MATH 308 – DIFFERENTIAL EQUATIONS
SECTIONS 502 & 521 – FALL 2019

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Classes: MWF 9:10am-10:00am in BLOC 128 (Section 502)
MWF 11:30am-12:20pm in BLOC 149 (Section 521)
Office hours: MWF 10:15am-11:15am, or by appointment.

Required Textbook:
Elementary Differential Equations and Boundary Value Problems (11th edition), by William E. Boyce, Richard C. DiPrima, and Douglas B. Meade.

Course Catalog Description:
Ordinary differential equations, solutions in series, solutions using Laplace transforms, systems of differential equations. *Prerequisites:* MATH 221, MATH 251, or MATH 253, or concurrent enrollment; knowledge of computer algebra system.

Course Objectives:
By completion of the course, the students should be able to

- Derive simple ODE mathematical models from the description of physical phenomena.
- Perform qualitative analysis of the properties of ODEs using computer tools.
- Classify and solve by hand several important classes of first and second order ODEs.
- Understand and apply basic numerical methods for solving ODEs.

Course Material and Tentative Schedule:
This course will cover the following topics (in order) from the required textbook. The material from Chapters 8 and 9 will be covered as time allows.

Chapters	Sections	Duration
1. Introduction	1.1-1.3	1 week
2. First order differential equations	2.1-2.6	2 weeks
3. Second order differential equations	3.1-3.8	3 weeks
6. The Laplace transforms	6.1-6.6	2 weeks
5. Series solutions of second order linear equations	5.1-5.3	1.5 weeks
7. Systems of first order linear equations	7.1-7.9	2.5 weeks
9. Nonlinear systems	9.1-9.3	1 week
8. Numerical methods	8.1-8.3	1 week

For a more detailed suggested weekly schedule, see `https://www.math.tamu.edu/courses/math308/308currentsched.html`.

Homeworks and Quizzes:
Homework assignments will be posted on the course website throughout the semester. Assignments will consist of problems from the required textbook and additional problems making use of Matlab and Java scripts. The problems designated as *Hand-in* are to be turned in on the assigned due date and a few of these problem will be selected to grade. You are encouraged to work with others while solving homework problems, but you must write up your own solutions. Moreover, late homework will not be accepted except in the case of an excused absence (see the section "Attendance and Make-up Policy" below).

In-class quizzes (closed book, closed notes and no electronic devices) with problems closely related to the assigned homeworks will be given on a biweekly basis, usually on Fridays. You will not have to turn in any homework solution for the material covered by the quizzes.

There will be roughly 5 hand-in homework assignments and 5 quizzes throughout the semester.

Exams:
There will be two in-class midterm exams (50 minutes each) and one final comprehensive exam (2 hours). The material on the exams will be similar to the examples presented in class and problems from the assigned homeworks. A detailed description of the material covered by each exam will be given on the course website in due time.

Grading Policy: The final grade will be based on the homeworks/quizzes, the two midterm exams and the *comprehensive* final exam. It will be computed according to the following distribution.

- Homeworks/Quizzes: 20% of your grade.
- Exam I: 25% of your grade.
- Exam II: 25% of your grade.
- Final exam: 30% of your grade.

The homeworks and the quizzes will be weighted equally. Moreover, the lowest two grades will be dropped. Homework, quiz and exam scores will be posted on the eCampus webpage. The (minimal) final grade will be computed according to the following scale: A (90%-100%); B (80%-89%); C (70%-79%); D (60%-69%); F (0%-59%).

Important Dates:

October 4	Exam 1 (Chapters 1-3)
November 8	Exam 2 (Chapters 5-7)
November 15	Q-drop deadline (5:00pm)
November 27-29	Thanksgiving Holiday, no class
December 4	Last day of class
December 9	Final exam for Section 502 (08:00am-10:00am)
December 11	Final exam for Section 521 (10:30am-12:30pm)

Attendance and Make-up Policy:
Attendance is STRONGLY recommended. Make-ups for missed exams will only be allowed for a university approved absence in writing. Wherever possible, students should inform the instructor before an exam is missed. Consistent with University Student Rules, students are required to notify an instructor by the end of the next working day after missing an exam. Otherwise, they forfeit their rights to a make-up. For more information, see http://student-rules.tamu.edu/rule07.

Make-ups will NOT be given for quizzes. However, if you miss a quiz due to an authorized absence and you contact me immediately then the missed quiz will not count.

Extra Help:
The Mathematics Department offers Week in reviews (WIR) and help sessions for students. These sessions are designed to help students with their homework problems and other questions. A schedule for help sessions can be found at `http://www.math.tamu.edu/courses/helpsessions.html` and more details for the WIR can be found at `https://www.math.tamu.edu/courses/weekinreview.html`.

Academic Integrity:
The Aggie Honor Code An Aggie does not lie, cheat or steal, or tolerate those who do applies, see also the Honor Council Rules and Procedures at `http://aggiehonor.tamu.edu`. Students are strongly encouraged to work together and discuss homework problems with each other. However, copying or stealing work done by others is an act of academic dishonesty and will be persecuted according to the University policy.

Materials Copyright:
All materials generated for this class are protected by Copyright laws. Distributing copies or sale of any of these materials is strictly prohibited.

Americans with Disabilities Act (ADA):
The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires 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, currently located in the Disability Services building at the Student Services at White Creek complex on west campus or call 979-845-1637. For additional information, visit `http://disability.tamu.edu`.

Title IX and Statement on Limits to Confidentiality:
Texas A&M University and the College of Science are committed to fostering a learning environment that is safe and productive for all. University policies and federal and state laws provide guidance for achieving such an environment. Although class materials are generally considered confidential pursuant to student record policies and laws, University employees - including instructors - cannot maintain confidentiality when it conflicts with their responsibility to report certain issues that jeopardize the health and safety of our community. As the instructor, I must report (per Texas A&M System Regulation 08.01.01) the following information to other University offices if you share it with me, even if you do not want the disclosed information to be shared:

- Allegations of sexual assault, sexual discrimination, or sexual harassment when they involve TAMU students, faculty, or staff, or third parties visiting campus.

These reports may trigger contact from a campus official who will want to talk with you about the incident that you have shared. In many cases, it will be your decision whether or not you wish to speak with that individual. If you would like to talk about these events in a more confidential setting, you are encouraged to make an appointment with the Student Counseling Service (`https://scs.tamu.edu`). Students and faculty can report non-emergency behavior that causes them to be concerned at `http://tellsomebody.tamu.edu`.