MATH 3094 - SPRING 2020

DISCRETE CHAOS

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<u>**Prerequisites**</u>: MATH 2110, 2210, 2410. Instructor consent required.

<u>**Course Description:**</u> It was once believed that our world was governed by rules and that all observed outcomes were predictable. This Newtonian dream of having an entirely predictable world is no longer true. We now know that there are incredibly simple mathematical models with dynamics so sensitive to initial conditions that long-term prediction is impossible. This realization gave birth to what is known as "Chaos Theory".

This course will serve as an introduction to the basic concepts and techniques of discrete dynamical systems with a particular focus on chaotic systems. The course will start from the beginning with 1D and 2D dynamical systems and chaos will be uncovered in the most unexpected places. The power and utility of this theory will be highlighted through applications in ecology, epidemiology, meteorology, physics, and engineering.

<u>**Questions**</u>: Feel free to email me or swing by MONT302 for more info!