

## Math 353: Elementary Differential Equations

### Section 1, Spring 2017

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**Section 1:** MWF 11:00 – 11:50 Hume 201.  
**Instructor:** Dr. Samuel Lisi  
**Office Hours:** Hume 318, Monday 2:30–4:30 pm; Wed 9–10 am; or by appointment.  
**Email:** stlisi@olemiss.edu  
**Textbook:** *A first course in Differential Equations*  
by Dennis G. Zill, the Classic Fifth Edition.  
(WARNING: this author has many books with similar titles!)

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**Course content and objectives:** Differential equations are a very important part of mathematics and are also one of the key mathematical tools used in science and engineering. These are equations where the unknown is a *function* and the equation relates the function and its derivatives. They thus arise in settings where the *rate of change* of a quantity is related to that quantity by some means. Examples include Newton's laws of motion, the vibration of a bridge under stress, the Black-Scholes Equations of mathematical finance . . .

The main objective of our course will be to learn how to identify certain classes of differential equations and solve them. Depending on the class of equations, we will find explicit solutions, implicit solutions or approximate (numerical) solutions. We will also touch on some areas of applications related to the classes of equations we study. We will focus primarily on chapters 2, 4, and 7 of the textbook, with some additional material from chapters 1 and 9.

**Assessment:** The course grade will be based on the following four items:

1. In-class quizzes, held during class time — taken together, 20 % of the course grade
2. Three midterm tests, held during class time — taken together, 45 % of course grade
3. Cumulative Final Exam — 30 % of grade
4. Participation — 5 % of course grade. This will take attendance and class participation into account.
5. Homework will be assigned, but will not be collected or graded. Instead, the quiz problems will be taken directly from the homework, and the midterm problems will be heavily inspired by homework.

The lowest quiz score will be dropped. The lowest midterm test score and the participation score can be replaced by the final exam score if that is higher.

Calculators and other electronic equipment will **NOT** be permitted during quizzes, tests or exams.

All missed work will earn the grade of 0.

#### **Homework:**

Homework will be assigned, but not graded. Quiz problems will be taken from the homework. Homework will be posted to Blackboard.

#### **Quizzes, Tests and Final Exam:**

We will have regular quizzes, typically on Friday. They will consist of a question or two, and

take 10-15 minutes. They will be announced a class or two in advance. The quiz questions will be taken directly from the suggested homework.

The three midterm tests will each be 50 minutes long, and will cover the material since the previous midterm test. Tentatively, they will be held on the following dates:

**Test 1** Monday, February 20

**Test 2** Friday March 24

**Test 3** Monday, April 24

The final exam will be **cumulative** and will thus cover all the material of the course: Monday, May 8, noon – 3 pm.

**Calculators or other electronic devices are not permitted during quizzes, tests or exams.**

### **Course Grade**

93 - 100 %	A
90 - 92.9 %	A-
87 - 89.9 %	B+
83 - 86.9 %	B
80 - 82.9 %	B-
77 - 79.9 %	C+
70 - 76.9 %	C
60 - 69.9 %	D
0 - 59.9 %	F

**Policies** Makeup exams are not given. Any student who must miss a scheduled exam because of an official university function must reschedule with the instructor to take the exam at a time before the exam is scheduled to be given. No other rescheduling is allowed. Official documentation must be provided. Students must show all work for each test question and arrive at a correct answer. An I grade will not be given without the permission of the Department of Mathematics. Every student must take the final exam at the time scheduled.

**Attendance:** The attendance scanners are set from 15 minutes before the class starts until 15 minutes after it starts. Students should swipe their ID on the scanner at the beginning of each class. Unexcused absences beyond the first two will hurt the participation grade.

**Withdrawal Deadline** Friday, March 3, 2017. 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 emergencies 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 has changed his or her major.

**Academic Needs** It is the responsibility of any student with a disability who requests a reasonable accommodation to contact the Office of Student Disability Services (915-7128). Any request for extended testing time made through that office must be made prior to the date of the test, ideally at least a week prior.