

**HKUST Business School – Department of Economics**  
**Econ 2174 - Mathematical Economics (Fall 2016)**  
**Course Outline**

Lecture Time:	Tue & Thu 04:30PM-05:50PM
Venue:	Rm1027, LSK Bldg
Course Website:	<a href="https://canvas.ust.hk/courses/8426">https://canvas.ust.hk/courses/8426</a>
Instructor:	Zhang, Wenwen
Office:	Room 6042, LSK Bldg
Email:	<a href="mailto:wwzhang@ust.hk">wwzhang@ust.hk</a>
Office Hours:	Tue & Thu 03:00PM – 04:00PM (or by appointment)
Teaching Assistant	Wang Bo, <a href="mailto:bwangag@ust.hk">bwangag@ust.hk</a>
Office:	To be announced
Office Hours:	To be announced

**Main Textbook:**

*"Fundamental Methods of Mathematical Economics"* by A.C. Chiang and K. Wainwright (2005), McGraw-Hill HKUST bookstore

**Course Description:**

The foundations of economic theory are based on mathematical methods that have become indispensable for a clear understanding of the current economic literature. This course introduces a series of mathematical concepts and techniques that are necessary for undergraduate studies in economics. It is intended as a general introduction with special emphasis on linear algebra and optimization.

**Learning Outcomes:**

- Students will have some basic understanding of calculus for functions of one and several variables as well as multivariate optimization problems with or without constraints
- Students will learn the basics of linear algebra, which will be used to some extent in economic theory, and even more in econometrics.
- Help students acquire the mathematical skills, which are essential for the study of economic theory.

Please refer to <http://www.bm.ust.hk/sbmllearn/eng/thirdcat.php?sid=5&thirdid=3> for SBM Learning Goals and Objectives.

### Teaching Approach and Assessment:

Teaching and learning activities	Roles in the course	Course ILOs addressed
Lectures	Learn key concepts and models and their applications	1,2,3,4,5
In-class Q&A through PRS	Encourage class participation, critical thinking and discussion	1,2,3,4,5,6
Tutorials	Review basic math, discuss answers to homework questions and exam.	1,2,3,4,5
Homework assignments	Practice problem-solving	1,2,3,4

Assessment Activities	Weighting	Course ILOs assessed
Homework	15%	1,2,3,4
1 <sup>st</sup> Midterm exam	20%	1,3
2 <sup>nd</sup> Midterm exam	20%	1,3
Final exam (cumulative)	45%	1-9

### Homework:

- You will be assigned 4 problem sets during the semester. For each problem set, TA will randomly select a fraction of the questions to grade but he will check whether you have done the rest. The questions selected will be the same for all students.
- Group study is encouraged, but you have to turn in your own written answers. Copying of others' homework is cheating and will be reported to the school and subject to formal investigation. Please do NOT write your name and student ID with pencil.
- Late homework will **NOT** be accepted. In case you are sick and cannot hand in homework on time, please email TA before 5pm on the due date with completed problem set attached. In addition, the hard copy of your completed problem set, together with a valid medical or legal document, should be submitted to TA no later than the first tutorial following the due date.

### Midterm Exams and Final exam:

There will be TWO in-class midterm exams.

- 1<sup>st</sup> Midterm Exam: **Oct 4, 2016 (Tue)**
- 2<sup>nd</sup> Midterm Exam: **Nov 3, 2016 (Thu)**

The final exam is CUMULATIVE.

Absence from Midterm and Final Exam:

- If for any reason you are unable to attend the midterms or final exam, you must seek approval of absence from me directly BEFORE the exam. Your request should be supported by valid documents, such as medical certificate issued by a registered medical practitioner. Absence from an exam without prior approval of absence would result in ZERO score.
- There will be **NO** make-up midterm exams. For students who are absent from the midterm exam with prior approval, its corresponding weight will be transferred to the final exam.
- For students who are absent from the final exam with prior approval, a make-up exam will be arranged. Make-up exam will be scheduled as soon as possible and should be within one week after the official final exam date (to be announced). It is the responsibility for those who request for a make-up exam to ensure their availability. The make-up arrangement can be in the form of written-exam, oral exam or research paper, etc. Please NOTE that the instructor has the final discretion on all arrangements of the make-up exam. Students who request for the make-up final exam should comply all the requirements as communicated by the instructor. Failing to meet any requirement may result in a ZERO score.

**Course Outline:**

1. Economic models and Equilibrium analysis (Chapters 2 and 3)
2. Linear models and Matrix algebra (Chapters 4 and 5)
3. Derivative and its use in Comparative Statics (Chapters 6,7 and 10)
4. General function models (Chapter 8)
5. Optimization - one variable (Chapter 9)
6. Optimization - More than one variable (Chapter 11)
7. Optimization with equality constraints (Chapter 12)

**Academic integrity:**

Academic integrity and honesty are key values at HKUST. All students are required to uphold the University's Academic Honor Code (<http://www.ust.hk/vpaa/integrity/honor.html>). Cheaters are subject to academic disciplinary action. The University has zero tolerance for academic dishonesty.

I try my best to make the course requirements as clear as possible. When you have any question or you encounter any difficulties in studying, please do not hesitate to consult me either in or out of class throughout the semester. I am delighted to help you succeed in the course. Please be aware that ultimately it is you EARNING the grade, not me GIVING you the grade. So, when the grade is out, one thing I will NOT do is to change your grade if what you want (need) is different from what you get.

**Classroom Etiquette**

- You are expected to be punctual for both lectures and tutorials; I will start and end the lecture on time.
- You are welcome to bring your laptop or other devices to lectures for learning purposes.
- Respect the others in class and do not disturb others with side conversation, Internet surfing, emails-checking or instant-messaging during class time.
- No eating in class at anytime.