ECONOMICS 207  
SPRING 2009  
APPLIED ECONOMIC OPTIMIZATIONS  
MW 11:00-11:50  
BESSEY 210

Instructor: Sonali Roy  
e-mail: sroy@iastate.edu  
Office: 280A 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, second edition

**Lab sessions:**

<table>
<thead>
<tr>
<th>Lab</th>
<th>Day</th>
<th>Time</th>
<th>Room</th>
<th>Instructor(s)</th>
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</thead>
<tbody>
<tr>
<td>Lab 1</td>
<td>M</td>
<td>2:10-4</td>
<td>Fd Sc 2319</td>
<td>Helen Yang</td>
</tr>
<tr>
<td>Lab 2</td>
<td>T</td>
<td>1:10-3</td>
<td>MacKay 119</td>
<td>Helen Yang, Rick Stammer</td>
</tr>
<tr>
<td>Lab 3</td>
<td>W</td>
<td>3:10-5</td>
<td>Fd Sc 2319</td>
<td>Luc Veyessiere</td>
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<tr>
<td>Lab 4</td>
<td>R</td>
<td>1-3</td>
<td>Sci II 119</td>
<td>Yuan Li, Rick Stammer</td>
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</tbody>
</table>

**TA information:**
1. Helen Yang  
email: pseudo@iastate.edu  
Office hours:  
<table>
<thead>
<tr>
<th>When</th>
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<tbody>
<tr>
<td>M 12-2</td>
<td>178 Heady (Help Room)</td>
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<tr>
<td>M 4-5</td>
<td>271 Heady</td>
</tr>
<tr>
<td>T 11-1;3-5</td>
<td>178 Heady (Help Room)</td>
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<tr>
<td>W 9-12</td>
<td>271 Heady</td>
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2. Yuan Li  
email: yuanli@iastate.edu  
Office hours:  
<table>
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<tbody>
<tr>
<td>W 9-11</td>
<td>83 Heady</td>
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<tr>
<td>R 3-5</td>
<td>178 Heady (Help Room)</td>
</tr>
<tr>
<td>F 2-4</td>
<td>178 Heady (Help Room)</td>
</tr>
</tbody>
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3. Subhra Bhattacharya  
email: subhra03@iastate.edu  
Office hours:
Labs and problem sets: There will be twelve to fifteen 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. Twelve 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.

Each week the students will also be handed a take-home problem set which will be due the next week. There will be twelve to fifteen problem sets. Each problem set is worth 25 points. Twelve of your highest 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 4 in-class exams. The dates are: 2 February 2009, 2 March 2009, 6 April 2009, 29 April 2009. Each in-class exam is worth 100 points.

Tentative date and time for final exam: 4 May 2009 (Monday) : 9:45-11:45 a.m. The final exam is worth 200 points.

Total possible points: 1200