Syllabus - Math 353/03 – Spring 2019

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Office: Hume 314  Office Hours: MW 3:00-5:00pm, or by appointment
Class Time: T, Th 1:00-2:15pm  Location: Jackson Avenue Center, Room A005

Course description/learning objectives:
This course is an introduction to ordinary differential equations, which are an important part of mathematics and are also one of the key mathematical tools used in science and engineering. We intend to cover Chapters 1, 2, 4, and 7 of the textbook, together with some applications from other chapters (parts of 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 students 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. This course will prepare students for those higher level courses in mathematics, physics, engineering, and economics, where a basic understanding of ordinary differential equations is needed.

Homework/quizzes, tests, and final exam:
- There will be three major tests, each counting 100 points.
- The final examination is comprehensive and will count 200 points.
- Homework/quizzes (100 points) will be given throughout the semester.
- The questions on three tests and the final exam will be similar in format to the examples in class and the homework/quiz problems.
- The lowest of the three major test grades will be replaced by the final exam percentage provided that this percentage is higher.

Grading policy:

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\text{A: } \geq 93\%, \quad \text{A-: } \geq 90\%, \quad \text{B+: } \geq 87\%, \quad \text{B: } \geq 83\%, \quad \text{B-: } \geq 80\%, \\
\text{C+: } \geq 77\%, \quad \text{C: } \geq 70\%, \quad \text{D: } \geq 60\%, \quad \text{F: } \leq 59\%.
\]

Attendance Policy:
- Students are permitted three unexcused absences during the semester. Five points are deducted from the final points total for each absence above the limit.
- Attendance is directly correlated with course success. You are expected to attend all classes and to be on time and prepared. 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.
IMPORTANT POLICY:

1. Students must show all work on tests and the final exam in order to receive full credit.
2. Each student is responsible for all work missed due to absences.
3. If a test is missed for any reason, a grade of 0 will be given. There will be no make up tests given for any reason other than official university functions. Any student who must miss an exam because of an official university function may reschedule the test before the test is originally scheduled. This is the only rescheduling allowed.
4. An "I" grade will not be given without the permission of the Department of Mathematics.
5. Any student having three or more final examinations scheduled for the same day will arrange with the instructor to take the noon examination or the 7:30 p.m. examination on some other mutually satisfactory date.
6. Every student must take the final exam at the time scheduled. The only exceptions are those students affected by # 3 or # 5 above.

CALCULATORS: Electronic calculators and cellular phones are prohibited on tests and quizzes.

ELECTRONIC DEVICES: All cellular phones and other electronic equipment should be turned off during the class period.

CHEATING: The following statement is the policy of the Department of Mathematics regarding cheating:
Offenses: 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.

WITHDRAWAL DEADLINE: Monday, March 4.
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.

DISABILITY ACCESS AND INCLUSION: The University of Mississippi is committed to the creation of inclusive learning environments for all students. If there are aspects of the instruction or design of this course that result in barriers to your full inclusion and participation, or to accurate assessment of your achievement, please contact the course instructor as soon as possible. Barriers may include, but are not necessarily limited to, timed exams and in-class assignments, difficulty with the acquisition of lecture content, inaccessible web content, and the use of non-captioned or non-transcribed video and audio files. If you are approved through SDS, you must log in to your Rebel Access portal at https://sds.olemiss.edu to request approved accommodations. If you are NOT approved through SDS, you must contact Student Disability Services at 662-915-7128 so the office can: 1. determine your eligibility for accommodations, 2. disseminate to your instructors a Faculty Notification Letter, 3. facilitate the removal of barriers, and 4. ensure you have equal access to the same opportunities for success that are available to all students.
Tentative Test Schedules:

Test-1 (Thursday, February 14) will cover the following sections:

Chapters 2: First-order differential equations.
• Separable equations (section 2.2).
• Homogeneous equations (section 2.3).
• Exact equations (section 2.4).
• Linear equations (section 2.5).
• Bernoulli equations (section 2.6).

Test-2 (Thursday, March 28) will cover the following sections:

Chapters 4 and 6: Linear differential equations of higher order.
• 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,
  --method of undetermined coefficients (section 4.4).
• Write the form of $y_p$ (do not find it) (section 4.4).
• Method of variation of parameters (section 4.7).
• Cauchy-Euler equations (section 6.1).

Test-3 (Thursday, April 25) 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).
• 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 (12:00-3:00pm, Thursday, May 9) is comprehensive.