

**Math 228**  
**Differential Equations for Physics and Chemistry**

**Fall Term 2007**

- Instructor:** Jun Liu, MC 5130, Ext. 33471  
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Office hours: 1:30-2:30 p.m., W in MC 5130  
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- TA:** Cameron Christou, MC 6209, Ext. 35094  
Email: [cnchrist@math.uwaterloo.ca](mailto:cnchrist@math.uwaterloo.ca)
- Text:** Dennis G. Zill, *A First Course in Differential Equations with Modeling Applications*, 8<sup>th</sup> Edition
- Prerequisite:** Math 128 or equivalent
- Course Outline:** First-order equations, second-order linear equations, series solutions and special functions, the Laplace transform method, and applications
- Exercises:** An exercise set will be assigned every other week. Small quizzes will be given during the tutorial
- Examination:** There will be a 50-minute in-class term test on October 24 and a 2½-hour final examination in December
- Grading:** Your final grade in the course will be based on your exam, term test and exercises grades weighed as follows:

Final exam:	65%
Exercises & Quizzes:	15%
Test:	20%

This course meets 3 times a week, 12:30-1:20 p.m., MWF in MC 4063. There will be a tutorial once a week, 4:30-5:20 p.m., M in MC 4040.

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**Note for students with disabilities:**

The Office for Persons with Disabilities (OPD), located in Needles Hall, Room 1132, collaborates with all academic departments to arrange appropriate accommodations for students with disabilities without compromising the academic integrity of the curriculum. If you require academic accommodations to lessen the impact of your disability, please register with the OPD at the beginning of each academic term.

**Avoidance of Academic Offenses**

Students are expected to know what constitutes academic integrity, to avoid committing academic offenses, and to take responsibility for their actions.

Students who are unsure whether an action constitutes an offense, or who need help in learning how to avoid offenses (e.g., plagiarism, cheating) or about "rules" for group work / collaboration should seek guidance from the course professor, TA, academic advisor, or the Undergraduate Associate Dean.

- For information on categories of offenses and types of penalties, students should refer to Policy #71, *Student Academic Discipline*, <http://www.adm.uwaterloo.ca/infosec/Policies/policy71.html>
- Students who believe that they have been wrongfully or unjustly penalized have the right to grieve; refer to Policy #70, *Student Grievance*, <http://www.adm.uwaterloo.ca/infosec/Policies/policy70.html>

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**Course Objectives:**

1. Model some practical problems by differential equations
2. Introduce some basic concepts and theory of differential equations
3. Solve certain classes of 1<sup>st</sup> order equations (separable, linear, etc.)
4. Solve linear 2<sup>nd</sup> order equations with constant coefficients
5. Solve linear 2<sup>nd</sup> order equations via variation of parameters
6. Solve linear higher order equations with constant coefficients
7. Calculate series solutions for linear equations with variable coefficients
8. Use the Laplace transforms to solve linear equations with constant coefficients