Differential Equations (67-371)
Spring 2020
11:30AM---12: 30 PM (MWF)
Swart 303

Instructor: Dr. Hong Zhang **Office:** Swart 206
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Office Hours: 10:20AM-11:20AM (MTWF), or by appointment.

Textbook: First Course in Elementary Differential Equations with Modeling Applications (with WebAssign access code), 11th edition. You may choose to purchase either an access code (ebook included) for WebAssign, or both access code and a hardcopy of the textbook. On the WebAssign, you would need the following information to enroll to the course.

Class key: **uwosh 8314 8391**

The WebAssign gives you free access for two weeks after the start of the class. Before register to WebAssign, please refer to page 4 of this document.

Calculator: A TI-84, 84+ Graphing Programming Calculator is required for homework, quizzes and exams. The TI-89, TI-92, TI-Nspire CAS (or similar calculator with symbolic capability) will not be allowed on exams and quizzes.

Prerequisites: 67-172 (with a grade of "C" or above).

About the course: We will cover chapters 1,2,3,4,5,7, 8.

Learning Objective: This course provides an introduction to ordinary differential equations. We construct models of physical phenomena using differential equations and study these models graphically, algebraically, and numerically. Upon successful completion of the course, students are expected to have the ability to

- Demonstrate an understanding of the definition of differential equations, solutions and interval of existence of solutions, order and classes of first order differential equations and construct mathematical models that involve differential equations.
- Generate, both by hand and using technology, slope fields, graphs of solutions to differential equations.
- Perform qualitative analysis of certain types of differential equations.
- Produce numerical solutions using one or more of the traditional methods such as Euler and Runge-Kutta.
- Identify and solve first order initial value problems involving separable, linear, homogeneous, exact, Bernoulli or Ricatti equations.
- Determine interval of existence and test for uniqueness.
- Find the solution of homogeneous linear systems with constant coefficients using eigenvalues

(real, complex or repeated) of the coefficient matrix.

- Recognize and solve initial value problems involving linear, homogeneous or nonhomogeneous equations of order two or higher.
- Apply the principal of superposition to find general solutions of a homogeneous differential equations with constant coefficients using the associated characteristic equations.
- Find particular solutions to nonhomogeneous differential equations with constant coefficients by the method of undetermined coefficients or by the method of variation of parameters.
- Understand the definition and basic properties of the Laplace transform and able to compute Laplace transform of elementary functions such as exponential, trigonometric, power and step functions.
- Use Laplace transform to solve initial value problems for differential equations with constant coefficients.
- Model and solve application problems described by first order, second order and systems of differential equations.

Homework/Projects: There will be homework assignments on WebAssign during the semester. Each problem set will remain open for about a week. Late assignments will not be accepted.

Exams and Quizzes: There will be three exams and four quizzes. Make-up exams and quizzes will be given only in unusual circumstances (e.g., severe or prolonged illness, death in family, etc.) and you will be asked to provide relative document(s). If a make-up exam/quiz is allowed, it may contain a different number of questions and/or different types of questions.

Grading policy: Your grade is determined by the following:

4 Quizzes	10%
WebAssign HW	15%
3 Exams	75 % (25% each)

Students final grades will be assigned as follows.

PERCENTAGE	GRADE	**PERCENTAGE**	GRADE	**PERCENTAGE**	GRADE
90%-100%	**A**	78%-80.999%	**B-**	63%-65.999%	**D**
87%-89.999%	**A-**	75%-77.999%	**C+**	60%-62.999%	**D-**
84%-86.999%	**B+**	70%-74.999%	**C**	0%-59.999%	**F**
81%-83.999%	**B**	66%-69.999%	**D+**		

Last Day to Withdraw WO LADRF: 3/18/2020

Quiz Schedule: (Tentative) All in class except quiz 3.

- Quiz 1: Friday, 2/14/2020
- Quiz 2: Wednesday, 3/20/2020
- Quiz 3: 4/2-4/3/2020 at the Testing Center (Polk 2)

- Quiz 4: Friday, 5/1/2020

Exam Schedule: (Tentative) All at the Testing Center (Polk 2)

- Exam 1: 3/5-3/6/2020
- Exam 2: 4/21-4/22/2020
- Exam 3: 5/14-5/15/2020

Academic Accommodations: The University of Wisconsin Oshkosh supports the right of all enrolled students to a full and equal educational opportunity. Please contact **Accessibility Center (**Dean of Students Office 125 Dempsey Hall 424-3100) for the University's accommodation request form and documentation requirements.

Disclosure Statement: Students are advised to see the following URL for disclosures about essential consumer protection items required by the Student Right-to-Know Act of 1990: https://uwosh.edu/financialaid/consumer-information/

Please be aware that there will be NO curve at the end of the semester.

Required Course Materials

This course will require **WebAssign** from Cengage. **WebAssign** contains the eBook, various study tools, homework, and assignments. **NOTE: You will have several purchase options outlined below, so I advise that you choose the "14-day trial access" when you initially log into WebAssign before making your purchase choice.**

Direct-to-student site: http://www.cengagebrain.com/course/4232557

Purchase Options - choose the best ONE for you:

1. **WebAssign only for: *WebAssign (w/eBook) for Zill Differential Equations: $100***
2. **Buy Cengage Unlimited Subscription.** *With a Cengage Unlimited subscription, you get* ***WebAssign*** *and more!* **$119.99**

    - **This is the perfect option if you are taking additional courses that use Cengage materials.**

What is Cengage Unlimited? It is a digital subscription service (think Netflix or Apple Music) which can save you a lot of money. With Cengage Unlimited you can access ANY Cengage materials you are using across ALL of your courses AND a library of 20,000 eBooks, study guides, reference materials, and online platforms (MindTap, CNOW, WebAssign, SAM, OWL, iLrn, 4LTR).

You can get a print textbook rental when you activate WebAssign for only $7.99 and free shipping.

Getting Registered

To access your course materials and explore Cengage Unlimited, **first register at www.webassign.net. If you have used Cengage products before, please use your Cengage login credentials.**

Student registration instructions: https://www.cengage.com/student-training/webassign/not-integrated/ia-no/

Course Key: UWOSH 8314 8391

If you have questions or issues about WebAssign, following are a couple of options for you. Please don't contact your professor with WebAssign issues.

- To verify the system is up, please go to https://techcheck.cengage.com/ (Links to an external site).
- If you have specific technical issues, please contact technical support 24/7
    - 1-800-354-9706
    - Online chat and self-help www.cengage.com/support (Links to an external site).
    - Make sure to allow pop-ups: https://www.cengage.com/lms_docs/system_check/popupsfailed/popupsfailed_chrome.htm

If you haven't received a response back from technical support in 24-48 hours, please email lisa.bowers@cengage.com.