

# **Econ 6101: Advanced Microeconomic Analysis**

*Instructor:* Sumon Majumdar

Semester 2, 2007

## *Course Information*

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### **1. Course Staff**

Instructor: Sumon Majumdar  
Office: 114 John Goodsell Building  
Phone: 9385-3561  
Email: s.majumdar@unsw.edu.au  
Consultation: Thursday 12 – 2 pm.

To discuss any issues, please visit my office during consultation times or send an email.

### **2. Course Information**

#### *i. Units of Credit*

This course has 6 units of credit.

#### *ii. Time and Place*

There will be a three-hour class from 6:00 to 9:00 pm each Thursday which will combine elements of lecture and tutorial. The lectures and tutorials will be held in [Quadrangle G026](#).

#### *iii. Relationship to Other Courses*

This course is one of the advanced specialisation courses in the Master of Economics program.

You are strongly advised to have completed Econ 6001, Microeconomic Analysis, and Econ 6004, Mathematical Economics, before enrolling in this course.

#### *iv. Course Schedule*

A course schedule with detailed reading assignments will be provided.

#### *v. Course Objectives*

This course is an introduction to some more advanced ideas in modern microeconomic theory and as such has several purposes:

- to introduce students to the major developments in economic theory;
- to develop students' facility with analytic economic models; and
- to develop students' ability to solve economic problems with the ideas, techniques, and models available to professional economists.

We study individual decision-making by economic agents, the determination of prices and resource allocation in competitive equilibrium markets, game theory, strategic behaviour by firms and individuals under imperfect competition, and contracting with imperfect information.

#### *vi. Course Outcomes*

Students should achieve the following outcomes:

- a comprehension of the major ideas of modern microeconomics and an understanding of the strengths and limitations of these ideas;
- the ability to analyse standard economic models and to derive the implications of these models; and
- the expertise to apply economic models to new applications.

#### *vii. Teaching Strategies*

The reading assignments and the lectures will provide an overview of some of the major ideas in microeconomics and an introduction to the standard models. In addition, the reading assignments and the lectures will present applications of these ideas and models to specific problems for which analytical answers can be calculated. This gives you an opportunity to learn the ideas and models, see some simple applications and begin the process of learning to use these models on your own.

You will be given periodic problems to test your knowledge of the subject matter and to give you practise with the analytic aspects of economic models. Furthermore, you will learn to apply economic models to new areas. The problems will provide the link between the broad ideas presented in the lectures and the detailed examples used in particular applications.

#### *viii. Learning Strategies*

You should look at the assigned readings before coming to the lecture each week. The lectures will assume you have a preliminary knowledge of the subject matter and will use the lectures to help you with the material you may find more difficult to learn on your own.

You will be given periodic assignments which are an essential part of the course. The assignments will not be marked so you will not be asked to submit your work. We will discuss the answers in class and one of the students will be expected to lead the discussion and the others will be expected to participate in the discussion. Since the problems on the exams will be similar in character to the assigned problems, your serious effort on the assignments is a necessary condition for good performance on the exams.

The lectures will proceed quickly with each lecture building on previous lectures. It is essential that you study and complete all assignments each week so that you do not fall behind.

#### *ix. Continual Course Improvement*

Each year feedback is sought from students and other stake-holders about the courses offered in the School and continual improvements are made based on this feedback. UNSW's Course and Teaching Evaluation and Improvement (CATEI) Process is one of the ways in which student

evaluative feedback is gathered. Significant changes to courses and programs within the School are communicated to subsequent cohorts of students.

For further information on the CATEI process, see the following website:

[http://www.ltu.unsw.edu.au/ref4-5-1\\_catei\\_process.cfm](http://www.ltu.unsw.edu.au/ref4-5-1_catei_process.cfm)

### **3. Student Responsibilities and Conduct**

#### *i. Workload Expectations*

It is expected that you will spend at least ten hours per week studying this course. This time should be made up of reading, research, working on exercises and problems and attending classes. In periods where you need to complete assignments or prepare for examinations the workload may be greater.

Over commitment has been a cause of failure for many students. You should take the required workload into account when planning how to balance study with employment and other activities.

#### *ii. Attendance*

Your regular and punctual attendance at lectures and tutorials is expected in this course. University regulations indicate that if students attend less than eighty per cent of scheduled classes they may be refused final assessment.

#### *iii. General Conduct and Behaviour*

You are expected to conduct yourself with consideration and respect for your fellow students and teaching staff. Conduct which unduly disrupts or interferes with a class, such as ringing or talking on mobile phones, is not acceptable and students may be asked to leave the class. More information on student conduct is available on myUNSW.

#### *iv. University Regulations*

You should study the University's rules and procedures at the start of the session.

#### *v. Keeping Informed*

You should take note of all announcements made in lectures, tutorials or on the course web site. From time to time, the University will send important announcements to your university e-mail address without providing you with a paper copy. You will be deemed to have received this information.

## 4. Assessment

### *i. Formal Requirements*

In order to pass this course, you must attend lectures and tutorials, make a satisfactory attempt at all assessment tasks and achieve a mark of at least 50%. Some programs, such as the Economics PhD program, may require a higher mark for continuation in the program.

### *ii. Exams*

There will be one midterm exam during the lecture time during the session. This exam is designed to give you early feedback on whether or not you are meeting the expected outcomes of the course.

There will be a final examination during the University's examination period which will cover **all** the material for the session.

The exams will be designed to test your knowledge of the subject matter covered in the lectures, reading assignments and the problems. In the exam, you will be asked to solve problems that are similar to the weekly assignments but will have new aspects.

### *iii. Course Mark*

In computing your course mark, the midterm exam will have a weight of 35% and the final exam will have a weight of 65%.

### *iv. Final Examination*

The scheduling of examinations is managed by the University. The final examination for this course may be scheduled at any time during the session's examination period. The examination period for Session 2, 2006 falls between 10 November and 28 November. Please be sure that you are available for the scheduled examination since no examinations will be given at alternate times. If you believe you may not be available for the full examination period you should withdraw from this course.

Students with employment commitments must make arrangements with employers to sit for examinations. The University adheres strictly to the rule that employment reasons will not be accepted as an excuse for absence from an examination.

When the provisional examination timetable is released, ensure that you have no clashes or unreasonable difficulty in attending the scheduled examinations. Please be aware, however, that the time of the final examination may change until the final timetable is released.

Further information on examination procedures and advice concerning illness or misadventure may be found on myUNSW.

### *v. Special Consideration*

If you believe your performance on any assessment is adversely affected by sickness or other adverse circumstances which you can document, you should notify the Registrar and ask for special consideration in the determination of your results.

Requests for special consideration must be accompanied by appropriate documentation. The request should be made as soon as possible after the problem occurs and never more than a week after the relevant assessment.

A supplementary final examination is recommended for a student only if the final examination performance has been affected by serious illness or other extraordinary circumstances which can be documented **and** there is evidence on the basis of performance during the session that the student has made satisfactory progress.

Special consideration request forms and details of required documentation are available from the Student Centre in the Chancellery. For further information on the UNSW policy and process for Special Consideration, please see the information on myUNSW.

## **5. Resources for Students**

### *i. Texts*

The primary texts for the course are

Mas-Colell, Andreu, Michael D. Whinston and Jerry R. Green, *Microeconomic Theory*, Oxford University Press. (Call no. S 338.5/165)

Osborne, Martin J., *Introduction to Game Theory*, Oxford University Press. (Call no. S 519.3/49)

which are available for purchase in the Bookshop.

Other texts that provide alternative presentations of at least some of the course topics are the following:

Jehle, Geoffrey A., and Reny, Philip J., *Advanced Microeconomic Theory*, Addison-Wesley. (Call no. S 338.5/192)

Fudenberg, Drew, and Jean Tirole, *Game Theory*, MIT Press. (Call no. S 658.40353/3)

Gibbons, Robert, *Game Theory for Applied Economists*, Princeton University Press. (Call no. S 330.015193/4)

You may refer to any of these if you want an alternative presentation or point of view. These texts are available in the library and the call numbers are given in parentheses.

The course syllabus which will be provided separately contains references to some articles published in professional Economics journals. Unless otherwise indicated on the syllabus, these may be downloaded from JSTOR (<http://www.jstor.org/>).

## *ii. Mathematics Texts*

If you feel that you need some background reading in mathematics for economists, then I recommend you try the following:

Blume, L, and C. Simon, *Mathematics for Economists*, Norton, 1991.

## *iii. WebCT*

Subject documents, notifications, assignments, lecture notes and exams from previous years may be obtained from WebCT: <http://www.webct.unsw.edu.au/>.

To obtain access to this site, you enter your student number prefixed with a lower case z and your unipass password.

For information on using WebCT, see the following site:  
[http://www.webctsupport.unsw.edu.au/student/content/T1\\\_getstart.cfm](http://www.webctsupport.unsw.edu.au/student/content/T1\_getstart.cfm).

## *iv. Library*

The texts for this course and many of the articles are available on Open Reserve in the UNSW Library. Further information about the library and its training and support services may be found at the following website: <http://info.library.unsw.edu.au>.

## *v. Education Development Unit*

Learning support is available from the Education Development Unit (EDU) in the Faculty. EDU services are free and confidential and are available to students of the Faculty of Commerce and Economics. The services offered for FCE students include:

- Academic skills workshops run throughout the session;
- Printed and on-line study skills resources e.g. referencing guide, report writing and exam preparation;
- A drop-in resource centre containing books and audio visual material that can be borrowed;
- A limited consultation service for students with individual or small group learning needs.

More information about the EDU services including on-line resources, workshop details and consultation request forms are available from the EDU website: <http://education.fce.unsw.edu.au> or at their office: Room 2039, Level 2 Quadrangle Building.

## *vi. Disabilities*

Those students who have a disability that requires some adjustment in their teaching or learning environment are encouraged to discuss their study needs with the lecturer prior to, or at the

commencement of, their course, or with the Equity Officer (Disability) who may be contacted on 9385 4734 or by email (L.Alsop@unsw.edu.au) or through the Equity and Diversity Unit website: <http://www.equity.unsw.edu.au/>.

### *vii. Learning Centre*

In addition to the EDU services, the UNSW Learning Centre provides academic skills support services for students. The Learning Centre is located on Level 2 of the Library and can be contacted by phone on 9385 3890 or through their website: <http://www.lc.unsw.edu.au/>.

### *viii. Counselling Service*

Students experiencing problems of an academic or personal nature are encouraged to contact the Counselling Service at UNSW. This service is free and confidential and run by professional counsellors. The Counselling Service is located on Level 2, Quadrangle East Wing, and can be contacted by phone on 9385 5418 or through their website: <http://www.counselling.unsw.edu.au/>.

## **6. Academic Misconduct and Plagiarism**

### *i. Academic Misconduct*

The University regards academic misconduct as an extremely serious matter. Students found guilty of academic misconduct are usually excluded from the University for 2 years although this may range from one session to permanent exclusion depending on the circumstances.

You should read the Faculty's statement on misconduct: [http://www.fce.unsw.edu.au/current\\_students/responsibilities.shtml#misconduct](http://www.fce.unsw.edu.au/current_students/responsibilities.shtml#misconduct) and you may find an online version of the University's policy at [http://www.student.unsw.edu.au/academiclife/assessment/academic\\_misconduct.shtml](http://www.student.unsw.edu.au/academiclife/assessment/academic_misconduct.shtml).

### *ii. Plagiarism*

Plagiarism is the presentation of the thoughts or work of another as one's own.<sup>1</sup>

Examples include:

- direct duplication of the thoughts or work of another, including by copying work, or knowingly permitting it to be copied. This includes copying material, ideas or concepts from a book, article, report or other written document (whether published or unpublished), composition, artwork, design, drawing, circuitry, computer program or software, web site, Internet, other electronic resource, or another person's assignment without appropriate acknowledgement;
- paraphrasing another person's work with very minor changes keeping the meaning, form and/or progression of ideas of the original;
- piecing together sections of the work of others into a new whole;

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<sup>1</sup> Based on that proposed to the University of Newcastle by the St James Ethics Centre. Used with kind permission from the University of Newcastle.

- presenting an assessment item as independent work when it has been produced in whole or part in collusion with other people, for example, another student or a tutor; and,
- claiming credit for a proportion a work contributed to a group assessment item that is greater than that actually contributed.

Submitting an assessment item that has already been submitted for academic credit elsewhere may also be considered plagiarism.

The inclusion of the thoughts or work of another with attribution appropriate to the academic discipline does not amount to plagiarism.<sup>2</sup>

Students are reminded of their Rights and Responsibilities in respect of plagiarism, as set out in the University Undergraduate and Postgraduate Handbooks, and are encouraged to seek advice from academic staff whenever necessary to ensure they avoid plagiarism in all its forms.

The Learning Centre website is the central University online resource for staff and student information on plagiarism and academic honesty. It can be located at: [www.lc.unsw.edu.au/plagiarism](http://www.lc.unsw.edu.au/plagiarism)

The Learning Centre also provides substantial educational written materials, workshops, and tutorials to aid students, for example, in:

- correct referencing practices;
- paraphrasing, summarising, essay writing, and time management;
- appropriate use of, and attribution for, a range of materials including text, images, formulae and concepts.

Individual assistance is available on request from The Learning Centre.

Students are also reminded that careful time management is an important part of study and one of the identified causes of plagiarism is poor time management. Students should allow sufficient time for research, drafting, and the proper referencing of sources in preparing all assessment items.

## **7. Administrative Matters**

### *i. Grievances*

If you are unhappy with some aspect of the course, you should discuss this with the lecturers in the first instance. If you are not satisfied with their response, you should approach the Head of the School of Economics about the matter. You should also consider seeking the advice of the Faculty's Academic Adviser or your program co-ordinator.

### *ii. OHS Policies*

Occupational Health and Safety policies and student responsibilities may be found on myUNSW.

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<sup>2</sup> Adapted with kind permission from the University of Melbourne.

## **Econ 6101: Advanced Microeconomic Analysis**

(Thursday 6-9 p.m., Room Quadrangle G026 (K-E15-G026)), Semester 2, 2007.

*Instructor:* Sumon Majumdar  
John Goodsell bldg., Room 114

Office Hours:  
Thursday 12 noon - 2 p.m.

Telephone: 9385-3561 E-mail: s.majumdar@unsw.edu.au

### **Textbook:**

The primary textbooks for this course will be the following:

- i) *Microeconomic Theory* by Andreu Mas-colell, Michael D. Whinston and Jerry R. Green; Oxford University Press. [Call number: S 338.5/165]
- ii) *Introduction to Game Theory* by Martin J. Osborne; Oxford University Press. [Call number: S 519.3/49]

You may find the following books helpful for some of the topics:

*Advanced Microeconomic Theory* by Geoffrey A. Jehle and Philip J. Reny; Addison-Wesley. [Call number: S 338.5/192]

*Microeconomic Analysis* by Hal R. Varian; Norton. [Call number: S 330/459]. This book is somewhat below the level for this course; however it maybe of help to some of you in giving an easy first pass at some topics.

*Game Theory for Applied Economists* by Robert Gibbons; Princeton University Press. [Call number: S 330.015193/4]

*Game Theory* by Drew Fudenberg and Jean Tirole; MIT Press. [Call number: S 658.40353/3]

### **Course Outline:**

#### **1. Competitive Equilibrium**

- Overview and characterization
- Welfare
- Existence

- i) Required text book: MWG 15, 16, 17.
- ii) Alternate texts: Jehle-Reny 5.

Additional Resources:

- (1) *Handbook of Mathematical Economics*, volume 2, part 3, edited by Kenneth Arrow and Michael Intriligator.

## 2. Competitive Equilibrium under Uncertainty

- Complete markets
- Incomplete markets
- Securities and Assets

i) Required text book: MWG 19.

Additional Resources:

- (1) “Incomplete Markets” by M. Magill and W. Shafer; chapter 30 in the *Handbook of Mathematical Economics*, volume 4, edited by Werner Hildenbrand and Hugo Sonnenschein.
- (2) “An Introduction to General Equilibrium with Incomplete Asset Markets” by J. Geanakopols, *Journal of Mathematical Economics* 19, 1990, 1-38.

## 3. Adverse Selection: Signaling

- Overview: Spence’s classic model
- Multiple types
- Refinements

i) Required text book: Osborne 10.5-10.8, MWG 13.C, Appdx. A.

ii) Alternate texts: Jehle-Reny 10.1, Gibbons 4.2.

Additional Resources:

- (1) “Job Market Signaling” by Michael Spence, *Quarterly Journal of Economics* 87(3), 1973, 355-374.
- (2) “Signaling Games and Stable Equilibria” by In-Koo Cho and David Kreps, *Quarterly Journal of Economics* 102(2), 1987, 179-222.

## 4. Bayesian Games: Auctions

- First-price auction
- Second-price auction
- Revenue equivalence

i) Required text book: Osborne 9.6, 9.8.

ii) Alternate texts: Jehle-Reny 9.3, Gibbons 3.2.

Additional Resources:

- (1) *Auctions: Theory and Practice* by Paul Klemperer  
[online book available at <http://www.gqq10.dial.pipex.com/>]
- (2) “Auctions: An Introduction” by E. Wolfstetter, *Journal of Economic Surveys* 10, 1996, 367-420.
- (3) “Strategic Analysis of Auctions” by Robert Wilson; chapter 8 in the *Handbook of Game Theory with Economic Applications*, Robert J Aumann and Sergiu Hart eds.

## 5. Adverse Selection: Screening

- Revelation principle

- Competitive Screening

- i) Required text book: MWG 23.D, 13.D.
- ii) Alternate texts: Jehle-Reny 10.1.

Additional Resources:

- (1) *Game Theory: Analysis of Conflict* by Roger Myerson, Cambridge University Press.
- (2) “Equilibrium in Competitive Insurance markets” by Michael Rothschild and Joseph Stiglitz, *Quarterly Journal of Economics*, 90(4), 1976, 629-649.
- (3) “The Nature of Equilibrium in Markets with Adverse Selection” by Charles Wilson, *Bell Journal of Economics* 11, 1980, 108-130.

## 6. Principal-Agent Problem

- Moral Hazard
- Monopolistic Screening

- i) Required text book: Osborne, MWG 14.
- ii) Alternate texts: Jehle-Reny 10.2.

Additional Resources:

- (1) “Theory of Contracts” by Oliver Hart and Bengt Holmstrom, in *Advances in Economic Theory, Fifth World Congress*, edited by T. Bewley, Cambridge University Press.
- (2) “Moral Hazard and Observability” by Bengt Holmstrom, *Bell Journal of Economics*, 10, 1979, 74-91.