

Math Workshop

Monday, Aug. 12 – Wednesday, Aug. 21

All entering Ph.D. students are required to begin the program by attending a Math Workshop in its entirety. This workshop will meet daily from 8:00am to 11:00am and 1:00pm to 4:00pm, unless noted otherwise (see next page for detailed timing in course schedule). You will receive two (2) hours of credit during the fall semester for ECN 594. For economics students, the text you will be using can be picked up when you check in at the Economics Department front office (CPCOM 412) upon your arrival at ASU.

ECN 594 - Math Workshop
SLN 71173 - Fall 2013
CPCOM 416

Instructor Tanisa Tawichsri
Office: CPCOM 415H
E-mail: Tanisa.Tawichsri@asu.edu

Required Texts: *A First Course in Optimization Theory* by Rangarajan Sundaram

Mathematics for Economists by Carl P. Simon & Lawrence Blume

This course will review many of the mathematical tools that are basic for your first-year courses; knowledge of calculus, linear algebra, constrained optimization and basic real analysis is required.

Grading: Course grade will be determined by your performance on the final examination given on the last day of class. To pass, you will need to earn a grade of B or higher on the final examination.

Practice Problems: Homework problems will be assigned. Answers will not have to be turned in but randomly chosen students will be solving these problems in class. Thus, everyone should carefully work through the practice problems prior to each class.

Topics

1. Review of Matrix Algebra
2. Logic Concepts: propositions, negations, quantifiers, and necessary and sufficient conditions
3. Sets: open, close, convex
4. Functions: continuity, monotonicity, concavity, differentiability
5. Weierstrass Theorem
6. Unconstrained Optimization
7. Constrained Optimization: Lagrange
8. Implicit Function Theorem and Envelope Theorem
9. Dynamic Optimization: special case of standard growth model with closed form solution

Tentative Course Schedule

Monday, August 12

8-11am

1-3 pm

3-4 pm

4-5 pm

Lecture: Linear Algebra

Lecture: Sets

New Econ PhD Students: Department Orientation, HR Paperwork

New Econ PhD Students: Department Orientation, Academic Essentials

Tuesday, August 13

8-11 am

1-4 pm

Lecture: Functions

Lecture: Logic Concepts

Wednesday, August 14

8-11 am

1-4 pm

Lecture: Optimization and Unconstrained optimization

Practice Problems: Problem Set 1

Thursday, August 15

8-11 am

1-5 pm

Lecture: Implicit function and Envelope theorems

TA/RA Orientation, Memorial Union, Ventana 241

Friday, August 16

8-11 am

1-4 pm

Lecture: Equality Constraints

Practice Problems: Problem Set 2

Monday, August 19

8-11 am

1-4 pm

Lecture: Inequality Constraints and Kuhn-Tucker Theorem

Practice Problems: Problem Set 3

Tuesday, August 20

8-11am

1-4 pm

Practice Problems: Problem Set 4

Practice Problems: Problem Set 5

Wednesday, August 21

8-11 am

1-4 pm

Q&A

Final Exam
