Syllabus for Math 353-05: Elementary Differential Equations Fall 2018

Course Information

Instructor: Dr. Martial Longla  
Office: Hume Hall 308  
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Time/Place: T TH 9:30A-10:45AM, Hume 321.

Course description/learning objectives:

This course is an introduction to ordinary differential equations. We intend to cover Chapters 1, 2, 4, and 7 of the textbook, together with some applications from other chapters (3,5,6). This includes first-order differential equations and their applications, linear differential equations of higher order, and the Laplace transform. The successful student will acquire a good knowledge of the topics studied in the course, being able to classify (i.e., recognize the type of) a differential equation and apply proper methods to solve it. The course will prepare the student for those higher-level courses in Mathematics, Physics, Engineering, and Economics, where a basic understanding of ordinary differential equations is needed.

Assignments

Suggested problems are assigned at the end of the second page and are not worth any credit.

Homework problems will be assigned from the book and due every other week on Tuesday (100points).

Tests and final exam There will be 4 tests (each 100 points) and a final exam (200 points).

Your final exam grade (divided by two) will replace your lowest test score.

Tests and final exam dates are indicated in the tentative schedule below.

Final Grade letter rubrics.

The cumulative point total for the course is 700 points. The grade scale is as follows:

A : 665 pts, A- : 650-664.99 pts,
C+ : 585-599.99 pts, C: 550-584.99 pts , C- : 500-549.99 pts,

An "I" grade will not be given without the permission of the Department of Mathematics.

IMPORTANT:

1. If a test is missed for ANY reason, a grade of zero will be given. There will be NO make-up tests given for ANY reason.

2. Any student who will miss a test because of an official university function must reschedule and take this test at a time BEFORE the test is scheduled to be given. NO OTHER rescheduling is allowed.

3. Any student having three or more final examinations scheduled for the same day will arrange with the instructor to take the examination on some other, mutually satisfactory date.
4. Every student must take the final exam at the time scheduled. The only exceptions are those students affected by # 2 or # 4 above.

**Attendance, cheating, electronic devices, and academic needs:**

- Students are allowed 3 absences. It is the student’s responsibility to make sure his/her attendance record is correct. A total of 4 absences is automatic failure.

- Cheating on any exam or quiz, theft or attempted theft of exam questions, possession of exam questions prior to the time for examination, or the use of an illegal calculator on tests or quizzes shall all be offenses subject to appropriate penalties.

- No calculators allowed in any test/exam. All cellular phones, pagers, and other electronic equipment must be turned off during the class period.

- It is the responsibility of any student with a disability who requests an accommodation to contact the Office of Student Disability Services (915-7128).

**Deadlines:**

August 31st, 2018 is the last day to register or add classes and the refund period ends.

October 1st, 2018 is the deadline for course withdrawals. After the course withdrawal deadline, courses dropped will be recorded on University records and the W grade will be recorded if the student is not failing the course at the time of withdrawal; otherwise the grade recorded will be F. After the course withdrawal deadline, a student may drop a course only in cases of extreme and unavoidable emergency as determined by the academic dean; dropping a course after the deadline will not be permitted because of dissatisfaction over an expected grade or because the student is changing his/her major.

**TENTATIVE TEST DATES AND HOMEWORK ASSIGNMENTS**

**TEST 1** (Tuesday, September 25th): Chapters 1,2. First-order differential equations. • Equations solved by separation of variables • Homogeneous equations • Exact equations • Linear equations. Bernoulli eq.

**TEST 2** (Tuesday, October 9th, Tuesday November 6th) • Chapter 4. Linear differential equations of higher order. • Linear independence and Wronskian • Homogeneous equations with constant coefficients • Non-homogeneous linear equations. Method of undetermined coefficients (Superposition approach)

**TEST 3** (Tuesday, November 27th) • Method of variation of parameters, Chapter 7. Laplace transform. • Laplace Transform and its inverse

**FINAL EXAM** (Tuesday, December 4th at NOON) The final exam is comprehensive, and will also include the following topics not listed above from Chapter 7: • Translation theorems • Derivatives of transforms and transforms of derivatives • Initial value problems using Laplace transform.

**SUGGESTED HOMEWORK PROBLEMS:**