Syllabus for Math 353-05: Elementary Differential Equations Fall 2019

Course Information

Office: Hume Hall 308 : Office hours: T. Th. 1100-11:50AM.
Telephone: (662) 915-7436

Instructor: Dr. Martial Longla
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Time/Place: M, W, F: 12:00-12:50PM, Hume 201 (section 2)
M, W, F: 10:00AM-10:50 AM, Hume 201 (section 4)

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, will be able to apply proper methods to solve ordinary differential equations. 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 Wednesday (80 points).
There will be 4 tests (each counting for 75 points) and a final exam (counting for 200 points).
Your final exam grade (divided by two) will replace your lowest test score provided that the obtained grade is higher.

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

Final Grade letter rubrics.

The cumulative point total for the course is 580 points. The grade scale is as follows:

A: ≥ 93%, A-: ≥ 90%, B+: ≥ 87%, B: ≥ 83%, B-: ≥ 80%,
C+: ≥ 77%, C: ≥ 70%, D: ≥ 60%, F: ≤ 59%.

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.

- Attendance is directly correlated with course success. You are expected to attend all classes and to be on time and prepared. Attendance will be recorded daily. It is the student’s responsibility to make sure his/her attendance record is correct.

- Students who do not attend class within the first two weeks will be dropped automatically.

- 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.

  **Penalties:** The penalty for commission of any offense set out above is failure in the course and, subject to the approval of the Chancellor, dismissal or suspension from the University.

- 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:**

September 9th, 2019 is the last day to register or add classes and the refund period ends.

October 7th, 2019 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.

Tutoring for all 100-level math classes as well as Math 261, 262, 263, 264, 267, and 268 will be offered Mondays – Thursdays from 10am – 7pm and Fridays from 10am – 2pm in the Library Commons.

**SUGGESTED HOMEWORK PROBLEMS:**

1.1 Ex: 1-6, 11-15, 21, 28, 35, 49, 50
2.2 Ex: 1-16, 41-45.  2.3 Ex: 11-26, 31-33.  2.4 Ex: 1-20, 25, 26.  2.5 Ex: 1-16, 41, 42, 45.  2.6 Ex: 1-6.
Tentative Test Schedules:

Test-1 (Wed, Sept 18) will cover the following sections: Chapters 2: First-order differential equations.
  · Separable equations (section 2.2).
  · Homogeneous equations (section 2.3).
  · Linear equations (section 2.5).
  · Bernoulli equations (section 2.6).

Test 2: (Wed, Oct 9th) will cover Chapters 2 and 4
  · Linear dependence/independence and Wronskian functions (section 4.1).
  · Homogeneous linear equations with constant coefficients (section 4.3).
  · Non-homogeneous second-order linear equations with constant coefficients,

Test 3: (Wed, Oct 30th) will cover Chapter 4 and 6
  · method of undetermined coefficients (section 4.4).
  · Write the form of yp (do not find it) (section 4.4).
  · Method of variation of parameters (section 4.7).
  · Cauchy-Euler equations (section 6.1).

Test-4 (Wed, Nov 20) will cover the following sections: Chapter 7: Laplace transform.
  · Laplace transform and its inverse (sections 7.1 and 7.2).
  · The first translation theorem and its inverse (section 7.3).
  · Second translation theorem and its inverse, Derivatives of transforms and transforms of derivatives (section 7.3).
  · Convolution theorem and its inverse (section 7.4).
  · Initial-value problems by using Laplace transform (section 7.5).

Final exam (see final exam schedule in academic calendar) is comprehensive.