MATH 308: Differential Equations, Spring 2012
Section: 506, CRN: 12403
M,W,F, 1:50-2:40, Blocker Building 128

Instructor: Dr. Adam Larios   **Email:** alarios@math.tamu.edu
Office: Blocker Building, 641 C   **Math Dept. Phone:** (979) 845-3261
Office Hours: M,W,F, 12:50 pm - 1:50 pm

Prerequisites: MATH 251 or equivalent with a grade of C or better, basic knowledge of computers and the ability to handle computer algebra systems (e.g., Matlab, Sage, Mathematica, Maple, or something similar. We will be using Matlab in this course.)

Textbooks: *Elementary Differential Equations: Custom TAMU Edition.* W. Boyce, R. DiPrima. John Wiley and Sons, Inc, 2011. ISBN: 9781118133712. **Note that this is a special edition made exclusively for Texas A&M. It is based on the 9th edition.**

Differential Equations with Matlab, 2nd Edition. Wiley, B. Hunt, R. Lipsman, J. Osborn, J. Rosenberg. John Wiley and Sons, Inc, 2005. ISBN: 9780471718123. **(Optional)**

Contacting me: The best way to get in contact with me is by email, alarios@math.tamu.edu. Please put MATH308 somewhere in the subject and make sure to include your whole name with your email. My office is in Blocker Building, 641 C, and my office hours are M,W,F 12:50 pm - 1:50 pm. Drop-ins are welcome during these times. If you want to meet me at a different time, please email me, and we will schedule a time to meet.

Content: Differential equations lie at the heart of an extremely large number of natural phenomena. Our understanding of these equations and their solutions has yielded a massive amount of progress for the human race. Furthermore, the unsolved problems are enormously varied, rich, and challenging. Research in differential equations is found at the cutting edge of nearly every discipline in science and mathematics, with recent progress requiring the most cutting-edge mathematical tools, and the fastest supercomputers in the world.

	Week of	Sections
1	Jan 16	1.1, 1.2, 1.3, 2.1
2	Jan 23	2.2, 2.3, 2.4
3	Jan 30	2.5, 2.6, 3.1
4	Feb 6	3.2, 3.3, 3.4
5	Feb 13	3.5, 3.6, 3.7
6	Feb 20	3.8, 6.1, Exam 1
7	Feb 27	6.1, 6.2, 6.3
8	Mar 5	6.4, 6.5, 6.6
–	Mar 12	Spring Break
9	Mar 19	7.1, 7.2, 7.3
10	Mar 26	7.4, 7.5, 7.6
11	Apr 2	7.7, 7.8, 7.9
12	Apr 9	5.1, 5.2, Exam 2
13	Apr 16	5.3, 5.4, 5.5
14	Apr 23	5.6, 8.1, 8.2
15	Apr 30	8.3, 8.4, Review

In this course, we will start at the beginning, and focus on the most basic differential equations, known as "ordinary differential equations" (ODEs). Even at this level, the equations involved are incredibly useful in modeling nature, and will require us to develop sophisticated and beautiful mathematics to handle them.

The student learning objectives for this course involve classifying ODEs and developing techniques for finding all solutions of general equations in certain classes. Major topics covered will include: ordinary differential equations, solutions in series, solutions using Laplace transforms, and systems of differential equations.

Tentative weekly schedule: This schedule in the table above is a rough guide to the sections cover in the course, but is subject to change.

Homework: Homework is designed to help students understand the material and to prepare them for the exams. Late homework is not accepted; however, to balance this, your lowest two homework scores will be dropped. A list of suggested homework problems can be found at `http://www.math.tamu.edu/courses/math308/308currenthw.html`. Depending on whether we have a grader, suggested homework problems may or may not be collected, but doing them can strongly help students prepare for exams.

Collaboration: Collaboration is encouraged in this course. However, copying someone else's work and submitting it as your own is not acceptable. This act of academic dishonesty will be prosecuted following University policy.

For some assignments, you may be put into groups. In these cases, you will be asked to collaborate on and turn in a single assignment. Each member of the group is responsible for 100% of each assignment, so if one or more group members do not fully contribute for any reason, it is still the responsibility of the other group members to turn in a completed assignment by the due date. It is your responsibility to contact your group members, and to contact me well in advance if problems arise.

Quizzes: There will be weekly (or almost weekly) quizzes administered in class. **No make-up quizzes will be given; however, the lowest two quiz scores will be dropped.** You are required to bring and possibly present your Aggie Card or a government issued ID card when taking exams.

Exams: There will be 2 midterm exams and a comprehensive final exam.
No exam scores will be dropped.
Exam schedule:
- First exam: Friday, February 24$^{\text{th}}$, in class
- Second exam: Friday, April 13$^{\text{th}}$, in class
- Final exam: Tuesday, May 8$^{\text{th}}$, 10:30 a.m. - 12:30 p.m

You are required to bring and possibly present your Aggie Card or a government issued ID card when taking exams, as well as standard writing materials.

Calculators: There will be no calculators (or other electronic devices) allowed on exams and quizzes, unless otherwise stated.

Grading: The final course grade will be computed minimally as follows.

Homework:	20%	A	90%-100%
Quizzes:	15%	B	80%-89.99%
Midterms:	40%	C	70%-79.99%
Final Exam:	25%	D	60%-69.99%
		F	0%-59.99%

Attendance: Daily attendance for class lectures is expected and is extremely important. While attendance is not recorded, missing even one class will put you behind. Note that there is a strong correlation between class absences and poor grades. You are responsible for all material and announcements in class regardless of whether or not you attended. **You are also responsible for making arrangements with another classmate to find out what you missed. You should not ask me to go over material that you missed (due to tardiness or absences) during office hours or over email.**

Make-up exams: Make-up exams will only be given with written evidence of an official University excused absence. Section 7.3 of the University Student Rules states that for an absence: "to be excused the student must notify his or her instructor in writing (acknowledged email message is acceptable) prior to the date of absence if such notification is feasible. In cases where advance notification is not feasible (e.g., accident or emergency) the student must provide notification by the end of the second working day after the absence. This notification should include an explanation of why notice could not be sent prior to the class."

Incompletes: Incompletes may be considered if all but a small portion of the class has been successfully completed , but the student in question is prevented from completing the course by a severe, unexpected, and documented event. Students who are simply behind in their work should consider dropping the course.

Special Services: The American with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protections for persons with disabilities. Among other things, this legislation provides that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact Disability Services, Cain Hall, Room B118, (979) 845-1637. For additional information, visit: `http://disability.tamu.edu`

Copyright policy: Printed materials disseminated in class or on the web are protected by Copyright laws. One Xerox copy (or download from the web) is allowed for personal use. Multiple copies or sale of any of these materials is strictly prohibited.

Honor Code: Academic dishonesty is taken extremely seriously, and will be dealt with according to university policy. Always abide by the Aggie Code of Honor: "An Aggie does not lie, cheat or steal, or tolerate those who do." For additional information, please visit: `http://www.tamu.edu/aggiehonor`

Useful Websites: Course Website: `http://www.math.tamu.edu/courses/math308/`
My Website: `http://www.math.tamu.edu/~alarios`
Department of Mathematics: `http://www.math.tamu.edu`
Campus emergency: `http://studentaffairs.tamu.edu/emergency`
Student Rules: `http://student-rules.tamu.edu`