42031 Mathematical Models and Dynamical Systems (3)

Knowledge
Students will learn to formulate and analyze mathematical models for a variety of phenomena, including optimization, dynamical systems and probability.

Comprehension
Students will gain understanding of key aspect of linear/nonlinear programming, models and solutions population growth, and probability model involving exponential distributions, uniform distributions, and Gaussian distributions.

Application
The students should be able to apply the knowledge from this class to formulate and analyze math models from real life.

Analysis
Students will develop the ability to solve related problem and analyze the solution.

Synthesis
Students should get used to combine their skills from Calculus, Linear Algebra, Introduction to Differential Equations, and Probability to this class.

Evaluation
Students are given in-class exams to test for the understanding of materials. Students will participate course evaluation at the end of semester to critically assessing the effectiveness of the course in meeting their needs, expectations.

Class Activities
To solve problems in class. Learn to utilize computer software MATHEMATICA to obtain and understand the solutions.

Out of class Activities
To submit every week home assignments. To prepare for mid-terms and comprehensive final exam.