

**Economics 7002:  
Quantitative Methods II**

Fall 2006

M W 10:00 –11:15 am

Thomas Maloney

Office: KDGB 318

Office Hours: Tues 9:30-11:00, Weds 3:00-4:30, other times by appointment

Phone: 1-7704

E-mail: Maloney@economics.utah.edu

Economics 7002 focuses on dynamic analysis, covering both linear and non-linear applications of difference and differential equation systems. It is meant to be a “tools” course supporting the core theory courses, especially the second course in the macroeconomics sequence. We will emphasize the mechanics of solving dynamic problems related to economic theory, rather than the derivation of theorems and formal proofs.

Required Text:

Hoy et al, Mathematics for Economics (2nd edition), MIT Press 2001.

Grading:

(1) Exams:

There will be one mid-term and a final. The mid-term will be held in class on **Wednesday, October 18 (during class)**. **The final is scheduled for Monday, December 11, at 8 am**. Each exam counts for 45% of your grade. The final will emphasize material from the second half of the course but will be effectively comprehensive in coverage. For each exam, you may use one half-sheet of notes (that is, one half of one side of an 8.5” by 11” sheet).

(2) Problem Sets:

There will be two problem sets – one just before the mid-term and one just before the final. Each is worth 5% of your final grade. **The first problem set will be handed out on Monday, October 9 and will be due on Wednesday, October 11. The second problem set will be handed out on Wednesday, November 29 and will be due on Monday, December 4.**

Other Notes:

At the course WebCT site, I will post a copy of the syllabus and occasional announcements about scheduling, exam material, etc. At the end of most class sessions, I will recommend problems from the book that you should work on to develop your understanding of the material. I will also sometimes recommend problems from other sources. We will take time to discuss these problems in class, but they will not be turned in and will not be graded. I will put a copy of the solution manual in the copy room, as well as occasional supplementary materials.

Course Outline:

Basically, we will cover chapters 16 to 24 of Hoy, in order. However, we won't cover everything in every chapter. I will keep you informed as we go along as to which topics we will emphasize and which we will skip. We will occasionally use examples from different sources. Since the primary purpose of this class is to give you the tools to do well in your theory courses, please let me know if you think a re-arrangement of topics would allow us to better cover particular techniques before you need to apply them in the theory classes.

I. Introduction, Integral Calculus, and Definitions

Hoy chapters 16, 17

II. Linear, First Order Difference Equations

Hoy chapter 18

III. Non-Linear, First Order Difference Equations

Hoy chapter 19

IV. Linear, Second-Order Difference Equations

Hoy chapter 20

V. Linear, First-Order Differential Equations

Hoy chapter 21

VI. Non-Linear, First Order Differential Equations

Hoy chapter 22

VII. Linear, Second Order Differential Equations

Hoy chapter 23

VIII. Simultaneous Systems of Differential and Difference Equations

Hoy chapter 24