

**APPLIED ECONOMIC OPTIMIZATIONS
ECONOMICS 207
SPRING 2010
MW 11:00-11:50
EAST PHYSICS 0003
Instructor: Sonali Roy
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Office: 379 Heady Hall
Office hours: MW 12:00-2:00 or by appointment**

Website for this course: <http://www.econ.iastate.edu/classes/econ207/Roy/>

Objectives: The objective of this course is to enable students to use standard tools in college algebra, introductory linear algebra and calculus in beginning and intermediate level micro and macroeconomic theory. Upon completion of this course the students will be able to perform the following tasks:

- identify the objective, the decision variables and the constraints in economic decision problems
- represent elements of economic problems in simple mathematical models
- identify and apply mathematical tools that can be used to solve various economic problems
- understand the strengths and limitations of alternate solution methods

The course will consist of weekly lectures briefly reviewing mathematical concepts used in beginning and intermediate level economics followed by analysis of problems utilizing these concepts. The majority of the learning in the course will take place through the working of the numerous problems in mathematical economics during the laboratory sessions and through extensive homework.

The topics that we will be covering are the following:

- Sets
- Functions and equations
- Systems of equations
- Matrix Algebra
- Matrix Algebra and systems of equations
- Univariate Differential Calculus
- Univariate Integral Calculus

- Simple univariate optimization
- Multivariate Calculus
- Multivariate optimization
- General constrained optimization

Text: *Essential Mathematics for Economic Analysis* by Knut Sydsaeter and Peter Hammond, third edition

Lab sessions:

<i>M</i>	3 : 10 – 5	<i>East</i> 211
<i>T</i>	1 : 10 – 3	<i>Ross</i> 26
<i>W</i>	3 : 10 – 5	<i>East</i> 211
<i>R</i>	1 – 3	<i>Ross</i> 26

TA information:

- Hai-Lan (Helen) Yang

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Office hours: **When** **Where**
 TR 11-12 271 Heady

- Ruiqing Miao

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 T 3:10-5 280B Heady

- Yongjie Ji

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 R 2:00-4 178 Heady (Help Room)

- Subhra Bhattacharya

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 T 11:00-1 178 Heady (Help Room)

Labs and problem sets: There will be thirteen labs. Students will work out the problems in class and submit the exercise at the end of the lab period. **Lab attendance is compulsory.** Each lab is worth 25 points. **Ten of your highest scores** will count towards your final grade. Late labs will not be accepted unless you inform me before hand that you will not be able to attend the lab on a specific week due to some reason beyond your control.

Every alternate week the students will also be handed a take-home problem set which will be due the next week. There will be six problem sets in all. Each problem set is worth 25 points. **All your problem set scores** will count towards your final grade. Late problem sets will not be accepted unless you inform me before hand that you will not be able to meet the deadline due to some reason beyond your control.

In-class exams: There will be three in-class exams worth 100 points each. The dates are as follows:

- 15 February 2010 (Monday)
- 29 March 2010 (Monday)
- 21 April 2010 (Wednesday)

Tentative date and time for final exam: 4th May 2010 (Tuesday) : 9:45-11:45 a.m. The final exam is worth 200 points.

Total possible points: 900. Your final grade will be based on these 900 points.