

Advanced Microeconomics

Spring 2026, ITAM

Instructor: Xinyang Wang

- Class Hours: Tuesdays and Thursdays, 7 pm – 8:30 pm
- Classroom: RH 201
- Office Hour: by appointment
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- Course website: https://www.xinyang-wang.com/am_s26

Course Description

This is a course in economic theory. The principle purpose of this course is to introduce the formal language for analyzing individual behavior of economic agents. There will be two parts of this course. The first part covers classical material on consumer and producer theory, and on decision theory. This part will be complemented by a formal yet quick discussion of the relevant mathematical techniques. The second part covers topics, determined according to the interests of participants. The coverage in this part is subject to the time constraints of the semester.

The main challenges of the course are grasping the economics concepts and following and creating logical arguments. These, rather than mathematics, are the areas that students find the most challenging. We do use mathematical tools extensively, and for preparation, you may find it helpful to study the chapter on mathematics in Kreps (Appendix 1, 2, 3, 5).

This course will be self-contained.

Prerequisites

The formal prerequisite is intermediate microeconomics. Technically speaking, knowledge of multivariate calculus, probability, and some basic knowledge of matrix operations will be helpful. This course will be more abstract than other undergraduate economic class; you should feel comfortable with standard mathematical notation and

abstract reasoning. Students' interests will be crucial.

Grading and Course Duties

Assignments: 50%

Topic Choice: 5%

Presentation: 15%

Final Paper: 30%

Course Participation: Given the evaluation form of this course, participation and consistent attention in the course are a crucial part of the learning work.

- Students are expected to attend *all* of our meetings. In addition, unless under raining weathers, students are expected to arrive on time for the course. If a student need to miss a meeting and arrive late for any reason, please email the instructor before the meeting.
- During lectures, a participating student is expected to pay consistent attention to the course discussions, including maintaining consistent eye contact with the instructor. Verbally participating in the course discussion will be appreciated but not mandatory.
- Three or more *unexcused* absences would result in a failed grade. An excused absence can be obtained only through the formal ITAM channel.

Assignments

There will be two optional and three mandatory assignments in the first part of the course. Thus, there will be roughly a biweekly assignment before the topic part. All assignments will be posted on the course website, and collected in class in printed or written form before the class. Please kindly staple your work and submit in one piece. *No late assignment will be accepted.*

Working on assignments is a significant part of work for this course. You are expected to work on the lecture notes and sometimes consult some reference book while completing the assignment. Some exercises are used to complement the course material, and can be rather challenging. Rather than for evaluating purpose, assignments should be treated as a tool to stay on track on the course materials, and viewed as an opportunity for students to communicate with the instructor.

Collaborative work on assignments is very encouraged, but each student needs to compose and submit her own work independently.

Project: The project work consists of three parts.

- A topic-choice work on a theoretical topic on behavior that is relevant to the interests of the student
- A 20-minute presentation
- A final written report

The topic choice is a first opportunity for you to critically thinking about behavior and your preference on economic topics. The presentation should be taken as an examination on the ability of clearly presenting/understanding economic models, and a channel to collect some feedback for composing the final project. The written project is a guided work for reading a formal paper and conduct some critical assessment.

Throughout the semester, you will receive three emails regarding this project: an email on the guideline for the topic choice around the fourth week, an email on the guideline for presentation at around the eighth week, and an email on the guideline for the written project at around the twelfth week.

Exercises

In addition to the assignments, there will be some exercises in the lecture notes for you to complete. Exercises will not be collected, but may be discussed during the lectures. If you need more exercises, you could either work on exercises in any reference book (see below) or consult with the instructor.

Honor Code on AI Usage

In addition to the classical honor code that applies university wide, this section clarifies the rule for AI usage in response to the recent development on AI techniques and the related confusions it may have brought.

Students are very encouraged to work with anyone, humans or machines, on this

course. The same rule applies: a student must compose her own work. A common misuse of AI tools is any direct copying of AI output – in this case, the writing (and corresponding thinking) is done by a machine, thus overriding the training of the student. If you are unsure about using an AI, please consult the instructor by email.

In case you used AI for any submitted work in this course, please submit the entire conversation history with AI on the relevant task together with your task submission. Undeclared misuse of AI tools is a form of academic misconduct (such as plagiarism). The usual *zero-tolerance rule* on the academic misconduct applies.

Readings

The instructor will use his own notes throughout this course. For references, see below:

- David M. Kreps, *Microeconomic Foundations I: Choice and Competitive Markets* (Princeton University Press, 2013)
- Osborne, M. and Rubinstein, A., *Models in Microeconomic Theory* (Open Book Publishers, 2020)
- Geoffrey A. Jehle and Philip J. Reny, *Advanced Microeconomic Theory* (3rd edition, Prentice Hall, 2011)

Supplementary reference on mathematics:

- Efe OK, *Real Analysis with Economic Applications* (Princeton University Press, 2007)
- Carl Simon and Lawrence Blume, *Mathematics for Economists* (Norton, 1994)

In some sense, this course is on communications about economics. Therefore, any interaction (including questions, comments, and criticisms) in or after class is a critical part of this course and will be greatly appreciated. I will be available through email as much as I can.

Final Comments

Consistent attention is crucial for the success in this course. A student should be psychologically prepared to assign sufficient time on this course for the semester. In addition, throughout the semester, I will send out numerous emails on guidance and

rules on presentation, and some other course-related notifications. Working on these guidelines is crucial.

It is helpful to set up the understanding that this course is a demanding course for full-time advanced undergraduate students. Especially during the early stage of the course, it can be possible to form an incorrect belief that this course is an irrelevantly technical course or an unnecessary repetition of some earlier course you have taken. In history, such a misbelief usually greatly affect a student's course performance.

This can be a fun and rewarding course, and I look forward to working with you. Throughout the semester, I will be available through email as much as I can.

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