

Math 334 -5
Ordinary Differential Equations

Winter Semester 2007

Professor: *Vianey Villamizar*
Office: 366 TMCB

Class: 11:00 - 11:50 a.m. MWF 275 MARB
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Office Hours: **Monday** 5:00 – 6:00 p.m. (office),
Wednesday 5:00-6:30 p.m. Problem session at 368 MARB
Friday 1:30-2:30 p.m. (office)

Grader: Michael Merkley, E-mail: mandm_swim@hotmail.com or 801-380-2715

Text: Elementary Differential Equations, 8th Edition, Boyce - DiPrima, Wiley 2005.

Week	Date	Sections	Comments
1	Jan 8 – Jan 12	1.1, 1.2, 1.3-2.1	
2	Jan 15 – Jan 19	2.2, 2.3(I)	Quiz 1 , Testing Center Jan 18 - 19 (Th-Fr) Monday, Jan 15: Martin Luther King Holiday
3	Jan 22 – Jan 26	2.3(II), 2.4, 2.5	Monday, January 22: Last day to drop the class w/o W
4	Jan 29 – Feb 2	2.6(I), 2.6(II), 2.7	Quiz 2 , Testing Center Feb 1 - 2 (Th-Fr)
5	Feb 5 – Feb 9	2.8, 3.1, 3.2(I)	
6	Feb 12 – Feb 16	3.2(II), 3.3, 3.4	Quiz 3 , Testing Center Feb 15 – 16 (Th-Fr)
7	Feb 19 – Feb 23	3.5, 4.1-4.2, 3.6	Monday, February 19: Presidents Day Holiday Tuesday, February 20: Monday Instruction
8	Feb 26 – Mar 2	4.3,/3.7, 4.4/, 3.8(I)	Midterm Testing Center Mar 1 - 3 (Th-Sat) Review Session Wed Feb 28 5:00-6:30 p.m.
9	Mar 5 – Mar 9	3.8(II), 3.9, 5.1-5.2	
10	Mar 12 – Mar 16	5.3, 5.4, 5.5	Quiz 4 , Testing Center Mar 15 - 16 (Th-Fr)
11	Mar 19 – Mar 23	5.6-5.7, 6.1, 6.2	
12	Mar 26 – Mar 30	6.3, 6.4, 6.5	Quiz 5 , Testing Center Mar 29 - 30 (Th-Fr)
13	Apr 2 – Apr 6	6.6, 7.1-7.4, 7.5	
14	Apr 9 – Apr 13	7.6, 7.8, 7.7	Quiz 6 , Testing Center Apr 12 – Apr 13 (Th-Fr)
15	Apr 16 – Apr 21	Review, Wed, Th Reading days	Final Exam: Saturday April 21, 11:00-2:00 p.m. in our regular classroom Review Session Wed Apr 18 2:00-4:00 p.m.

Objectives: To provide the students with a sound and accurate knowledge of the elementary theory of ordinary differential equations. Physical problems have motivated the development of much of mathematics, and this is especially true of differential equations. Many fundamental problems in science, engineering, and other areas as economics are described by differential equations and more and more problems of new and emerging technologies are also described by differential equations. The learning of differential equations can be greatly enhanced by use of Mathematical software, such as MAPLE. I will include MAPLE demonstrations in most of my classes. You can find the corresponding worksheets on my web page. I highly recommend you to get some expertise in its use and syntaxes. Many of the problems are best approached with computational assistance.

I believe that my role as your instructor is to help and assist you in the process of learning mathematics. I will do my best to fulfill this role. I know that we will enjoy this class as we go along by making a consistent effort throughout the semester. **My best advice to you is found in D&C 4:2 replacing the first line by O ye that embark in Math 334, see that ye work with all**

Homework: Homework corresponding to two previous class period will be collected at the end of each class. You are strongly encouraged to work on homework problems everyday. You should be willing to put in at least two to three hours outside the classroom for each hour of class. **I expect that you do not work on your homework during the class period.** Solutions to exercises should be clearly written and adequately explained. In other words, it is insufficient just to write down the answer.

Late homework will not be accepted. To make up for this your lowest four homework grades will be dropped. This policy will take care of any extraordinary circumstances as for example a sickness, a wedding, and others. Discussion of homework assignments is allowed, but you should keep in mind that **homework is an individual work.**

Homework Format (PLEASE ADHERE TO THE FOLLOWING HOMEWORK FORMAT): Use one side only of standard letter-sized paper. Put your name at the top of each sheet. Keep problems in order, and label each problem with its number and page. Place only one problem in any horizontal space; visually separate consecutive problems by drawing a line between them entirely across the page. If the problem has a numerical answer, highlight it in some way. If the answer to a problem involves a sequence of logical steps, set them clearly. Use correct grammar and complete sentences.

To submit homework, stack the sheets in order and fold the stack lengthwise to form a “book” with the back of the last sheet on the outside. On the front of the “book,” write your name, your Math 334 section, and the section of the text from which these problems are taken. Each homework sets should contain problems from only one section of the text. Homework problems to be graded will be chosen among the whole set of problems. Incomplete homework will receive partial credit according to the amount of problems worked out.

Exams: The Midterm exam will be based on the material covered until the previous Monday. The final exam will be comprehensive. The Midterm exam will be given in the testing center. I expect that most students will finish it in at most three hours. However, the time limit will be up to four hours. Only basic scientific calculators (no graphic or symbolic ones) will be allowed in all exams. Also, a one-sided card of notes, no larger than 8” by 5”, will be permitted in the midterm and final exams. No books and no other notes will be allowed. Every other week quizzes one hour and a half long (six in total) will be given in the testing center on Fridays. The final quizzes grade will be based on your best five quiz grades. Make up exams and quizzes cannot be arranged except in case of an emergency or absence due to official university business. **The final exam will be in our regular classroom with a limit of three hours. Exam and quizzes dates will be strictly enforced.**

The questions will be similar to those discussed in class, or those assigned as homework, but some of them will require a good understanding of the concepts and techniques. The best way to prepare for the exams is to go over the homework problems and the examples worked in class (they constitute your **best study guide**) and then try to solve related problems that you haven’t seen before. **If you can reach the point where you can do fresh problems without help in all sections, I can anticipate that you will be able to successfully solve all problems on the midterms and final exam.**

Grading: Grades will be based on cumulative points earned as follows:
Homework 20 %, Midterm 25 %, Quizzes 25 %, and Final 30 %.

At the end of the semester, **I will make an average based on each one of the above forms of evaluations with their corresponding weights. Then, a Gaussian curve will help me to determine your final grade.** In any event, the Gaussian curve will not hurt your grade. I will guarantee the following letter grades:

	B+ = 89-87%,	C+ = 79-77%,	D+ = 69-67%,	
A = 100-93%,	B = 86-83%,	C = 76-73%,	D = 66-63%,	E = 59-0%
A- = 92-90%,	B- = 82-80%,	C- = 72-70%,	D- = 62-60%.	

Keep in mind that a good grade is the end result of a good learning process. All of you can get a good grade by successfully experiencing this learning process.

Sexual harassment: BYU's policy against sexual harassment extends not only to employees of the university but to students as well. If you encounter sexual harassment, gender-based discrimination, or other inappropriate behavior, please talk to your professor, contact the Equal Employment Office at 422-5895 or 367-5689, or contact the Honor Code Office at 422-2847.

Students with disabilities: BYU is committed to providing reasonable accommodation to qualified persons with disabilities. If you have any disability that may adversely affect your success in this course, please contact the University Accessibility Center at 422-2767. Services deemed appropriate will be coordinated with the student and instructor by that office.

HOMEWORK ASSIGNMENTS
Math 334 Ordinary Differential Equations – Winter 2007
Instructor: Vianey Villamizar

Due Date	Sections	Problems	Due Date	Sections	Problems	
Jan 12	1.1	4, 8,9,11-13, 15-20, 24, 25, 28,31	Mar 2	4.3	2, 5, 12, 14, 15	
Jan 17	1.2	1,3,4,7,10,11,18	Mar 5	3.7 / 4.4	8, 9, 17, 28, 29/ 3, 6, 13	
Jan 19	1.3-2.1	2,3,6,7,11,13,15,16, 20,25/ 6, 7, 26, 29, 31, 33	Mar 7	3.8(I)	6, 7, 11, 17	
Jan 22	2.2	7, 17, 21, 27, 31	Mar 9	3.8(II)	19, 20, 24, 29	
Jan 24	2.3(I)	1, 4, 9, 13, 16				
Jan 26	2.3(II)	20, 21, 22, 31 (a,b,c)	Mar 12	3.9	6, 9, 11	
Jan 29	2.4	3, 7, 16, 22, 23, 25, 32	Mar 14	5.1-5.2	3, 14, 17, 24 / 6, 11, 19, 21, 24	
Jan 31	2.5	3, 5, 7, 11, 12, 22	Mar 16	5.3	2, 7, 10, 12	
Feb 2	2.6(I)	7, 10, 13	Mar 19	5.4	6, 10, 12, 20, 21, 26	
Feb 5	2.6 (II)	19, 24, 27, 31	Mar 21	5.5	3, 14, 17, 23, 28	
Feb 7	2.7	1, 14, 18, 22	Mar 23	5.6 / 5.7	9, 11, 14, 16 / 3, 6, 14, 16, 20	
Feb 9	2.8	2, 5, 8, 11	Mar 26	6.1	4, 7, 13, 25	
Feb 12	3.1	7, 14, 25, 27	Mar 28	6.2	15, 23, 25, 28, 30	
Feb 14	3.2(I)	3, 10, 15, 18, 19	Mar 30	6.3	4, 9, 18, 30	
Feb 16	3.2(II)	20, 25 26, 27	Apr 2	6.4	9, 12, 18	
Feb 20	3.3	3, 11, 13, 16, 19, 21, 25, 28	Apr 4	6.5	1, 7, 12, 15	
Feb 21	3.4	12, 21, 24, 28, 32, 36, 39	Apr 6	6.6	1, 8, 11	
Feb 23	3.5	11, 16, 20, 26, 37	Apr 9	7.1/ 7.2/ 7.3/7.4	3,7,15, 22,23 / 9, 22,23,26 / 3, 9, 26, 28 / 3, 4, 7	
Feb 26	4.1 / 4.2	3, 6, 13, 21 / 6, 12, 17, 37		Apr 11	7.5	3, 17, 26, 31
Feb 28	3.6	7, 14, 17, 29		Apr 13	7.6	5, 10, 17, 23

Remark: To emphasize some ODE aspects not included in the above list of problems, I might make minor changes to this homework assignments during the semester.