
MTH255 Spring 2008

Professor: Miaohua Jiang
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Office Hours: 10:00-11:00 am M W F, 2:00 - 3:00 pm M, and by appointment
Class: 12:00-12:50 pm MWF, 102 Carswell

Course Description: Dynamical Systems. (1.5) Introduction to both continuous and discrete dynamical systems in economics.

Text: Lecture Notes: Dynamical Systems in Economics

Chapter 5 of Wade Hands' book: Introductory Mathematical Economics, 2nd edition, 2004

Examinations : One comprehensive examination will be given during the week of March 3-7, 2008

Homework Assignments : Homework problems will be assigned through out the half semester. These problems are required to be solved and solutions should be written up with necessary details. Homework assignments need to be turned in on time and they will be graded.

Grades : Letter grades will be assigned based on the total points a student earns during the semester:

Homework and Class Projects: 100 pts

Final Examination: 90 pts

Effort (Class participation, Attendance, Quality of homework assignments): 10

Honor Code: All work turned in for a grade should be your own work.

Course Outline:

1. Modeling the inter-temporal price path: Samuelson's Correspondence Principle
2. Solving differential equations: first order linear, separable, second order linear, systems of linear differential equations.
3. Stability of equilibrium solutions: eigenvalues of Jacobian matrices, the locus method.
4. Difference equations: first and second order linear difference equations, How to calculate A^{-n} when A is a matrix.
5. Examples of dynamic economic models: the Harrod-Domar growth model, the Solow neoclassical growth model, the IS-LM model, the predator and prey model, the Philips curve, the optimal control model.

