

# Math 331 [REDACTED] Ordinary Differential Equations

Instructor: [REDACTED]

Office: [REDACTED]

E-mail: [REDACTED]

Phone:

Location and Times [REDACTED] [REDACTED] in [REDACTED]

**Office Hours** [REDACTED] Students have the opportunity to attend office hours with their course instructor or the course-wide TA's. TA office hours will begin the second week of classes via Zoom and the locations will be updated once locations are determined.

[REDACTED] Office Hours:

[REDACTED]  
[REDACTED]  
[REDACTED]

TA Office Hours:

Monday: TBD

Tuesday: TBD

Wednesday: TBD

Thursday: TBD

**Course Description:** Introduction to ordinary differential equations. First and second order linear differential equations, systems of linear differential equations, Laplace transform, numerical methods, applications. Prerequisite: MATH 132

**Textbook:** Elementary Differential Equations, 11th Edition (2017) by William E. Boyce, Richard C. DiPrima, Douglas B. Meade

An electronic copy of the textbook is integrated in the homework system Wiley-Plus that we will use for the class. When setting-up your account with Wiley plus there will be an option to purchase a hard copy of the book for an extra-fee. Please follow the instructions in the WileyPLUS Registration link in Canvas to register for WileyPLUS at UMass's discounted price.

## Grading:

Grade weightings: There will be a final exam worth 30%, Mid-term exam (on Wednesday 10/16, 7-9pm ) worth 30%, Homework worth 30%, written HW worth 10%. All scores will be scaled to a 0-100 scale before averaging.

Letter Grades:

A: 90, A-: 87, B+: 83, B: 79, B-: 75, C+ 71, C: 67, C-: 63, D+: 59, D: 55, F: <55

Note: There is no numerical rounding in the conversion to a letter grade. i.e. a numerical grade of 89.9% would result in a letter grade of A-.

**Homework:**(30% + 10% = 40%)

Homework will be made up of Online HW via WileyPLUS (30%) and Written HW (10%) that will be handed in and hand-graded.

**Written Homework:** Six written homework will be given through the term. Questions in written homework are based on weekly homework assignments.

Late Homework Policy: You are strongly encouraged to keep up with the deadlines on WileyPLUS, though they **may be completed after the due date for full credit until the day of the Final at 11:59pm EST**. Written HW submitted by the late due date will receive full credit. Further extensions for Written HW will be at each section instructor's discretion, but will not be granted after the release of the solutions.

**Exams:**(2 x 30% = 60%)

**Midterm Exam (30%):** will be held on Wednesday 10/16, 7-9pm

**Final Exam (30%):**

The final will be cumulative, with emphasis placed on topics covered after the first exam. The date and time of the final exam will be scheduled by the university. The final will only be given at that time, and not at any other time for any reason. In particular, arrange your travel plans for Final Exam week accordingly.

### **Exam policies:**

- Please arrive 10 minutes early. You will not be admitted to the exam more than 30 minutes late.
- Do not bring any cheat sheets, formula sheet and class notes to the Midterm exams and final exam.
- Bring your student ID to the exam.
- Calculator policy: Calculators are not allowed during exam.
- Makeup exam policy: Make-up exams are given for a university approved reasons. Make up exams MUST be requested (by providing documentation) no later than 2 weeks before the exam at 5pm for all reasons that can be anticipated prior to the exam. For unexpected requests (illness, etc), you must contact your instructor within 48 hours of the exam (unless there are circumstances preventing this) and provide documentation supporting your university approved absence as soon as you return to campus.

### **Academic Honesty Policy:**

Since the integrity of the academic enterprise of any institution of higher education requires honesty in scholarship and research, academic honesty is required of all students at the University of Massachusetts Amherst. Academic dishonesty is prohibited in all programs of the University. Academic dishonesty includes but is not limited to: cheating, fabrication, plagiarism, and facilitating dishonesty. Appropriate sanctions may be imposed on any student who has committed an act of academic dishonesty. Instructors should take reasonable steps to address academic misconduct. Any person who has reason to believe that a student has committed academic dishonesty should bring such information to the attention of the appropriate course instructor as soon as possible. Instances of academic dishonesty not related to a specific course should be brought to the attention of the appropriate department Head or Chair. Since students are expected to be familiar with this policy and the commonly accepted standards of academic integrity, ignorance of such standards is not normally sufficient evidence of lack of intent ([http://www.umass.edu/dean\\_students/codeofconduct/acadhonesty/](http://www.umass.edu/dean_students/codeofconduct/acadhonesty/)).

### **Accommodations and Accessibility Policy:**

The University of Massachusetts Amherst is committed to providing an equal educational opportunity for all students. If you have a documented physical, psychological, or learning disability on file with Disability Services (DS), you may be eligible for reasonable academic accommodations to help you succeed in this course. If you have a documented disability that requires an accommodation, please notify me within the first two weeks of the semester so that we may make appropriate arrangements. For further information, please visit Disability Services (<https://www.umass.edu/disability/>)

For evening exams with accommodations you will take the exam on the scheduled date starting at 6PM to account for extra time. You will be in a distraction reduced setting. You will need to email your instructor 2 weeks prior to the exam if you plan on using your extended time accommodation on exams.

## **Title IX Policy:**

In accordance with Title IX of the Education Amendments of 1972 that prohibits gender-based discrimination in educational settings that receive federal funds, the University of Massachusetts Amherst is committed to providing a safe learning environment for all students, free from all forms of discrimination, including sexual assault, sexual harassment, domestic violence, dating violence, stalking, and retaliation. This includes interactions in person or online through digital platforms and social media. Title IX also protects against discrimination on the basis of pregnancy, childbirth, false pregnancy, miscarriage, abortion, or related conditions, including recovery. There are resources here on campus to support you. A summary of the available Title IX resources (confidential and non-confidential) can be found at the following link: <https://www.umass.edu/titleix/resources>. You do not need to make a formal report to access them. If you need immediate support, you are not alone. Free and confidential support is available 24 hours a day / 7 days a week / 365 days a year at the SASA Hotline 413-545-0800.

**Schedule of Lectures:**

The following is meant to give a general idea of which sections are covered in which weeks. Coverage may be different depending on such factors as MWF vs. TuTh schedule, different paces of individual instructors, etc. However, it is expected that all these sections will be covered.

Week	Material	Notable dates
9/3	Introduce course policy 1.1 Intro to diff. eq. 1.2 Solutions to Diff Eq	Classes begin on [REDACTED]
9/9	1.3 Types of Diff Eq 2.1 Linear ODEs 2.2 Separable ODEs	[REDACTED] last day to add/drop
9/16	2.3 Modeling with ODEs 2.5 Autonomous equations	
9/23	2.4, 2.7, and 2.8 Theory and Euler methods 2.6 Exact equations	
9/30	3.1 2nd order eq. with constant coefficients 3.2 Wronskian	
10/7	3.3 Complex roots 3.4 Repeated roots	
10/14	start 3.5 Nonhomogeneous ODEs	[REDACTED] Midterm covers 1.1-3.4 [REDACTED] [REDACTED]
10/21	finish 3.5 Nonhomogeneous ODEs 3.7 Mechanical and Electrical oscillations 3.8 Forced oscillations	
10/28	6.1 Laplace transform 6.2 Initial value problems	Last day to withdraw and select P/F Tuesday, [REDACTED]
11/4	6.3 Step functions 6.4 Discontinuous forcing	
11/12	6.5 Impulse functions 7.1 Introduction to systems	[REDACTED]
11/18	7.2 Matrices Intro 7.3 Matrices (cont.) start 7.4 Theory of Solutions of Systems	[REDACTED]
11/25	finish 7.4 Theory of Solutions of Systems 7.5 Linear systems w/ Real eigenvalues eigenvalues	
12/2	Finish 7.5 7.6 Linear systems w/ Complex eigenvalues	Last day of classes on [REDACTED]
12/9	Review and Catch Up Start Finals Week	Our Final Exam is [REDACTED] [REDACTED]