

Course Information

Instructor: Dr. Justin T. Webster (Justin)
Lecture: M, W Sec.2 - 5:30–6:45 pm, ILSB 233;
TA: Raleigh Mansfield **Email:** bv84739@umbc.edu

Text: S. Farlow, *An Introduction to Differential Equations and Their Applications*, DOVER¹

Course Website: (primary) Blackboard;
(secondary) <http://webster.math.umbc.edu/JustinsHomepageForStudents.html>

Office Hours: T, 10:00–11:30am; W, 4:00–5:00pm; and by (in-person or virtual) appt.*

TA Office Hours: M, 1:00–2:00pm in M&P 401

This is a three credit-hour introduction to (*ordinary*) *differential equations* (ODEs) in application. As per the catalog, topics covered include: solutions of first and second order linear differential equations, non-linear exact and separable equations, the integrating factor, second order linear equations, initial and boundary value problems, Laplace transforms, forced and unforced vibrations, power series solutions, higher-order linear systems.

Real Prerequisites: MATH 152 (Calc. II) with a grade of “C” or better.

Recommended Preparation: MATH 251 (Calc. III) and MATH 221 (Linear Algebra).

The following are the course policies. They may change; changes will be announced *in class and via e-mail*.

Contacting Me: I will be in my office during Office Hours—no appointment required. If I am not, I will post a note on my door that we have moved to an overflow room. The best way to contact me is via email. I will respond within 36 hours, but do not expect an immediate response. **Please schedule all appointments outside of office hours through e-mail, with at least 24 hour notice.* Students are responsible for all announcements made in class, and any e-mail sent to their UMBC email account. The course will primarily run through Blackboard; please check it often.

Asynchronous Lecture Content and/or Reading: In the absence of weekly graded homework, additional course content will sometimes be delivered asynchronously (e.g., examples, additional topics). One or two short videos (roughly 15 minutes each) may be posted in some weeks. It is expected that any videos posted are viewed *actively* before the following week. Some course content will necessitate *out of class* reading/review—examples, definitions, methods, and theorems. As such there will occasionally be reading (with due dates). This reading may be due before content is presented in lecture. *The primary purpose of the textbook is to provide additional examples and discussion.*

Suggested Homework: Suggested homework problems from the textbook will be assigned each week (Sunday before) and posted on the homepage. Occasionally I may write more involved homework questions and post them, or assign them during the Tuesday or Thursday class time. Homework will be ungraded, but solutions can be checked by attending office hours, or requesting specific problems for demonstration during class. (For this, please email me by the following Sunday midday to ensure I can fold them into the upcoming weekly agenda.)

Bonus Homework Questions: One or a few additional “bonus” problems will usually be posted each week on the homepage. These will be *challenging problems* from a variety of sources, often required substantial writing. They will be graded strictly. These problems can be done at any point in the semester, and they will be scaled in such a way that their total value (in aggregate) will represent up to +10% upon the total grade calculation.

Quizzes/Activities: A quiz will happen (approximately) every other week. It may be longer (45 min) or shorter (10 min, a basic comprehension or reading check), depending on the material. A graded in-class activity will happen a few times during the semester. (These items may occasionally be of a take-home nature.) Students will turn in their own work and answers, *unless explicitly informed otherwise*. Once material is covered in class or assigned for reading, it is valid for quizzes and activities. *No make-ups will be granted under any circumstance, but you will be permitted two*

¹A list of *errata* to Farlow’s book can be found here: <https://userpages.umbc.edu/~rostantia/farlow-errata.html>

quiz/activity drops. These drops anticipate the need for a given student to miss two such assessments; *they are not primarily intended to atone for poor performance.*

Exams: There will be two exams: Exam 1 is 75 minutes, taking place approximately in Week 7 (week of 3/10); Exam 2 will be 120 minutes, taking place during the final exam time. Exam 2 is a cumulative final exam, with emphasis on the latter content. The dates of the exams are based on our class time, and only in the most extreme cases will arrangements be made to reschedule.

Final Exam Period - Monday, May 19th; 6:00–8:00pm

Notes Policy: Quizzes and exams are *closed book, closed note*, unless explicitly stated otherwise. See the Academic Integrity section below.

Grading: Grades will be assigned based on raw percentages in the standard 100 percent scale (with no “+” or “-”). *During the semester, grades will not be rounded, and there will be no curve for graded material.* However, I reserve the right to adjust *final grades* based on factors such as attendance, participation, and demonstrated effort towards understanding the material (always “upward”, if at all). I also reserve the right to perform a “mean-shift” to the the final course distribution. The final grade breakdown will be as follows:

Exam 1 – 30% Exam 2 – 40% Quizzes/Activities – 30%

Course Description and Outcomes: Students are expected to display a thorough understanding of the topics covered. In particular, upon completion of the course students should be able to:

- +) Classify differential equations, specifically determining the order, linearity, and homogeneity of an ODE;
- +) Confirm a solution to a differential equation, system, or initial value problem;
- +) Understand existence, uniqueness, and continuous dependence in the context of ODEs;
- +) Correctly identify the appropriate solution method for a given first or second order ODE;
- +) Efficiently and accurately solve first and second order ODE problems (and problems in applications);
- +) Perform qualitative analysis on ODEs and their solutions, and interpret them in terms of relevant applications.

These outcomes will be assessed on quizzes, activities, and exams.

Etiquette, Please: Make sure your cell phone is silent, and don’t be egregious about using it, and *do not use laptops during class.* If choosing to attend, please come on time and commit to sitting through the entire lecture. Lastly, please comment and ask questions during the lecture by raising your hand.

Attendance: Attendance will not factor into the overall grade, but there are obvious ramifications for missing more than a couple class sessions. I will record absences for a student if they occur in excess.

Important Dates: Please be aware of the following dates:

waitlist deactivated - Feb. 3;	add/drop deadline - Feb. 7;
spring break - March. 17–23;	withdraw deadline - April 4;
last day of classes - May 13;	finals - May 15–21.

Course Evaluations and Feedback: I take course evaluations seriously, and as such, I would ask that you complete them. Please provide objective and honest feedback in as much detail as you can. Additionally, polite feedback about the course (during the semester) is encouraged.

Academic Integrity: Have some! Be a good person, please! Be a person who does not cheat. For activities or the occasional take-home graded item, students are encouraged to work together. However, each student must turn in his/her/their own work in his/her/their own words and notations. The TA and myself will be on high alert for similar answers across all graded items. *I reserve the right to conduct an academic integrity interview with any student concerning any graded item; the student will be asked to explain his/her/their answers, strategy, and approach for the item(s) in question. A failed interview will result in a score of zero for the item(s) in question, and possible further action according the UMBC policy detailed below.*

Other Stuff:

COVID-19 Statement: I reserve the right to modify this syllabus, or replace it, in response to COVID-related happenings at the University, System, or State level. This includes such changes as related to masking, switching classroom modality and assessments, and changing the course schedule.

UMBC Academic Integrity Policy: By enrolling in this course, each student assumes the responsibilities of an active participant in UMBC's scholarly community in which everyone's academic work and behavior are held to the highest standards of honesty. Cheating, fabrication, plagiarism, and helping others to commit these acts are all forms of academic dishonesty, and they are wrong. Academic misconduct could result in disciplinary action that may include, but is not limited to, suspension or dismissal. To read the full Student Academic Conduct Policy, consult the UMBC Student Handbook, the Faculty Handbook, the UMBC Integrity webpage <https://academicconduct.umbc.edu/>, the UMBC Undergraduate Student Academic Conduct Policy for undergraduate students, the UMBC Policies section of the UMBC Directory or the University of Maryland Graduate School, Baltimore (UMGSB) Policy and Procedures for Student Academic Misconduct for graduate students.

Athletes, Veterans, and Other Considerations: If you are a NCAA or club sports athlete, or have *any* special circumstances, you should inform me as soon as possible. For veterans, certain additional resources may be available: <http://veterans.umbc.edu/>. Special accommodations can be made for scheduling and other specific needs on an individual basis. Please inform me of your situation as soon as possible. For disability-related needs, documentation may be required.

ADA Guidance and Resources: Accommodations for students with disabilities are provided for all students with a qualified disability under the Americans with Disabilities Act (ADA & ADAAA) and Section 504 of the Rehabilitation Act who request and are eligible for accommodations. The Office of Student Disability Services (SDS) is the UMBC department designated to coordinate accommodations that creates equal access for students when barriers to participation exist in University courses, programs, or activities. If you have a documented disability and need to request academic accommodations in your courses, please refer to the SDS website at sds.umbc.edu for registration information and office procedures. SDS email: disAbility@umbc.edu; SDS phone: 410-455-2459. If you will be using SDS approved accommodations in this class, please contact the instructor to discuss implementation of the accommodations.

Sexual Assault, Sexual Harassment, and Gender Based Violence and Discrimination: UMBC Policy and Federal law (Title IX) prohibit discrimination and harassment on the basis of sex, sexual orientation, and gender identity in University programs and activities. Any student who is impacted by sexual harassment, sexual assault, domestic violence, dating violence, stalking, sexual exploitation, gender discrimination, pregnancy discrimination, gender-based harassment or retaliation should contact the University's Title IX Coordinator to make a report and/or access support and resources: Leah Reynolds, Interim Title IX Coordinator (410-455-1717), lreyno11@umbc.edu. You can access support and resources even if you do not want to take any further action. You will not be forced to file a formal complaint or police report. Please be aware that the University may take action on its own if essential to protect the safety of the community. If you are interested in or thinking about making a report, please use the Online Reporting/Referral Form. Please note that, if you report anonymously, the University's ability to respond will be limited.

Notice that Faculty and Teaching Assistants are Responsible Employees with Mandatory Reporting Obligations: All faculty members and teaching assistants are considered Responsible Employees, per UMBC's Policy on Sexual Misconduct, Sexual Harassment, and Gender Discrimination. Faculty and teaching assistants therefore required to report all known information regarding alleged conduct that may be a violation of the Policy to the Title IX Coordinator, even if a student discloses an experience that occurred before attending UMBC and/or an incident that only involves people not affiliated with UMBC. Reports are required regardless of the amount of detail provided and even in instances where support has already been offered or received. *While faculty members want to encourage you to share information related to your life experiences through discussion and written work, students should understand that faculty are required to report past and present sexual harassment, sexual assault, domestic and dating violence, stalking, and gender discrimination that is shared with them to the Title IX Coordinator so that the University can*

inform students of their rights, resources, and support. While you are encouraged to do so, you are not obligated to respond to outreach conducted as a result of a report to the Title IX Coordinator.

If you need to speak with someone in confidence, who does not have an obligation to report to the Title IX Coordinator, UMBC has a number of Confidential Resources available to support you:

- Retriever Integrated Health (Main Campus): 410-455-2472; Monday – Friday 8:30 a.m. – 5 p.m.; For After-Hours Support, Call 988.
- Center for Counseling and Well-Being (Shady Grove Campus): 301-738-6273; Monday-Thursday 10:00a.m. – 7:00 p.m. and Friday 10:00 a.m. – 2:00 p.m. (virtual) Online Appointment Request Form
- Pastoral Counseling via The Gathering Space for Spiritual Well-Being: 410-455-6795; i3b@umbc.edu; Monday – Friday 8:00 a.m. – 10:00 p.m.
- Women’s Center (open to students of all genders): 410-455-2714; womenscenter@umbc.edu; Monday – Thursday 9:30 a.m. – 5:00 p.m. and Friday 10:00 a.m. – 4 p.m.
- Additional on and off campus supports and resources can be found at:
<https://ecr.umbc.edu/>.

Please note that Maryland law and UMBC policy require that faculty report all disclosures or suspicions of child abuse or neglect to the Department of Social Services and/or the police even if the person who experienced the abuse or neglect is now over 18.

UMBC’s Policy on Sexual Misconduct, Sexual Harassment and Gender Discrimination expressly prohibits all forms of discrimination and harassment on the basis of sex, including pregnancy. Resources for pregnant, parenting and breastfeeding students are available through the University’s Office of Equity and Civil Rights. Pregnant and parenting students are encouraged to contact the Title IX Coordinator to discuss plans and ensure ongoing access to their academic program with respect to a leave of absence ? returning following leave, or any other accommodation that may be needed related to pregnancy, childbirth, adoption, breastfeeding, and/or the early months of parenting.

Pregnant and Parenting Students: In addition, students who are pregnant and have an impairment related to their pregnancy that qualifies as disability under the ADA may be entitled to accommodations through the Office of Student Disability Services.

Religious Observances & Accommodations: UMBC Policy provides that students should not be penalized because of observances of their religious beliefs, and that students shall be given an opportunity, whenever feasible, to make up within a reasonable time any academic assignment that is missed due to individual participation in religious observances. It is the responsibility of the student to inform the instructor of any intended absences or requested modifications for religious observances in advance, and as early as possible. For questions or guidance regarding religious observances and accommodations, please contact the Office of Equity and Civil Rights at ecr@umbc.edu.

Hate, Bias, Discrimination and Harassment: UMBC values safety, cultural and ethnic diversity, social responsibility, lifelong learning, equity, and civic engagement. Consistent with these principles, UMBC Policy prohibits discrimination and harassment in its educational programs and activities or with respect to employment terms and conditions based on race, creed, color, religion, sex, gender, pregnancy, ancestry, age, gender identity or expression, national origin, veterans status, marital status, sexual orientation, physical or mental disability, or genetic information. Students (and faculty and staff) who experience discrimination, harassment, hate, or bias based upon a protected status or who have such matters reported to them should use the online reporting/referral form to report discrimination, hate, or bias incidents. You may report incidents that happen to you anonymously. Please note that, if you report anonymously, the University’s ability to respond may be limited.