

# MATH 3376

## Differential Equations

**Fall 2017**

MW 12:00-12:50  
LDB 415

F 12:00-12:50  
LDB 403

**Instructor:**

Dr. Edward W. Swim

Office: LDB 432

Office Hours: MW 10:00-11:00, TuTh 2:00-3:00; or by appointment.

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**Course Objectives:** To develop an understanding of the behavior of solutions to ordinary differential equations and facility for computing those solutions. In addition to studying the classical techniques for obtaining solutions to first order equations, first order systems, and higher order linear equations (including Laplace transforms), this course will focus on gaining insight into equilibria for nonlinear equations that are difficult or impossible to solve analytically and the stability properties of those equilibria. Students that successfully complete this course will demonstrate an ability to solve a variety of problems involving differential equations and analyze the long term behavior of solutions to differential equation models for systems in the physical, chemical, and biological sciences.

**Prerequisite:** *MATH 2440 or equivalent, with a grade of C or better.*

**Textbooks:**

*Ordinary Differential Equations: From Calculus to Dynamical Systems.* V.W. Noonburg.  
MAA Textbooks, 2014.

**Exams:** There will be three midterm exams and a comprehensive final exam. Make up exams will NOT be given for any reason. The lowest exam grade (including an exam that is missed) may be replaced by the grade percentage from the final exam. The schedule for exams is:

- Exam 1 – Sep. 18 (100 pts.) First Order Equations
- Exam 2 – Oct. 23 (100 pts.) Linear Systems
- Exam 3 – Nov. 20 (100 pts.) Second Order Equations
- Final Exam – Dec. 4 (125 points)

**Labs:** There will also be in-class computer lab exercises each week. Your total score on these labs will be worth a total of 75 points.

**Homework:** Similarly, homework will be collected regularly, typically on a Monday. Your total score on these assignments will be worth 100 points.

## Notes:

- *Attendance* – You should attend all classes and are responsible for all announcements, assignments, quizzes, and exams given in class. Additionally, a list of homework problems from the text will be posted on Blackboard: <https://shsu.blackboard.com>
- *Academic Honesty* – The University expects all students to engage in all academic pursuits in a manner that is above reproach. Students are expected to maintain complete honesty and integrity in the academic experiences both in and out of the classroom. Any student found guilty of dishonesty in any phase of academic work will be subject to disciplinary action. [http://www.shsu.edu/~vaf\\_www/aps/documents/810213.pdf](http://www.shsu.edu/~vaf_www/aps/documents/810213.pdf)
- *Religious Holy Days* – Students are excused from attending classes or other required activities, including examinations, for the observance of a religious holy day, including travel for that purpose. As a courtesy, it is appreciated if you notify me in advance and in writing of the dates and times that are to be missed so that appropriate arrangements can be made regarding homework and/or exams. [http://www.shsu.edu/~vaf\\_www/aps/documents/861001.pdf](http://www.shsu.edu/~vaf_www/aps/documents/861001.pdf)
- *Disability Issues* – It is the policy of Sam Houston State University that no otherwise qualified individuals shall, solely by reason of their disability, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any academic program of the university. Students with a disability that affects their academic performance are expected to arrange for a conference with the instructor in order that appropriate strategies can be considered to ensure that participation and achievement opportunities are not impaired. [http://www.shsu.edu/~vaf\\_www/aps/documents/811006.pdf](http://www.shsu.edu/~vaf_www/aps/documents/811006.pdf)
- *Classroom Etiquette* – Students will refrain from behavior in the classroom that intentionally or unintentionally disrupts the learning process and, thus, impedes the mission of the university. Cellular telephones and pagers must be turned off before class begins. Students are prohibited from eating in class, using tobacco products, making offensive remarks, reading newspapers, sleeping, talking at inappropriate times, wearing inappropriate clothing, or engaging in any other form of distraction. Inappropriate behavior in the classroom shall result in a directive to leave class. Students who are especially disruptive also may be reported to the Dean of Students for disciplinary action in accordance with university policy. [http://www.shsu.edu/~slo\\_www/programs/judicial\\_affairs.html](http://www.shsu.edu/~slo_www/programs/judicial_affairs.html)
- *Visitors in the Classroom* – Only registered students may attend class. Exceptions can be made on a case-by-case basis. In all cases, visitors must not present a disruption to the class by their attendance.
- *Telephones and Text Messaging* – Any use of a telephone or text messenger or any device that performs these functions is prohibited during an exam. Use of these devices during an exam is considered de facto evidence of academic dishonesty and will result in a grade of zero points for that exam. All such devices must be stored out of sight during exams.