

Course Syllabus
INTRO TO DIFFERENTIAL EQUATIONS MA 252-2A
Spring 2022

Department of Mathematics
University of Alabama at Birmingham

Instructor Information

Primary Instructor: Dr. Michael Hofbauer-Tsiflakos

Contact information:

Phone#: (205) 934-8541

E-mail: hofbauer@uab.edu

Preferred Methods of Contact

Email is the preferred method of contact if you have questions.

Office Hours

Tuesday, Thursday 09:15am (right after class).

Instructional Method

Face-to-face.

Teaching Time Zone

Central Time U.S.

UAB Math Learning Lab: Students are encouraged to use the help provided by the UAB Math Learning Lab to advance their studies:

<https://www.uab.edu/cas/mathematics/student-resources/math-learning-lab>

UAB Policies and Resources:

Add/Drop and Course Withdrawal

Drop/Add: Deadlines for adding, dropping, or withdrawing from a course and for paying tuition are published in the Academic Calendar:

<https://www.uab.edu/students/academics/academic-calendar/2021-2022>.

Review the Institutional Refund Policy for information on refunds for dropped courses.

Withdrawal: To avoid academic penalty, a student must withdraw from a course by the withdrawal deadline shown in the academic calendar and receive a grade of W (withdrawn). Failure to attend class does not constitute a formal drop or withdrawal.

UAB United: Safe Entry to Campus

Please go to the UAB United website <https://www.uab.edu/uabunited/> for guidance and resources related to our safe entry to campus in Fall 2021, including information on:

- Testing
- Academic resources and in-depth information
- Student Affairs resources to support all students (housing, dining, extracurricular activities, parking, etc.)
- Health and safety resources and recommendations for on and off-campus
- Information for graduate students, School of Medicine students, Post-Docs and International Students

All students should use the Student COVID-19 Entry Checklist to see what they have to do in order to enter the campus safely. Non-compliance with the required items will result in students not being able to remain on campus or participate in any in-person classes, meetings, jobs, extracurricular activities, and events.

Misconduct

- Academic Honor Code
<https://www.uab.edu/one-stop/policies/academic-honor-code>
- Non-Academic Student Code of Conduct
<https://www.uab.edu/students/conduct/>

DSS Accessibility Statement

Accessible Learning: UAB is committed to providing an accessible learning experience for all students. If you are a student with a disability that qualifies under Americans with Disabilities Act (ADA) and Section 504 of the Rehabilitation Act, and you require accommodations, please contact Disability Support Services for information on accommodations, registration and procedures. Requests for reasonable accommodations involve an interactive process and consist of a collaborative effort among the student, DSS, faculty and staff. If you are registered with Disability Support Services, please contact DSS to discuss accommodations that may be necessary in this course. If you have a disability but have not contacted Disability Support Services, please call (205) 934-4205, visit their website or their office located in Hill Student Center Suite 409. You can also contact them by email at *dss@uab.edu*,

COVID-19 Adjustments for Students: Attendance will not be a part of your grade in this course. Students concerned about their attendance as a result of COVID-19 should register with Disability Support Services.

UAB Disability Support Services (DSS) has established a process for UAB students to request temporary adjustments based on the impact of COVID-19. The process is similar to the traditional DSS registration procedures for accommodations based on disability. However, these requests will be referred to as "COVID-19 Related Temporary Adjustments". On the DSS website, there is a section (next to the traditional DSS application process) titled "Request COVID-19 Temporary Adjustments" where students can read the process and click to complete an application.

On the application, the student must complete an attestation and identify which of the following category(s) applies to their situation. Students will be allowed to submit documentation to support their requests.

- I am 65 or older
- My medical provider has determined that I am an individual who is considered high risk according to Centers for Disease Control and Prevention
- I care for or reside with an individual who has been determined to be high risk according to Centers for Disease Control and Prevention
- I have tested positive for COVID-19
- I am requesting adjustments for another reason

Any questions regarding this process should be referred directly to dss@uab.edu. For qualifying students, DSS staff will create a Notification of Temporary Adjustment Letter (PDF format) which will be provided to students. Students will share this letter, as needed, with instructors to request adjustments.

Title IX Statement

The University of Alabama at Birmingham is committed to providing an environment that is free from sexual misconduct, which includes gender-based assault, harassment, exploitation, dating and domestic violence, stalking, as well as discrimination based on sex, sexual orientation, gender identity, and gender expression. If you have experienced any of the aforementioned conduct we encourage you to report the incident. UAB provides several avenues for reporting. For more information about Title IX, policy, reporting, protections, resources and supports, please visit UAB Title IX webpage for UAB's Title IX, UAB's Equal Opportunity, Anti-Harassment, Duty to Report, and Non-Retaliation policies.

Mandatory Masks and Social Distancing Requirements

In accordance with CDC and UAB Health and Safety guidelines

<https://www.cdc.gov/coronavirus/2019-ncov/communication/guidance.html>

<https://www.uab.edu/uabunited/students/health-safety>

all faculty, staff and students are required to wear cloth face coverings or face masks. Instructors have the right to ask those who are not complying with these requirements to leave class in the interest of everyone's health and safety. In the event that a student refuses to comply with these requirements, the instructor has the right to cancel class. Please review the above links for more information.

Additionally, following other simple practices will promote good health in and out of the classroom, such as frequent and thorough hand washing, wiping down desks and seats with disinfectant wipes whenever possible, not sharing personal items such as pens and cell phones, and avoiding crowded areas and other enclosed spaces.

The UAB Blazer community views the adoption of these mandatory guidelines as a mark of good citizenship and respectful care of fellow classmates, faculty, and staff. Please visit the UAB United website for further information.

Food may not be consumed during class times in classrooms, but bottled water is permissible.

Course Information

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E-mail: hofbauer@uab.edu
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Phone: (205) 934-8541
Office Hours: Tuesday, Thursday 09:15am (right after class)

Course Info

Meeting times: Tuesday, Thursday 08:00am-09:15am

Meeting location: HHB 221

Course material: The course will mainly follow the open, free text book *Elementary differential equations* by William F. Trench, which can be found by clicking on the following link: <https://digitalcommons.trinity.edu/mono/8/>.

I can also recommend the following two text books:

- William A. Adkins, Mark G. Davidson, *Ordinary differential equations*, Link to Springer (publisher),
 - William E. Boyce, Richard C. DiPrima, Douglas B. Meade, *Elementary differential equations and boundary value problems*, Link to Wiley (publisher).
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Important Dates

First day of our class: January 11, 2022

Last day to drop without paying full tuition: January 18, 2022

Spring Break: March 14 – March 20, 2022

Last day of our class: April 19, 2022

Midterm Dates: (Tentatively) February 10, 2022, March 17, 2022 and April 19, 2022

Course Policies

- Please make sure that you are able to receive e-mail through your Blazer-ID account.
- If your are contacted by the Early Alert Program, you should consider taking advantage of the services it offers.
- If you wish to request a disability accommodation please contact DSS at 934-4205 or at dss@uab.edu.
- If a midterm exam is missed due to a serious, verifiable circumstance or official university business, the midterm grade may be replaced with the average grade of the other two midterms. For such a replacement to take place, the student must present a justified, written and signed confirmation from a third party (e.g. a medical doctor in case of illness).

Course Content

- *First order differential equations*: Difference between linear and nonlinear differential equations, separable differential equations, existence and uniqueness of solutions, direction fields, exact differential equations, integrating factors, applications, examples from physics.
- *Second order linear differential equations*: Homogeneous differential equations, nonhomogeneous differential equations, differential equations with constant coefficients, method of undetermined coefficient, reduction of order, variation of parameter, incomplete partial fraction method, power series solutions, applications, examples from physics.

Given time *linear systems of n differential equations* may be discussed:

- *Linear systems of n differential equations*: Equivalence to a linear differential equation of order n , homogeneous linear systems with constant coefficients, variation of parameter for nonhomogeneous linear systems, fundamental matrices, stability of the origin for homogeneous linear systems, applications.

Class Management via Canvas

- Homework problems will be posted on canvas (<http://www.uab.edu/online/canvas>). Other class materials (class announcements, codes, grades and etc.) will be posted on canvas. Students should log in to canvas at least once a day!
- Homework assignments will be collected on canvas.

Assessment Procedures

- Student achievement will be assessed by the following measures:
 - **Weekly homework.** Homework will be due weekly. There will be no extension of deadlines for any reason. Homework contributes 10% to the course average.
 - **Midterm exam.** There will be three midterm exams. Each midterm exam contributes 30% to the course average.

Grading Scheme: 10% home work, 30% each midterm exam

- 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

Academic Honor Code

The University of Alabama at Birmingham expects all members of its academic community to function according to the highest ethical and professional standards. Academic misconduct undermines the purpose of education. Such behavior is a serious violation of the trust that must exist among faculty and students for a university to nurture intellectual growth and development. Academic dishonesty and misconduct includes, but is not limited to, acts of abetting, cheating, plagiarism, fabrication, and misrepresentation. Candidates are expected to honor the UAB Academic Honor Code as detailed in the most current UAB Student Catalog. Please consult this resource (<https://www.uab.edu/one-stop/policies/academic-integrity-code>) for additional information regarding the specific procedures to be undertaken when a student violates the UAB Academic Honor Code.

Non-harassment, Hostile Work/Class Environment

The UAB College of Arts and Sciences expects students to treat fellow students, their Course Instructors, other UAB faculty, and staff as adults and with respect. No form of hostile environment or harassment will be tolerated by any student or employee.
