 24
4.5	1, 2
4.6	3, 6, 8, 17
4.7	2, 10, 15
5.1	1, 2, 10, 12, 15, 26
5.2	9, 11a, 13, 21, 23
5.3	2, 6, 11, 16
5.4	1, 3, 8, 12, 15
5.5	2, 8, 11, 15
5.6	1, 3, 6, 10
5.7	1, 2, 12, 21
5.8	4, 6, 12, 16
6.1	3, 8
6.2	2, 6, 9, 13
6.3	2, 4, 11
6.4	1, 3, 7
6.5	2, 4
7.1	2a, 4a, 14a
7.2	6abc, 19abc
7.4	1abc

* Homework is assigned automatically once a section is covered