# COURSE SYLLABUS

**Course Info:** Math 371, Section 002C – Differential Equations — Spring 2020
Tuesdays & Thursdays 5:15 – 6:45 p.m. — Room 2827

**Instructor:** Professor Carrie Tirel **Office Location:** Room 2841

**E-Mail:** tirelc@uwosh.edu **Office Phone:** (920) 832-2638

**Office Hours:** Mondays & Wednesdays 10:20 – 11:50 a.m.
Tuesdays & Thursdays 1:30 – 2:45 p.m.
Or by appointment

**Prerequisites:** Grade of C or better in Math 172 or equivalent.

**Course Materials:**

- *A First Course in Differential Equations with Modeling Applications,* by Dennis G. Zill, 10th edition. (**optional**)
- WebAssign license (**required**)
  - Homework assignments will be accessed through Canvas and completed on WebAssign.
  - You will have access to an electronic version of the textbook through WebAssign.
- Graphing calculator
  - TI-89 or Nspire CAS preferred; others are acceptable

**Technology:** In order to foster an environment conducive to your own learning and that of others, cell phones, laptop computers, and music players must be turned off and **put away** during class. **Cell phone calculators may not be used on exams.**

**Course Description:** Math 371 covers ordinary differential equations of the first and second order, series solutions, higher order linear differential equations and linear systems, the Wronskian, Laplace transform and applications, numerical methods and boundary value problems.

**Objectives/Expectations:** The successful Math 371 student will be able 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 non-homogeneous 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.

**Course Work:** These are the types of course activities planned for the semester:

**Online Homework:** You will be responsible for regular homework assignments on WebAssign.

**In-Class and Take-Home Quizzes:** Each week, you will either take an in-class quiz, or hand in a take-home quiz. In-class quizzes will consist of several straightforward problems similar to homework problems from recent sections. Take-home quizzes will include one or two applied problems that will require deeper thought and a more significant time investment. Your solutions to these problems will be graded on their neatness, accuracy, and mathematical completeness. You should expect to be given 30 minutes for an in-class quiz, and spend several hours on a take-home quiz.

**Exams:** You will be given three in-class exams throughout the semester, the third of which will include a cumulative portion. Here are the **tentative** dates for those exams:

**March 5** **April 9** **May 12**

**Make-up Policy:** I will grant you one 2-day extension on a take-home quiz during the semester--use it wisely! This extension **must be requested in advance** of the due date to be used. Other or additional late take-home quizzes will be accepted up to two calendar days late, with a 15% penalty for each day it is late. I will not accept a take-home quiz more than two days after the due date.

There will be no make-up opportunities (planned or otherwise) for in-class quizzes. However, all quizzes (in-class and take-home) will be weighted equally, and your lowest quiz score will be dropped at the end of the semester.

WebAssign has an automatic extension feature, which grants 2 additional days to complete your work, with a 20% deduction, as long as you request the extension within 2 days of the original due date. This should provide sufficient flexibility for the completion of this work.

In the event that an emergency prevents you from attending an exam, you must 1) contact me (via email or office phone) **before the exam is to take place**, 2) provide adequate proof of your inability to attend, and 3) reschedule **as soon as possible**.

**Grading Policy:** Your final grade will be taken out of 550 possible points:

**Three in-class exams – 125 points each**
**Homework – 75 points**
**Quizzes (In-Class and Take-Home) – 100 points**

**Grading Scale:**

| 93 | 90 | 87 | 83 | 80 | 77 | 73 | 70 | 67 | 63 | 60 | 59↓ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| A | A- | B+ | B | B- | C+ | C | C- | D+ | D | D- | F |

**Classroom Etiquette:** In order to foster an environment conducive to your own learning and that of others, cell phones, laptop computers, and music players must be turned off and **put away** during class. **Cell phone calculators may not be used on exams.**

**Attendance:** Attending class regularly is in your own best interest. Although I will not formally take attendance, you are responsible for all homework, quizzes, and exams, whether or not you are in class when they are announced and/or modified.

**Academic Misconduct:** All suspected incidents of academic misconduct will be handled using the UW System rules, Chapter 14 (from UWS 14.03). The definition of "academic misconduct" can be found in UWS 14.03. UWS 14 is available to all students in the library; additionally, all students received a copy of this policy during their orientation.

**Accommodations:** The University of Wisconsin Oshkosh supports the right of all enrolled students to a full and equal educational opportunity. It is the University's policy to provide reasonable accommodations to students who have documented disabilities that may affect their ability to participate in course activities or to meet course requirements.
Students are expected to inform Instructors of the need for accommodations as soon as possible by presenting an Accommodation Plan from either the Accessibility Center, Project Success, or both. Reasonable accommodations for students with disabilities is a shared Instructor and student responsibility.
If you are a student with a disability and have an Accommodation Plan, please let me know as soon as possible.
If you have a learning or any other disability that may warrant an accommodation and do not yet have one, please contact Jeri Kukurich (kukurichje@uwosh.edu) in the Solution Center. She can help arrange testing if you are not sure if you have a learning disability or if you do not have documentation. You can find more information at this link: https://www.uwosh.edu/deanofstudents/Accessibility-Center/student-resources.
**In fairness to other students, I cannot provide accommodations without the proper paperwork, but please let me know if you are in the process of obtaining accommodations.**

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

**As your instructor, I reserve the right to make changes to this syllabus and the course/homework/exam schedule based on the learning pace of the class, and/or other unanticipated circumstances. I will communicate any changes to you as soon as they are made.**