

COURSE DESCRIPTION
INTRO DIFFERENTIAL EQUATIONS
MA 252-OQ, 40133
SUMMER 2024

DEPARTMENT OF MATHEMATICS
UNIVERSITY OF ALABAMA AT BIRMINGHAM

Course Instructor: Professor Yanni Zeng
Office: UH 4012
Phone#: (205) 934-2154
E-mail: ynzeng@uab.edu
Office Hours: WED, 1 –2 PM (or by appointment)

Meeting times: MON WED FRI, 11:20 AM – 12:40 PM

Meeting location: HHB 221

Prerequisite: Grade of C or better in MA 126 or MA 226

Credits: 3 semester hours

Textbook: *Fundamentals of Differential Equations* by Nagle-Saff-Snider, Pearson, 9th edition (MyLab Math with Pearson eText – 18 Week Standalone Access Card).

- This course participates the UAB Bookstore’s First Day program. *The deadline to opt-out for the First Day program is June 6, 2024.* For more information please see
<https://www.uab.edu/elearning/academic-technologies/first-day-access>
 - You can access your digital course materials through Canvas. First-time users will need to create an account with the publisher. Please see the page attached to this syllabus for registration instructions.
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Important dates:

First day of classes: June 3, 2024

Last day to drop without paying full tuition: June 10, 2024

Juneteenth: June 19, 2024

Independence Day Holiday: July 4, 2024

Last day to withdraw with a “W”: July 12, 2024

Last day of class: Aug 2, 2024

Date: January 2, 2023.

Test I: near Monday, June 24;
Major exams (tests): Test II: near Friday, July 12;
Test III: near Wednesday, July 31.

(These dates are approximate and may be slightly shifted due to unforeseen circumstances.)

Final exam: Monday, August 5, 2024, 10:45 AM – 1:15 PM

Course policies:

- Please make sure that you are able to receive e-mail through your Blazer-ID account. Official course announcements may be sent to that address.
 - If you wish to request a disability accommodation please contact DSS at 934-4205 or at *dss@uab.edu*.
 - The lowest quiz grade and the five lowest homework grades will be dropped to account for any missed assignments due to illness or any other circumstance. If a test is missed due to a serious verifiable circumstance or official university business, the test grade will be replaced with the final exam score. Otherwise, if you miss an exam you will receive a zero score for this exam. In the unlikely event when two or more midterm tests are missed due to a serious verifiable circumstance or official university business, the matter will be resolved on the case by case basis. In any case you **must** inform your instructor of such circumstances **before** the exam takes place.
 - Calculators (without internet access) will be allowed during any of the tests or quizzes. In addition, students can bring one quick reference card to tests, including the final exam (i.e., a standard size 5" × 8"-index card; both sides can be used).
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Methods of teaching and learning:

- Class meetings of 80 minutes consisting of lectures and discussions of examples and homework problems. Time also includes quizzes and three in-class tests.
 - Students are expected to undertake at least 15 hours of private study and homework per week.
 - MyLab platform from Pearson will be used for online homework.
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Assessment procedures:

- Student achievement will be assessed by the following measures:
 - **Regular online homework** (usually due on Mondays before class). There will be NO EXTENSION FOR HOMEWORK DEADLINES! Feedback is provided when wrong answers are given. Two attempts are allowed for each question, so make sure that you are fairly confident in your answers, before you input them. Homework contributes 15% to the course average. Problems on tests are modeled after homework problems. Staying on top of homework is therefore extremely important.
 - **Weekly quizzes** (usually during Monday classes). There will be NO MAKEUP QUIZZES! Quiz problems are similar to the homework problem sets. This allows

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students to gauge whether they are ready to work problems in a test situation. Quizzes contribute 15 % to the course average.

- **Three in class tests.** Partial credit is awarded where appropriate. Each test contributes 15% to the course average.
- **A 150-minute comprehensive final examination.** The final exam will be cumulative, i.e. it will test on all the material. The final exam contributes 25% to the course average.
- Your course performance is your course average (including the final exam score). This is a number between 0 and 100.
- Your final grade is determined according to the following table:

Course performance:	88-100	75-87	62-74	50-61	below 50
Final Grade:	A	B	C	D	F

Learning Outcomes: Upon successful completion of the course a student

- knows concepts related to differential equations, including direction fields and approximation method of Euler;
- can solve first order differential equations, including separable, linear and exact equations;
- uses first order differential equations to build mathematical models, with applications in compartmental analysis and Newtonian mechanics;
- can solve second order linear differential equations and knows their properties, including equations of constant coefficients, homogeneous and non-homogeneous equations, equations with variable coefficients, the methods of undetermined coefficients and variation of parameters;
- can solve first order linear systems of differential equations by elimination method and by numerical methods.