PHYS217 Chaos - Fall 2013
Wesleyan University

10:30 - 11:50am, Tuesday & Thursday, SCIE 221
Course Instructor: Merideth Frey

Contact Information:
E-mail: mafrey@wesleyan.edu
Office: SCIE 213
Office Hours: Monday 2-5pm, and feel free to drop by at any other time my door is open

Textbook

Chaotic Dynamics: An Introduction, 2nd Edition
G.L. Baker and J.P. Gollub

Recommended Text: Chaos: Making a New Science
James Gleick

Course:

In this course you will develop a fundamental appreciation of chaotic dynamics, based primarily on computational investigation of the following theoretical principles:

• Phase Space
• Poincaré Sections
• Attraction
• Bifurcation
• Lyapunov Exponents

Course Prerequisites: Students should have previously taken Introductory Physics with calculus.
Instructional Style

Each class you will be expected to have read the relevant section from the textbook and you will be actively engaging with the material in class. This will involve group problem-solving and discussion of conceptual questions. The final homework assignment will be a project where you explore a chaotic system of your choice and write a brief report of your analyses.

Grade Distribution:

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<tbody>
<tr>
<td>Weekly Homework</td>
<td>75%</td>
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<tr>
<td>Exam</td>
<td>15%</td>
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<tr>
<td>In-class Participation</td>
<td>10%</td>
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Weekly Homeworks:

There will be weekly problem sets due Tuesday at the beginning of lecture. These assignments are designed to practice using Mathematica (or another programming language of your choice) to answer various questions about chaotic systems. You should definitely consider visiting the tutoring hours of the Scientific Computing and Informatics Center, for computing questions.

You are encouraged to attend weekly office hours, work in groups, and discuss the problems with your classmates. However, be sure that you have a full understanding of the solutions and the steps to get there, and write out the solutions yourself. Copying of another person’s work will not be tolerated and is considered a violation of Wesleyan’s Honor Code.

Exam:

There will be one in-class exam given in the final week of the course which will be the equivalent of one homework assignment.

Students with Disabilities:

Wesleyan University is committed to ensuring that all qualified students with disabilities are afforded an equal opportunity to participate in and benefit from its programs and services. To receive accommodations, a student must have a documented disability as defined by Section 504 of the Rehabilitation Act of 1973 and the ADA Amendments Act of 2008, and provide documentation of the disability. Since accommodations may require early planning and generally are not provided retroactively, please contact Disability Resources as soon as possible.
If you believe that you need accommodations for a disability, please contact Dean Patey in Disability Resources, located in North College, Room 021, or call 860-685-2332 for an appointment to discuss your needs and the process for requesting accommodations.