

SYLLABUS - MATH 3325

ORDINARY DIFFERENTIAL EQUATIONS

COURSE: MTH 3325 Section 2 T,TH 9:30 – 10:45am SR 208

INSTRUCTOR: Dr. Lance L. Littlejohn, Office SR 316B

OFFICE HOURS: M: 10:00 am – 11:00 am
W: 2:00 pm -3:00pm
F: 11:00 am -12:00 noon
+ BY APPOINTMENT ONLY

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TEXT: *Fundamentals of Differential Equations* (7th Edition) by Nagle, Saff, and Snider (Pearson/Addison Wesley, 2008).

PREREQUISITES: A grade of C or better in MTH 2321 or concurrent enrollment.

ATTENDANCE: Attendance for each class is expected. You should be aware of the attendance policy as stated in the Baylor catalog. Should you miss a class for whatever reason, you are still responsible for the material discussed and any assignments made. Also, please get to class on time.

GRADING POLICY: Your final grade is based on three components: Quizzes (10%), 3 Midterm Exams (each worth 20%) and a Comprehensive Final Exam (worth 30%). Further details are listed below on each of these components.

HOMEWORK: No homework will be collected – but each student is urged to keep up with the homework that is assigned after each class. Weekly quizzes – see below - will instead be given to make sure that students are keeping up to date on a daily basis.

QUIZZES: Weekly quizzes will be given to make sure that students are keeping up to date on a daily basis. I am hoping that there will be at least 11 quizzes given during the course of the semester and **your best 10 quizzes will count for a total of 10% of your final grade**. Usually, these quizzes will be given on Thursday but sometimes, due to a tight schedule, a quiz may be postponed until the following Tuesday. **NO MAKEUP QUIZZES WILL BE GIVEN.**

MIDTERM EXAMINATIONS: There will be three midterm tests (see schedule below for approximate test dates). **Each of these three midterms will be worth 20% of your final grade.** I am *tentatively* scheduling the following dates for each of our midterm examinations:

Midterm 1: October 1 (Thursday)
Midterm 2: November 5 (Thursday)
Midterm 3: December 3 (Thursday)

COMPREHENSIVE FINAL EXAMINATION: The **comprehensive final examination will be worth 30% of your final grade.** This exam will be given on **Thursday, December 10, 9:00 am –**

11:00 am (be sure to check to see if this date changes or not). **NO CHANGES CAN BE MADE IN THE FINAL EXAM TESTING SCHEDULE, PLEASE PLAN ACCORDINGLY.** If you have a conflict with the final exam time, you should drop the course and take it another semester.

COURSE OBJECTIVES: The purpose of this course is to study the theory and applications of ordinary differential equations. In particular, we will

- (1) learn basic existence/uniqueness theory for ordinary differential equations and initial value problems (ODE's)
- (2) learn the basics of solving first-order linear ODE's
- (3) learn how to solve a large class of second-order linear ODE's
- (4) learn how to solve higher-order linear ODE's, particularly with constant coefficients
- (5) learn applications of differential equations to various problems in biology, circuits, mechanical vibrations
- (6) learn Laplace transforms and how they can be used to solve initial value problems.

The chapters in the textbook that we will specifically study are:

- (1) Chapter 1 – Sections 1.1, 1.2, 1.3, 1.4
- (2) Chapter 2 – Sections 2.2, 2.3
- (3) Chapter 3 – Sections 3.2, 3.3, 3.5,3.7
- (4) Chapter 4 – Sections 4.2, 4.3, 4.4, 4.5, 4.6, 4.7, 4.9 (Note: we will use the annihilator method (see Section 6.3) to solve many problems in this chapter)
- (5) Chapter 6 – Sections 6.1, 6.2, 6.3, 6.4
- (6) Chapter 7 – Sections 7.2, 7.3, 7.4, 7.5, 7.6, 7.7, 7.8
- (7) Chapter 9 – Section 9.5.

Please be sure that all cell phones are in the OFF position during class and during examinations.

Section	Assigned Problems
1.1	1,3,5,7,9,11,15
1.2	1,3,5,7,9,11,14,16,19,21,23,25,27,29
1.3	1,3,10
2.2	1,5,9,11,13,17,19,21
2.3	1,3,5,7,9,13,15,17,19,21,23,28,29,30,31
1.4	1.4: 1,3,5,6,9
3.7	3.7: 7,8,9
3.2	1,3,5
3.3	1,3,5,7
4.2	1-15 (odds), 27,29,34, 35,37,39,43
4.3	1-17 (odds), 21,23,25,29
4.4	1-13(odds), 21,25,27,29,31,33,35
4.5	1,3,5,7,9,11,15,17,19,21,23,25,29,31,33,39,41
4.6	1,3,7,8,9,11,16,20
4.7	1,3,5,9,11,15,17,19,33,24,27,29,32,33,34,35,37,39,41,44,45,47,52
4.9	1,3,5
4.10	3,11,13

6.1	1,5,7,11,13,15,18,19,21,26,27,33
6.2	1-13(odds),15,17,19,31
6.3	1,3,5,7,9,11-19(odds),21-29(odds)
6.4	1,3,5,7,9
7.2	1,2,3,5,6,7,9,11,13-19(odds)
7.3	1-11(odds),13,15,17,21,,24,25,27,28
7.4	1-9(odds),11,15,19,21,25,27,31,33,35
7.5	1-9(odds),15,19,23
7.6	R5,7,9,11,15,17
7.7	1,3,5,9,11,13,15,17
7.8	1,3,5,7,9,13,17,21,23
9.5	1,3,7,11,15,21,31,33,35,37.

FINAL EXAM: December 10, 9:00am-11:00am in SR 208