Math 353 – Elementary Differential Equations, Section 1
Syllabus – Fall 2015

INSTRUCTOR: Iwo Labuda
E-MAIL ADDRESS: mmlabuda@olemiss.edu
OFFICE: Hume 305B
OFFICE HOURS: 9:30 - 11:00 TTh

Course contents and goals: Differential equations are an important area of mathematics. They are also of first importance to other sciences and engineering, because they describe processes in which change occurs. The main objective of our course is to study elementary methods for solving some classes of ordinary differential equations. After completing the course, a student should be able to classify (i.e., recognize the type of) an equation and apply proper methods to solve it.


PLACE/TIME: Hume 215, T-Th 2:00 - 3:45

TESTS: 1. There will be 3 major tests during the semester. Each test will count 100 points. The test questions will be similar to the examples in class and to the homework problems.
2. The final examination is comprehensive and will count 200 points.

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. Tests are written on standard blue books. It is your obligation to have a blue book for the test.
3. 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.
4. Students must show all work for each test question and arrive at a correct answer.
5. 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.
6. Every student must take the final exam at the time scheduled. The only exceptions are those students affected by # 3 or # 5 above. The final exam is on Tuesday, December 8, at 4 pm.

FINAL GRADE: The cumulative point total for the course is 500 points – tests: 300, final exam: 200. The following scale will be used to determine your final grade:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Points Necessary for Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>90%</td>
</tr>
<tr>
<td>B</td>
<td>75%</td>
</tr>
<tr>
<td>C</td>
<td>60%</td>
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<tr>
<td>D</td>
<td>50%</td>
</tr>
<tr>
<td>F</td>
<td>Below 50%</td>
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</tbody>
</table>

ATTENDANCE POLICY: Students are allowed 3 absences. It is the student’s responsibility to make sure his/her attendance record is correct.

CALCULATORS: No calculators.

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

Offenses: Cheating on any exam or test, theft or attempted theft of exam questions, possession of exam questions prior to the examination, or the use of a calculator shall all be offenses subject to appropriate penalties.

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

WITHDRAWAL DEADLINE FOR 2013 FALL SEMESTER: Monday, October 5.

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 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.

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). Contact will then be made by that office through the student to the instructor of this class. The instructor will then work with the student so that a reasonable accommodation of any disability can be made.
SPECIAL DATES:
Labor Day, Monday, September 7
Fall Break: November 23-27
Classes end: Friday, December 4

TENTATIVE TEST DATES AND HOMEWORK ASSIGNMENTS

TEST 1 (Tuesday, September 15)  Chapter 2. First-order differential equations.
- Equations solved by separation of variables
- Homogeneous equations
- Exact equations
- Linear equations
- Bernoulli equation

WARNING: Test #1 is difficult for many reasons, do not take it lightly.

TEST 2 (Thursday, October 22)  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)
- Method of variation of parameters

TEST 3 (Thursday, November 19)  Chapter 7. Laplace transform.
- Transform and its inverse
- Translation theorems
- Derivatives of transforms and transforms of derivatives
- Initial value problems using Laplace transform

FINAL EXAM (4:00 pm. Tuesday, December 8) : Comprehensive.

Homework Problems:
2.2 Ex: 1-20, 40-45. 2.3 Ex: 1-30. 2.4 Ex: 1-15, 25,26,31,32. 2.5 Ex: 1-50. 2.6 Ex: 1-6.
4.1.2 Ex: 15-29. 4.3 Ex: 1-20, 37-40. 4.4 Ex: 1-16. 4.7 Ex: 1-28.

Note: You are not expected to solve every single problem from the above list. However, these are typical problems that may appear on tests.