Mathematical Modeling
Instructor: Professor Alexandria Volkening
Course Number: MA 49500MM
Credits: Three
Time: 9:00–10:15 AM   TTh

Description

Whether predicting disease spread, helping experimentalists uncover how organisms grow and develop, determining how to reduce the frequency of traffic jams, or shedding light on climate dynamics, mathematical models are used to describe and predict systems across the natural and social world. In this class, students will gain experience building mathematical models. Modeling involves many choices, and we will discuss how to choose model complexity appropriately, identify modeling assumptions, find and handle data ethically, and present model results accessibly. This course will also involve practice problems drawn from the Mathematical Contest in Modeling (https://www.comap.com/contests/mcm-icm) database.

Pre-requisite: Ordinary differential equations (i.e., MA 266, 366, or 303) and linear algebra. Some experience with programming is encouraged.

Textbook: No textbook is required for this course, and course material will include instructor notes.