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, and also from other sources (that I will provide).

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

1. Three midterm tests, held during class time — taken together, 50 % of course grade
2. Cumulative Final Exam — 35 % of grade
3. Homework — 10 % of course grade. These will be due weekly, announced both in class and on Blackboard. Only some of the problems handed in will be graded.
4. Participation — 5 % of course grade. This will take attendance and class participation into account.

The lowest homework 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.

Blackboard:
Blackboard will be used for course materials, homework and announcements.

Tests and Exams:
The three midterm tests will cover the material since the previous midterm test. They will
be held on the following dates:

**Test 1** Wednesday September 23
**Test 2** Wednesday October 28
**Test 3** Monday November 30

Test 1 will roughly cover Chapters 1 and 2. Test 2 will cover Chapter 4 and Test 3 will cover Chapter 7. Some material from Chapter 9 will also be covered.

The final exam will be **cumulative** and will thus cover all the material of the course.

**Section 2** (meeting 1 pm, MWF): Wednesday, December 9th, noon
**Section 4** (meeting 10 am, MWF): Friday, December 11th, 8 am

**Course Grade**

<table>
<thead>
<tr>
<th>Percentage</th>
<th>Grade</th>
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</thead>
<tbody>
<tr>
<td>93 - 100 %</td>
<td>A</td>
</tr>
<tr>
<td>90 - 92.9 %</td>
<td>A-</td>
</tr>
<tr>
<td>87 - 89.9 %</td>
<td>B+</td>
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<tr>
<td>83 - 86.9 %</td>
<td>B</td>
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<tr>
<td>80 - 82.9 %</td>
<td>B-</td>
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<tr>
<td>77 - 79.9 %</td>
<td>C+</td>
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<td>D</td>
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<tr>
<td>0 - 59.9 %</td>
<td>F</td>
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</tbody>
</table>

**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 30 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** Monday October 5, 2015. 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.