PORTLAND STATE UNIVERSITY
Department of Economics
Winter 2014

EC380: INTRODUCTION TO MATHEMATICAL ECONOMICS

Professor: Rossitza B. Wooster   *Class Meetings: CH 449*
Office: CH 241-J   TR 2:00 – 3:50 pm.
Phone: 503.725.3944   *Office Hours**
E-mail: wooster@pdx.edu   W   11:00 am – 1:00 pm
Web site: http://web.pdx.edu/~wooster/   **By Appointment*

Syllabus

Prerequisites	Mth 251, Ec 201, Ec 202.
Course Description	This course presents the mathematics required for studying economics at the undergraduate level. Mathematical concepts are developed in the context of economics and applications are drawn from a wide range of fields in economics including microeconomics, macroeconomics, economics growth, international trade, international finance, labor and environmental economics, industrial organization and development economics. The course covers equations, functions, sets, matrix algebra, total and partial differentiation, as well as comparative static analysis in the context of partial and general equilibrium models.
Learning Objectives	This course is intended to assist economics majors in becoming comfortable with the basic mathematical tools used in economic analyses. Learning objectives therefore include developing skills that will allow you to: 1) Thoroughly understand mathematical methods and concepts employed in economic models, equilibrium analysis, and comparative static analysis. Mathematical techniques include, but are not limited to, equations, functions, sets, matrix algebra, and differential calculus. 2) Competently apply mathematical methods in problems and applications that aim to analyze economic problems. Mastering these goals will prove useful in concurrent and later courses as well as in future work and research. It will also provide you with a solid foundation toward delivering analytical economic services to an employer. Finally, an understanding of mathematical economics will allow you to comprehend the articles in leading economics journals that are essential for keeping up with advances in economic science after graduation.
Required Text	"*Fundamental Methods of Mathematical Economics*", by Alpha C. Chiang and Kevin Wainwright, 4th ed., McGraw-Hill Irwin, ISBN: 0-07-010910-9.

Graded Components	This course involves a significant amount of homework designed to give you plenty of "hands-on experience" with the mathematical techniques covered in class. Homework assignments will require you to solve exercises and work through applications. Assignments and exams are discussed in more detail below:

1. Five problem sets will be assigned and graded but only four of these will count toward your course grade (assignment with the lowest score will be dropped). Each homework assignment is worth 10% of the course grade for a total of 40% (after dropping the lowest homework grade). Homework assignments are intended to facilitate comprehension and practice with application of mathematical techniques such as linear and non-linear models, partial and total derivatives, among others (learning objective 1).

2. There will be a midterm and a final exam each worth 30% of the course grade. Midterm and final exams are designed to test the extent to which you have mastered the mathematical techniques, including problem solving and application of mathematical concepts to analysis of common economic problems (learning objective 2).

Policies

- Exams cannot be rescheduled. Please DO NOT enroll in this course unless you can take the exams at their scheduled times (see "Tentative Schedule" section). The only exceptions to this rule are: (i) documented medical emergencies; and (ii) absence due to active military, police, and/or jury duty (need letter from the appropriate official).

- If you arrive more than 20 minutes after the time an exam is scheduled to begin, you will not be allowed to take that exam.

- Concerns and questions related to graded components in this class need to be resolved within two weeks from the date the assignment (or exam) in question has be graded and returned.

- Improving your grade through "extra work" is not an option in this class! In addition, an *Incomplete* (letter grade "I") or a *No Basis for a Grade* (letter grade "X") is not to be viewed as a substitute for a failing grade in this course (letter grade "F").

- Students with documented learning disabilities or special needs, must provide me with the appropriate documentation in the beginning of the term. It is the student's responsibility to arrange for accommodations through the Testing Center and notify me of their appointment date a week in advance of scheduled exams.

- Academic Integrity: Please familiarize yourself with the Portland State Student Code of Conduct (http://www.pdx.edu/dos/codeofconduct). Minimum penalty for academic dishonesty in this class will be letter grade "F" for the assignment or exam in question.

- Turn off your cellular phone or any other device that may disturb, disrupt, or impede the learning process during class meetings.

Tentative Schedule

Week	Topic	Reading
Week 1	• The Nature of Mathematical Economics • Economic Models	Chapters 1, 2
Week 2	• Equilibrium Analysis in Economics • *Homework No. 1: DUE Thursday, January 16th, 2014*	Chapter 3
Week 3	• Linear Models and Matrix Algebra	Chapter 4
Week 4	• Linear Models and Matrix Algebra • *Homework No. 2: DUE Thursday, January 30th, 2014*	Chapter 4
Week 5	• Linear Models and Matrix Algebra (Continued) • **Midterm Exam: Tuesday, February 4th, 2014**	Chapter 5
Week 6	• Linear Models and Matrix Algebra (Continued) • *Homework No. 3: DUE Thursday, February 13th, 2014*	Chapter 5
Week 7	• Comparative Statics and the Concept of the Derivative	Chapter 6
Week 8	• Rules of Differentiation and their use in Comparative Statics • *Homework No. 4: DUE Thursday, February 27th, 2014*	Chapter 7
Week 9	• Comparative-Static Analysis of General-Function Models	Chapter 8
Week 10	• Comparative-Static Analysis of General-Function Models • *Homework No. 5: DUE Thursday, March 13th, 2014*	Chapter 8
Finals Week	• **Final Exam: Monday, March 17th, 2014, 10:15 – 12:05.**	