# Elementary Differential Equations, Math 242 Section 1

**Instructor:** George Androulakis, giorgis@math.sc.edu
**Lectures:** MWF 10:50-11:40, Close-Hipp 335
**Office Hours:** MW 4-5:30, or by appt @ LC 402

**Overview:** Many of the principles, or laws, underlying the behavior of the natural world are statements or relations involving rates at which things happen. When expressed in mathematical terms, the relations are equations and the rates are derivatives. Equations containing derivatives are called differential equations. Therefore, to understand and to investigate problems involving the motion of fluids, the flow of current in electric circuits, the dissipation of heat in solid objects, the propagation and detection of seismic waves, the change of populations, it is necessary to be able to solve or study differential equations.

**Expected Learning Outcomes:** The students are expected to master the following topics (and demonstrate that by being able to solve related problems):

(1) First order differential equations.
(2) Mathematical models and numerical methods.
(3) Higher order linear differential equations.
(4) The Laplace transform.

**Text** C. Henry Edwards, David E. Penney & David T. Calvis *Differential Equations and Boundary value problems*, Sixth Edition.
**Prerequisite** Completion of Math 142 with a grade of C or better, or qualification by placement.
**Grading** Your grade in this course will be based on your performance on homeworks, two midterms exams and a final exam. The weights assigned to each of these components will be:

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|---|---|
| Homeworks | 40% |
| Two midterm exams | 20% each |
| Final exam | 20% |

Course grades will be determined according to the scale: $[0, 60) \Rightarrow$ F, $[60, 65) \Rightarrow$ D, $[65, 70) \Rightarrow$ D+, $[70, 75) \Rightarrow$ C, $[75, 80) \Rightarrow$ C+, $[80, 85) \Rightarrow$ B, $[85,$

$90) \Rightarrow$ B+, $[90,100] \Rightarrow$ A.

**Homework:** It will be assigned regularly and graded via the MyMathLab. To access the MyMathLab, click here. See the document entitled "My-MathLab_Student_Registration_Handout.pdf"that you will find inside BBC in order to register in MyMathLab. The lowest homework grade will be dropped. The homework deadlines will be strictly observed, and they will not be changed, so make sure that you start working on your homework as soon as they are assigned.

**Exams:** There will be two midterm exams whose tentative dates are listed below. If you miss a midterm exam because of a documented reason of illness, or family emergency, or participation in a University sponsored event, and if you inform me before the exam, and if you provide me with appropriate documentation, then the missed exam will be replaced by the final exam. In order to document an excuse, please fill out the form found here which is provided by the Office of Student Advocacy. The final exam will be comprehensive.

**Important dates:**

- Monday January 15: Dr. Martin Luther King, Jr. Service Day, (no classes).
- Friday February 16: tentative date for the first midterm exam, covering Chapters 1 & 2.
- Sunday March 3 - Sunday March 10: Spring Break, (no classes).
- Monday March 25: last day to drop a course or withdraw without a grade of "WF" being recorded.
- Friday April 5: tentative date for the second midterm exam, covering Chapters 3 & 7.
- Monday April 22: last day of classes.
- Monday, April 29, 9-11:30am a.m.: the final exam, (comprehensive).

**COVID-19 guidelines:**

- The latest University safety guidelines about COVID-19 can be viewed in this page.
- If you feel sick, get tested immediately. If you get tested positive for COVID-19, please stay home as described in the University safety guidelines in the above link.

- COVID-19 related absences that made you unable to take an exam must be documented via the Office of Student Advocacy by filling out the form found here.

**Academic honesty:** Cheating and plagiarism will not be tolerated in this course. Violations of this policy will be dealt with a matter consistent with University regulations.

**Cell phones, computers and newspapers:** Turn off cell phones during classes. You are not permitted to use computers or read a newspaper inside the classroom, because this distracts the rest of the students and me.