# P PH D38
# N C

## 2019

**I :** ***K e Me***
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**O H :**! Monday, 1-2pm and by appointment

## TIME & PLACE:

Mondays 10am-12noon, BV 359 (Lectures)
Mondays 2-3pm, AC 332 (Tutorials)

## DESCRIPTION:

Many physical systems of great interest are subject to non-linear dynamics and extreme sensitivity to initial conditions (e.g. the weather). As a result, despite obeying deterministic laws, accurate predictions of the system's long-term future become impractical. This class will provide students with the basic knowledge needed to understand the principles behind deterministic chaos in nonlinear systems and will expose them to various applications in physics, astrophysics and beyond (e.g. biology).

## TOPICS:

- !!! Introduction to Nonlinear Dynamics
- !!! Phase Space, Flows in Phase Space
- !!! Bifurcations, Limit Cycles
- !!! Numerical solutions to Differential Equations
- !!! Deterministic Chaos
- !!! Fractals and Strange Attractors
- !!! Applications to Physics and Beyond

## PREREQ ISITES:

A working knowledge of calculus and calculus-based general physics.

Prerequisite:! PHYC54H3
Corequisite: --
Exclusion: PHY460H
Breadth Requirement: Natural Sciences

## TE TBOOK: