Syllabus Fall 2014 7002 Quantitative Methods II
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This course introduces you to mathematical methods for economists. We study selected linear and non–linear dynamic methods. The textbook is [Gandolfo (2010)](http://example.com). You will learn to work with differential and difference equations, and to solve and assess systems of such equations. Where appropriate, we might use material from [Lorenz (1993)](http://example.com), [Chiang (1999)](http://example.com) and [Hoy et al. (2011)](http://example.com). We will occasionally use a spreadsheet program to analyze and simulate dynamic processes numerically.

There will be a midterm and a (cumulative) final examination, each counting 50% towards the final grade. We might hold some quizzes. [Gandolfo (2010)](http://example.com) has exercises (and provides answers); it is strongly recommended to study these exercises. Grades will be curved. The grade distribution is as follows: $100 \geq A \geq 90; 90 > B \geq 80; 80 > C \geq 70$ etc.

- **Week 1–3: Difference equations:** 1st and 2nd order difference equations, mostly linear and autonomous. Introduction to phase diagrams and stability analysis. **Examples:** Cobweb; growth; multipliers, multiplier–accelerator model.

- **Week 4–6: Differential equations:** 1st and 2nd order differential equations, mostly linear and autonomous. **Examples:** Partial price adjustment; demand–determined goods market adjustment; IS/LM; Solow growth; partial price adjustment with entry & exit; flexible accelerator; Euler approximation to 2nd order differential equation.

- **Week 7: Midterm exam.** Tuesday October 7, 2013, 11am–1pm in OSH360.

- **Week 8–11: Linear systems:** Linear systems of differential and difference equations, mostly 2x2. Stability analysis and phase diagrams. **Examples:** Partial price adjustment (with entry & exit), Dornbusch model of exchange rate overshooting, IS/LM, 2–country model with demand–determined goods market closure.


- **Week 16: Final exam.** Tuesday December 17 10:30am–12:30pm in OSH360.)

**References**


