

MAT 452: Chaos and Nonlinear Dynamics

Fall 2018

Instructor: Dieter Armbruster, WXL R 216

meeting time: MW: 3:05 - 4:20,

place: LL 275

line number: 90766

Topics: This is an introductory course to the subject of nonlinear dynamical systems and chaos. Topics covered include:

- one and two dimensional maps
- sensitive dependence on initial conditions
- strange attractors
- bifurcations to chaos
- horseshoe mappings and symbolic dynamics
- fractal dimension and fractal basin boundaries
- applications in physics and engineering

Target Audience: Juniors, Seniors and beginning graduate students in mathematics, physics, engineering and other sciences.

Prerequisites: MAT 275 and 342/343 or permission of instructor.

Text: Chaos, An Introduction to Dynamical Systems, by K. Alligood, T. Sauer and J. A. Yorke, Springer Verlag, ISBN 978-0-387-94677-1, also as ebook.

For more information contact Dieter Armbruster, armbruster@asu.edu.