

COURSE INFORMATION	Location: MTH 115 Class Times: MTWR 09:25-10:40 Instructor: Dr. Karl Frinkle Office: MTH 112 Office Hours: By appointment only Office Phone: (580)745-2028 E-mail: kfrinkle@se.edu Website: http://carmine.se.edu/kfrinkle
TEXT	none required
SOFTWARE	A requirement for this course is <i>Maple</i> 15 Student Edition and/or <i>Mathematica</i> . To purchase <i>Maple</i> 15 Student Edition at a discounted price please visit the <i>Maplesoft's</i> webstore at https://webstore.maplesoft.com PROMOTION CODE*: AP72373 <i>*Promotion codes are valid from 2 weeks before the course start date until the course ends. This code should be used for this course only.</i>
COURSE OBJECTIVES	We will look at some important introductory aspects of dynamical systems and transitions to chaos. We will attempt to cover topics such as iteration, orbits, period doubling, phase portraits, fixed points, symbolic dynamics and much, much, more.
COURSE OUTLINE	We will attempt to focus on one area of chaos and dynamical systems per week. We will attempt to explore the many theoretical and computational sides of each of the ' <i>topics of the week</i> '. Homework will be assigned each week to cover these topics, and will be a combination theoretical (pencil-and-paper) problems, and computational (<i>Maple</i> and <i>Mathematica</i>) problems and projects. It is highly suggested that you have a copy of <i>Mathematica</i> and/or <i>Maple</i> available both during class and outside of class. The following is a list of potential topics (but not limited to) that we will cover: Potential Topics <ul style="list-style-type: none">• Iterative Processes• The Quadratic Iterator• Bifurcations and Bifurcation Diagrams• Orbits and Period Doubling• Stability of Orbits and Basins of Attraction• Fractals and Julia Sets• Sensitivity of ODEs to ICs
POLICIES	You will not be able to make up, or receive credit for, any assignment which you missed the deadline for unless you notify me ahead of time. Given prior notification of an absence, I will ensure that you can hand in your homework at a more convenient time. Cheating will not be tolerated in any shape or form. If you are caught cheating, it will be reported to the appropriate academic offices, and appropriate action will be pursued. All cell phones, pagers, CD/MP3 players, laptops, calculators and other such devices must be turned

off and put away before class begins. The only exception to this rule is when we use *Mathematica* and/or *Maple* in class. In this instance, you will be allowed to use laptops in class. It is also expected that everyone will behave in a kind and courteous manner towards fellow students and the instructor. If you are caught using a cell phone or any other electronic device during class, your final grade will be dropped by **one letter grade per incident**.

I reserve the right to change any policies as I see fit to ensure that you are indeed receiving the best possible education that I can give you in the subject matter at hand. If I feel a certain aspect of the course does not appear to be effective in its method, I will attempt to change it (for the better I hope).

GRADES

Your final grade will be based upon the following items

- 90% - Homework - will be assigned once a week and will be comprised of (1) theoretical problems covering the topic of the week, and (2) your ability to work with, and use *Maple* and/or *Mathematica* to understand and illustrate the concepts that we cover and the theoretical work done in (1).
- 10% - Class participation - interaction during class, and communication outside of class.

IMPORTANT DATES FOR SUMMER 2011

- 2011.06.06 - Classes begin
- 2011.06.08 - Last day to enroll in or add classes
- 2011.06.08 - Last day to drop a class with no grade record
- 2011.06.08 - Last day to drop a class with refund/no charges
- 2011.06.30 - Last day to drop a class with automatic W
- 2011.06.30 - Last day to complete final application for graduation
- 2011.07.14 - Last day to drop a class
- 2011.07.29 - Classes end

Special Accommodations: Any student needing special accommodations due to a disability should contact the Coordinator of Student Disability Services, Student Union, Suite 204 or call (580) 745-2254 (TDD# 745-2704). It is the responsibility of each student to make an official request for accommodations to the Coordinator. For additional information, see the Americans with Disability Act on the Southeastern Online Learning website or <http://www.se.edu/ada/>