### Course Information

**Course #:** MATH 202  
**Title:** Elements of Differential Equations  
**Textbook:** A First Course in Differential Equations by D.G. Zill, 9th Edition  
**Coordinator:** Dr. Salim Belhaiza

<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Sec.</th>
<th>Topics</th>
<th>Suggested Homework</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Feb 12-16</td>
<td>1.1</td>
<td>Definition and Terminology</td>
<td>Ex: 16, 22, 24, 30, 34, 38. Pg 10-11</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1.2</td>
<td>Initial-Value Problems</td>
<td>Ex: 14, 18, 20, 28, 30, 32. Pg 17</td>
</tr>
<tr>
<td>2</td>
<td>Feb 19-23</td>
<td>2.2</td>
<td>Separable Variables</td>
<td>Ex: 8, 14, 20, 22, 24, 30, 48. Pg 30-31</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2.3</td>
<td>Linear Equations</td>
<td>Ex: 6, 14, 16, 18, 30, 36. Pg 60-61</td>
</tr>
<tr>
<td>3</td>
<td>Feb 26-Mar 2</td>
<td>2.4</td>
<td>Exact Equations</td>
<td>Ex: 8, 16, 24, 28, 34, 38. Pg 68-69</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2.5</td>
<td>Solutions by Substitutions</td>
<td>Ex: 10, 12, 18, 20, 24, 30, 36. Pg 74-75</td>
</tr>
<tr>
<td>4</td>
<td>Mar 5-9</td>
<td>3.1</td>
<td>Linear Models: Growth and Decay, Newton's Law of Cooling and Series Circuits</td>
<td>Ex: 6, 10, 12, 16, 18, 30, 32. Pg 89-91</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4.1</td>
<td>Linear Equations: Basic Theory</td>
<td>Ex: 4, 6, 8, 10, 12. Pg 128-130</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4.1.1</td>
<td>Initial-Value and Boundary-Value Problems</td>
<td>Ex: 16, 18, 20, 28, 30, 32. Pg 129-130</td>
</tr>
<tr>
<td>5</td>
<td>Mar 12-16</td>
<td>4.1.2</td>
<td>Homogeneous Equations</td>
<td>Ex: 2, 4, 12, 16, 18. Pg 132-133</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4.1.3</td>
<td>Non-homogeneous Equations</td>
<td>Ex: 8, 12, 16, 24, 30, 32. Pg 134-139</td>
</tr>
<tr>
<td>6</td>
<td>Mar 19-23</td>
<td>4.2</td>
<td>Reduction of Order</td>
<td>Ex: 16, 18, 20, 26, 28. Pg 129</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4.3</td>
<td>Homogeneous Linear Equations with Constant Coefficients</td>
<td>Ex: 10, 12, 16, 18, 30, 32. Pg 129-130</td>
</tr>
</tbody>
</table>

**First Exam:** Thursday - March 24th, 2011 [1.1-4.2] (22%)  
**Second Exam:** Monday – April 25th, 2011 [4.3-6.1] (22%)

### Homework Assignments

- **Week 1:** Ex: 16, 22, 24, 30, 34, 38. Pg 10-11  
- **Week 2:** Ex: 8, 14, 20, 22, 24, 30, 48. Pg 30-31  
- **Week 3:** Ex: 6, 14, 16, 18, 30, 36. Pg 60-61  
- **Week 4:** Ex: 6, 10, 12, 16, 18, 30, 32. Pg 89-91  
- **Week 5:** Ex: 16, 18, 20, 28, 30, 32. Pg 129-130  
- **Week 6:** Ex: 2, 4, 12, 16, 18. Pg 132-133  
- **Week 7:** Ex: 8, 12, 16, 24, 30, 32. Pg 134-139  
- **Week 8:** Ex: 8, 22, 28, 32, 38. Pg 168  
- **Week 9:** Ex: 16, 20, 24, 28, 30, 34. Pg 230  
- **Week 10:** Ex: 8, 12, 14, 20, 24, 30, 32. Pg 239-240  
- **Week 11:** Ex: 6, 10, 12, 16, 18, 30, 32. Pg 250-253  
- **Week 12:** Ex: 6, 8, 12, 16, 24, 28, 30, 32. Pg 311  
- **Week 13:** Ex: 20, 24, 28, Pg 325  
- **Week 14:** Ex: 34, 40, 44, Pg 325-326  
- **Week 15:** Ex: 6, 8, 10, 12, 16, 18, 24, 28, Pg 333-334  
- **Week 16:** Ex: 2, 4, 6, 8, 10, 16, 20, 24, Pg 336-337
Remarks & Policies

Homework:

- Your course instructor will indicate the Homework every week. **He may assign you Homework out of textbook as well.**

- In Sec. 8.4, problems 1, 5 and 9 refer to the same matrix. The same is true for problems 2 and 6 and problems 4 and 8.

- **Review Material:** In the introduction of each section of the textbook, *review material*, if any, is indicated. **The students must review the material carefully.** They should make a plan, based on the Syllabus, for all the reviews required for the course.

Exams:

- The following dates for Major Exams I and II are set by the College of Sciences to avoid conflicts with other exams:
  - Exam I (88 points): Thursday, March 24th, 2011
  - Exam II (88 points): Monday, April 25th, 2011

- The date, time and the place of the Final Exam will be announced by the Registrar.

- The Final Exam (144 points) is Comprehensive.

- Any student **missing a major exam** with or without excuse **will not be given a Make-Up Exam.**

  However, a student missing an Exam with an official excuse from the “Deanship of Students Affairs” will be compensated according to the following policy.

  **Exam Missed by the Student:** Grade to be compensated: $Ex_M$, Ave of Exam: $Ave_M$

  **Exam taken by Student:** Grade obtained = $Ex_T$,

  Ave of Exam: $Ave_T$

  **Final Exam:** Grade obtained: $Ex_T$

  Ave of Exam: $Ave_F$

  $Ex_M = Ave_M + \frac{[11(Ex_T - Ave_T) + 18(Ex_T - Ave_F)]}{29}$

Class Work (80 Points):

The policy on the class work will be determined by your course instructor and will be announced during the first week of the semester.

Attendance:

- Attendance is compulsory. KFUPM policy with respect to attendance will be strictly enforced.

- Any student accumulating **9 unexcused absences** will be awarded DN Grade in the course.