

MAT351 Differential Equations: Dynamics and Change

Spring 2024

Course Description (from bulletin)

A study of the long-term behavior of solutions to ordinary differential equations or of iterated mappings, emphasizing the distinction between stability on the one hand and sensitive dependence and chaotic behavior on the other. The course describes examples of chaotic behavior and of fractal attractors, and develops some mathematical tools for understanding them.

Textbook

An Introduction to Chaotic Dynamical Systems (Second edition) by Robert Devaney.

Instructors

Dr. Hongming Nie (hongming.nie@stonybrook.edu) <https://sites.google.com/view/hmnie/home>
Grader: Yiheng Dong (yiheng.dong@stonybrook.edu)

Lectures time

Lectures are on Tuesday, Thursday 1:00pm- 2:20pm in Earth&Space 131.

Office hours

Tuesday 3:00pm-4:00pm, Thursday 11:00am-12:00pm at Math building 4115.
Friday 1:30pm-2:30pm at the desks outside Math building S240A.
Or by appointment.

Exams

Midterm exam: March 07, in class.
Final exam: May 07, 2:15pm-5:00pm.

Grading

Class participation, 10% of the final grade.
Weekly homework assignments, due Thursday in class, 30% of the final grade.
One midterm exam, 30% of the total grade.
One final exam, 30% of the total grade.
The final course grade will be determined by a weighted average of the above components.

Late Homework

A homework assignment shall be considered late if it is not turned in by the end of lecture on the due date. Late homework assignments may be turned in by the end of the first lecture after the due date, but will be penalized 50%. Late homework assignments will not be accepted more than one lecture past the due date.

Disability Support Services (DSS) Statement

If you have a physical, psychological, medical, or learning disability that may impact your course work, please contact Student Accessibility Support Center, ECC (Educational Communications Center) Building, Room 128, (631)632-6748. They will determine with you what accommodations are necessary and appropriate. All information and documentation is confidential.

Students who require assistance during emergency evacuation are encouraged to discuss their needs with their professors and Disability Support Services. For procedures and information go to the website at <http://www.stonybrook.edu/ehs/fire/disabilities>.

Academic Integrity Statement Each student must pursue his or her academic goals honestly and be personally accountable for all submitted work. Representing another persons

work as your own is always wrong. Faculty are required to report any suspected instance of academic dishonesty to the Academic Judiciary. For more comprehensive information on academic integrity, including categories of academic dishonesty, please refer to the academic judiciary website at <http://www.stonybrook.edu/uaa/academicjudiciary/>

Critical Incident Management

Stony Brook University expects students to respect the rights, privileges, and property of other people. Faculty are required to report to the Office of Judicial Affairs any disruptive behavior that interrupts their ability to teach, compromises the safety of the learning environment, and/or inhibits students ability to learn. Further information about most academic matters can be found in the Undergraduate Bulletin, the Undergraduate Class Schedule, and the Faculty-Employee Handbook.

Syllabus revision

Over the course of the semester, events may occur that require changes to the policies stated in this document, and especially the weekly plan of lectures. Such changes will be announced in class, and a revision to this syllabus will be posted.