Math 3354: Differential Equations

Course Information

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<thead>
<tr>
<th>COURSE</th>
<th>Math 3354</th>
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<tr>
<td>SEMESTER</td>
<td>Fall 2018</td>
</tr>
<tr>
<td>SECTION</td>
<td>001</td>
</tr>
<tr>
<td>CLASS TIME</td>
<td>MWF 11am-12pm</td>
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<tr>
<td>CLASS ROOM</td>
<td>Math 015</td>
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Instructor Information

<table>
<thead>
<tr>
<th>NAME</th>
<th>Chunmei Wang</th>
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<tbody>
<tr>
<td>OFFICE</td>
<td>Math 240</td>
</tr>
<tr>
<td>TELEPHONE</td>
<td>806.834.7655</td>
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<td>EMAIL</td>
<td><a href="mailto:chunmei.wan@ttu.edu">chunmei.wan@ttu.edu</a></td>
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<tr>
<td>OFFICE HOURS</td>
<td>MWF 12pm-1pm or by appointment</td>
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Textbook:


Prerequisites:

MATH 2350 or 2450 and MATH 2360

Course Description:

This course covers topics in ordinary differential equations. Topics to be covered include:
First-order differential equations; Modeling with first-order differential equations;
Higher-order differential equations; Modeling with higher-order differential equations;
Laplace transform; Series solutions of Linear Equations.

Expected Student Learning Outcomes:

Students will obtain a thorough knowledge of solution techniques for first-order and for
second- and higher-order constant coefficient linear homogenous and nonhomogeneous
initial value problems using standard methods of undetermined coefficients and variation
of parameters. In addition, the students will acquire a general understanding of how to
apply the Laplace transform in solving initial value problems and convolution integral
equations. Students will gain an appreciation for some of the applications of ordinary
differential equations in biology and engineering.

Course Outline:

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<thead>
<tr>
<th>Chapter</th>
<th>Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td>1</td>
<td>(1.1, 1.2) Introduction</td>
<td>2</td>
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<td>2</td>
<td>(2.1-2.6) First-Order Differential Equations</td>
<td>8</td>
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<tr>
<td>3</td>
<td>(3.1-3.2) Modeling with First-Order Differential Equations</td>
<td>1</td>
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<tr>
<td>4</td>
<td>(4.1-4.4, 4.6, 4.7) Higher-Order Differential Equations</td>
<td>9</td>
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<tr>
<td>5</td>
<td>(5.1) Modeling with Higher-Order Differential Equations</td>
<td>1</td>
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<tr>
<td>6</td>
<td>(6.1, 6.3) Series Solutions of Linear Equations</td>
<td>4</td>
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<tr>
<td>7</td>
<td>(7.1-7.5) Laplace Transforms</td>
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Attendance Policy:
Attendance is required and checked for all classes. The student who misses a class meeting is responsible for any assignments and/or announcements made. Students who have perfect attendance will be given 3 bonus points to be added to the total number of points earned in this course. Students who miss less than three classes will receive 3 bonus points. Students who miss three or more classes will receive no bonus points. Since these are bonus points, there will be no “excused” absences when calculating bonus points with the exception of absences due to religious observance and officially approved trips described below.

- **Absence due to religious observance** - The Texas Tech University Catalog states that a student shall be excused from attending classes or other required activities, including examinations, for the observance of a religious holy day, including travel for that purpose. A student who intends to observe a religious holy day should make that intention known in writing to the instructor prior to the absence. A student who is absent from classes for the observance of a religious holy day shall be allowed to take an examination or complete an assignment scheduled for that day within a reasonable time after the absence. (p.57)

- **Absence due to officially approved trips** – The Texas Tech University Catalog states that the department chairpersons, directors, or others responsible for a student representing the university on officially approved trips should notify the student’s instructors of the departure and return schedules in advance of the trip. The instructor so notified must not penalize the student, although the student is responsible for material missed. Students absent because of university business must be given the same privileges as other students (e.g., if other students are given the choice of dropping one of four tests, then students with excused absences must be given the same privilege). (p.57)

**Important Dates:**
- **Quiz** - 10-min weekly quiz will be given on each Monday from the second week during the whole semester (No quizzes will be given on the midterm week).
- **Midterm 1** - Friday, October 5, 11:00am-12pm
- **Midterm 2** - Friday, November 2, 11:00am-12pm
- **Final Exam** – Friday, December 7, 1:30pm-4:00pm

**Homework Policy:**
Homework will be assigned every Friday from the first week and will be collected every Friday at 11am in the lecture room from the second week. You are expected to understand all homework problems for the tests. No late homework will be accepted with the exception of absences due to religious observance and officially approved trips described above.

**Grading:**
Grades will be based upon quizzes, midterm exam, final exam and homework. Two quiz grades and Three homework grades will be dropped when computing your grade. This is the only mechanism for coping with personal events such as illness and family
emergencies. **No make-up tests are allowed** with the exception of absences due to religious observance and officially approved trips described above. Please note that you cannot use books, notes, calculators, formula sheets during tests. If necessary, adjustments will be made to arrive at a standard grade distribution for the course. Your homework count for 15% of the total credit. Quizzes count for 20% of the total credit. Midterm exam counts for 25% of the total credit. The final exam counts for 40% of the total credit.

The letter grade is assigned as follows:

- **A**: 90-100
- **B**: 80-89.99
- **C**: 70-79.99
- **D**: 60-69.99
- **F**: 0-59.99

**Academic Integrity**

**Academic Misconduct:**

- The university’s statement on academic integrity can be found in the Texas Tech University Catalog (p.57) and (OP 34.12):
  
  “It is the aim of the faculty of Texas Tech University to foster a spirit of complete honesty and a high standard of integrity. The attempt of students to present as their own any work that they have not honestly performed is regarded by the faculty and administration as a serious offense and renders the offenders liable to serious consequences, possibly suspension.”

- The descriptions of Cheating and Plagiarism can be found in the Texas Tech University Catalog: (p.57)

**Civility in the Classroom:**

- More information is available on-line at http://www.depts.ttu.edu/studentjudicialprograms/AcademicIntegrity.pdf

**Students with Disabilities:**

The students should inform the instructor of your special needs as soon as possible. The university approved statement can be found in OP 34.22:

Any student who, because of a disability, may require special arrangements in order to meet the course requirements should contact the instructor as soon as possible to make any necessary arrangements. Students should present appropriate verification from Student Disability Services during the instructor’s office hours. Please note: instructors are not allowed to provide classroom accommodations to a student until appropriate verification from Student Disability Services has been provided. For additional information, you may contact the Student Disability Services office in 335 West Hall or 806-742-2405.