Microeconomics 871 – Second Semester 2022
MASTER'S MICROECONOMICS

Module Description:

This module provides a more advanced supplement to the honours module in microeconomic analysis, and explores topics that will help students understand the modern microeconomic literature and perform microeconomic analysis in either a professional or academic environment. Topics covered include general equilibrium theory (exchange economies, welfare theorems, contingent plans), game theory (extensive form games, games of incomplete information, behavioural game theory); behavioural economics (non-expected utility theory, choice under uncertainty), contract theory (adverse selection, moral hazard), auction theory.

Module Design:

The main focus is theoretical model building and analysis, with some reference to and exploration of related empirical issues.

The lectures make liberal and frequent use of the standard tools of mathematical optimisation which were covered in the mathematics module. Some attention will be given to many of the mathematical features, but elements like basic calculus results will be taken as known and mastered by the student.

Students are expected to engage in critical and logical thinking, and to work towards developing concise and rigorous reasoning and writing skills. The module places great emphasis on active and extensive practice in problem solving as well as in-class participation during discussions. All of these elements will be assessed.

Module Objectives:

The broad objectives of the module are:
- To demonstrate how formal approaches can be used to formulate and solve microeconomic problems analytically.
- To explain the intuition behind some of the more well-known theorems in modern microeconomics.
- To build experience in tracing the consequences of specific assumptions often made in modelling decision processes, and consequently the reasons, costs and benefits of certain types of these assumptions.
- To provide students with a foundation to apply game-theoretic analysis, both formally and intuitively, to strategic situations.
- To demonstrate the importance of competitive and cooperative factors in a variety of decision problems.
- To help students recognize and assess archetypal strategic situations in complicated decision making settings.
- To facilitate critical engagement with the material in order to achieve synthesis across the various topics, and develop skills to apply to understanding most fields in economics.
- To indicate directions in which different parts of microeconomics have been taken and what is done at the cutting edge of research.

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Lectures: Mondays 14:00 – 16:00 in CGW Schumann Building, Room 225.

Lecture notes will be provided in advance on the SUNLearn page of the module at the discretion of the lecturer. After lectures, recordings will be posted on the module page.

Tutorials: Weekly tutorials will take place every Friday, 14:00 - 16:00 in CGW Schumann Building, Room 221. The purpose of these tutorials will be to review material covered in class, provide guided practice in solving problems and to discuss the answers to problem sets. Material in problem sets will build on class material, not necessarily be practice questions. All tutorials are examinable unless explicitly noted otherwise. Some of these tutorials time slots may need to be used to replace lectures lost due to holidays or unforeseen circumstances.

Prescribed Textbook:

Jehle, G.A. and Reny, P.J. (2011) *Advanced Microeconomic Theory*, 3rd Edition, Financial Times|Prentice Hall, Harlow, England.
(*referred to as JR below*)

Recommended Textbooks:

Varian, H.R. (1992). *Microeconomic Analysis*, 3rd Edition. Norton, New York.

Mas-Colell, A., Whinston, M.D. and Green, J.R. (1995). *Microeconomic Theory*. Oxford University Press, New York.

Gibbons, R. (1992). *A Primer in Game Theory*. Prentice Hall, Harlow, England.

Research Papers:

Several papers will be used as additional content resources and as examples of current theoretical and empirical work. All assigned readings are examinable, both by in class questions (see evaluation) and in exams.

<u>Evaluation:</u>

Students' performance on the module will be assessed with the following weighted components:

- Formal Assessment of Parts I and II of module (Mid-Semester Test): 30%
- Formal Assessment of Part III of module (Final Exam): 30%
- Essay 30%
- Problem Sets: 10%

The mid-semester test will be written on **15 September 2022** and will cover parts I and II of the module.

To pass the module a student must
- Submit an essay
- Obtain at least 40% for the formal assessment of each part of the module
- Obtain a final mark of 50% for the module as a whole

A student fails a module (with no access to a supplementary examination opportunity) if they obtain less than 40 percent in the examination. A student that obtains at least 40 percent in the examination, but a final mark of less than 50 percent qualifies for a supplementary examination opportunity, which can increase the student's final mark to a maximum of 50 percent. If a compulsory module is failed, the student will be allowed to repeat the module the following year. If the student fails again, he/she will not be allowed to continue with the programme.

To obtain a distinction in a module, a minimum final mark of 75 percent is required.

<u>Essay:</u>

Students must submit an essay on one of the topics that will be provided. The essay should be written in groups of three (or two, if specifically requested). The essay has a 2000-word limit. You will be penalized for exceeding this word limited (from the first word) and for not indicating the number of words at the end of the essay.

The administration of the essay will take place through SUNLearn:

- A section on the module page will be created where you can sign up to your own groups.
- Each groups is required to submit a proposal, which must contain the essay topic and a brief outline of each team members' responsibility by **19 August 2022**.
- The deadline for the essay is 12:00 on 3 **October 2022.**
  - Each group member must complete an online plagiarism declaration before the essay will be graded.
  - You will be able to review your Turnitin similarity report, revise your essay and resubmit until the deadline. After the deadline, all submissions are final and no revisions will be accepted.

  o References and citations must be complete and in the Harvard style. The internet should be treated as any other source with full acknowledgement.

Problem Sets:

Problem sets will be assigned every week and are due at the following tutorial session.

Medical certificates:

Students are required to write the mid-semester test on the scheduled date. If a student is sick on the day of the mid-semester test, they need to submit a valid medical certificate to the module coordinator of the module within 48 hours of missing the assessment. If a valid medical certificate is not received by this deadline, the student will not gain entrance to the sick test opportunity and the module will be deemed incomplete on their academic record. No exceptions will be made.

Students who have to write the sick test will do so on the same date as the module's examination (in one sitting) with a 30 minute break between the two papers. The sick test is the second and final assessment opportunity for material covered in the mid-semester test. As such, no medical certificates will be accepted as an excuse for missing the sick test. A student that must write the sick test is also not allowed to submit a medical certificate to miss the examination, since the sick test and examination is written in one sitting.

In the second semester, examinations are written in October and November. Students are required to make use of the first examination opportunity in each module, unless they submit a valid medical certificate. (Valid) medical certificates for missed examination opportunities must be submitted to Carina Smit (carina@sun.ac.za) within 48 hours of missing the assessment to gain access to the supplementary examination opportunity. The supplementary examination is in all circumstances the final examination opportunity. If a supplementary examination opportunity is scheduled, all these examinations will be scheduled in one calendar week (in the first semester: at the end of June or early in July for the first semester modules and in December for the second semester modules).

For a medical certificate to be valid, it must meet the following requirements:
- Name of the patient (student);
- Date and time of medical examination;
- An indication that the certificate has been issued after a personal observation (this excludes telephonic consultation or communication) of the student by a suitably registered medical practitioner;
- Confirmation that the student will not be able to or was not able to attend class or take the class test(s) or carry out the class work, due to illness, and
- Any other information which, in the judgement of the practitioner would be required or relevant.

Please refer to the University Calendar, Part 1, for further information.

Brief Lecture Outline

Part I: Advanced topics in classical game theory – 3 Lectures – Rulof Burger

- Static Games of Incomplete Information (1 lecture)

  Readings:
  Jehle, G.A. and Reny, P.J. (2011) *Advanced Microeconomic Theory, Chapter 7.2.3,* 3rd Edition, Financial Times|Prentice Hall, Harlow, England.
  Gibbons, R. (1992). *A Primer in Game Theory. Chapter 3.* Prentice Hall, Harlow, England.
  Harsanyi, J.C. (1967). "Games with Incomplete Information Played by "Bayesian" Players, I-III: Part I. The Basic Model", *Management Science* 14(3): 159-182.
  Harsanyi, J.C. (1995). "Games of Incomplete Information", *American Economic Review* 85 (3): 291-303.

- Dynamic Games of Imperfect Information (1 lecture)

  Readings:
  Jehle, G.A. and Reny, P.J. (2011) *Advanced Microeconomic Theory, Chapter 7.3.6-7.3.7,* 3rd Edition, Financial Times|Prentice Hall, Harlow, England.
  Gibbons, R. (1992). *A Primer in Game Theory. Chapter 4.* Prentice Hall, Harlow, England.
  Reny, P.J. (1992) "Rationality in Extensive-Form Games", *Journal of Economic Perspectives* 6(4): 103-118.
  Goeree, J.K. and Holt, C.A. (2001) "Ten Little Treasures of Game Theory and Ten Intuitive Contradictions", *American Economic Review* 91(5): 1402-1422.

- Dynamic Games of Incomplete Information (1 lecture)

  Readings:
  Jehle, G.A. and Reny, P.J. (2011) *Advanced Microeconomic Theory, Chapter 7.3.6-7.3.7,* 3rd Edition, Financial Times|Prentice Hall, Harlow, England.
  Gibbons, R. (1992). *A Primer in Game Theory. Chapter 4.* Prentice Hall, Harlow, England.
  Cho, I.-K. and Kreps, D. M. (1987) "Signalling Games and Stable Equilibria", *Quarterly Journal of Economics* 102: 179-221.
  "Economics evolves: A long way from dismal." *The Economist,* 10 January 2015.
  "Buttonwood: More Kirk than Spock." *The Economist,* 9 May 2015.

Part II: Bargaining, auctions and evolutionary game theory – 5 Lectures – Melt van Schoor

- Bargaining theory (1 lecture)

  Readings:
  Nash, J. (1950). The Bargaining Problem. Econometrica, 18(2), pp. 155-162.
  Binmore, K., Osborne, M. J., & Rubinstein, A. (1992). Noncooperative models of bargaining. Handbook of game theory with economic applications, Volume 1, Chapter 7, pp. 179-225.

- Auction theory (2 Lectures)

  Readings:
  JR Chapter 9, Sections: 9.1, 9.2, (9.3)

- Evolutionary game theory (2 lectures)

  Readings:
  Fudenberg, D., & Levine, D. K. (1998). The Theory of Learning in Games. Chapter 1. MIT press.
  Friedman, D. (1998). On economic applications of evolutionary game theory. Journal of evolutionary economics, 8(1), 15-43.
  Samuelson, L. (2002). Evolution and game theory. Journal of Economic Perspectives, 16(2), 47-66.
  Gale, J., Binmore, K. & Samuelson, L. (1995). Learning to be imperfect: The ultimatum game. Games and economic behavior, 8(1), 56-90.

  Additional readings to be assigned

Part III – General Equilibrium and Contract Theory – 4 Lectures – Gideon du Rand

- Contract theory: Moral Hazard and Adverse Selection (2 Lectures)
  Readings:
  JR Chapter 2 (Section 2.4) and Chapter 8
  Additional readings to be assigned

- General Equilibrium and Welfare: Equilibrium in Competitive Market Systems (2 lectures)
  Readings:
  JR Chapter 5, Sections 5.1, 5.2
  Additional readings to be assigned