

Advanced Microeconomics (Fall term)

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Section 1. General information about the course

Fall term serves as an introduction to advanced microeconomics and is primarily designed for those students that have the Bachelors' Degree in other field. This part examines how economic decisions are made by households and firms, and how they interact to determine the quantities and prices of goods and the allocation of resources. It also investigates the microeconomic policy and the role of government in allocating resources.

Section 2. Course goals, learning objectives, expected learning outcomes

The objectives of the course are:

- to provide students with the knowledge of core concepts and models in the field of microeconomics;
- to provide students with the knowledge of basic microeconomic models' assumptions, internal logic and predictions, grounding the explanations on intuitive, graphical and analytical approaches;
- to develop students' ability to apply the knowledge acquired to the analysis of specific economic cases, recognizing proper framework of analysis and constructing and analyzing adequate economic model within this framework.

Prerequisites: the first part requires knowledge of calculus and some basic tools of constrained optimization (Lagrangian function).

The second part requires prior familiarity with multivariate calculus, constrained optimization, probabilities theory, abstract notation, reasoning and proof making.

Section 3. Course Outline

	Week	Course format	Readings
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№	Topic/Focus /Activity		lectures	classes	self-study	
	Part I: Fall term					
1	Consumer theory: <ul style="list-style-type: none"> ▪ preferences and utility, budget constraint, consumer choice ▪ demand and comparative statics, Slutsky decomposition ▪ choice under in-kind income, labour supply and intertemporal choice ▪ consumer surplus 	1-3	12	6	16	P&R Chs. 3-4, 14.2 V. Chs. 2-10, 14
2	Uncertainty <ul style="list-style-type: none"> ▪ contingent commodities ▪ expected utility and attitude toward risk ▪ choice under uncertainty ▪ demand for insurance ▪ demand for risky asset ▪ price of information 	4-5	6	4	10	P&R Ch. 5 V. Ch. 12
3	Producer theory <ul style="list-style-type: none"> ▪ technologies and their properties ▪ cost minimization (SR and LR) ▪ profit maximization and firm's supply 	5-7	8	4	12	P&R Chs. 6-8 V. Chs.18-22
4	Perfectly competitive market <ul style="list-style-type: none"> ▪ market demand ▪ industry supply ▪ partial equilibrium and efficiency ▪ government policies analysis 	7-9	8	4	12	P&R Chs. 8-9, 14.1 V. Chs. 15-16, 23
5	Monopoly and monopolistic behavior <ul style="list-style-type: none"> ▪ pure monopoly ▪ inefficiency and regulation ▪ monopsony ▪ price discrimination (perfect discrimination, market segmentation, example of second-degree price discrimination) 	9-10	8	4	12	P&R Chs. 10-11, 14.3-14.4 V. Chs.24-25

6	<p>Strategic interactions</p> <ul style="list-style-type: none"> ▪ basic concepts of game theory (dominant strategies, Nash equilibrium, dynamic games and subgame perfect Nash equilibrium) ▪ simultaneous quantity competition (Cournot model) ▪ first-mover advantage in Stackelberg model ▪ price competition (Bertrand model) 	11-12	10	4	14	P&R Chs. 12-13 V. Chs.27-29
7	<p>Externalities and public goods</p> <ul style="list-style-type: none"> ▪ externalities and efficiency loss ▪ regulation (direct regulation, taxes/subsidies, tradable permits; internalization, property rights and Coase theorem) ▪ common property resources ▪ public goods and efficiency ▪ free riding problem 	13-14	6	4	10	P&R Ch. 18 V. Chs. 34, 36
8	<p>Asymmetric information</p> <ul style="list-style-type: none"> ▪ hidden characteristics and adverse selection ▪ private and government response ▪ hidden action and moral hazard problem 	15-16	6	2	8	P&R Ch. 17 V. Ch. 37 Akerlof G., The market for lemons: Quality uncertainty and the market mechanism, QJE, 89, 488-500, 1970
	Total		64	32	94	

Description of course methodology and forms of assessment to be used

While teaching the course the following teaching methods and forms of study and control are used:

- ⇒ lectures (4 hours a week);
- ⇒ classes (2 hours a week);
- ⇒ home assignments;
- ⇒ written in-class quizzes;
- ⇒ self-study;
- ⇒ teachers' consultations;
- ⇒ written tests

Assessment and grade determination:

- Average mark for quizzes [25%]
- Test 1 [30%]
- Test 2 [45%]

Section 4. Texts, readings and other informational resources

1. Required readings:

Varian Hal R., *Intermediate Microeconomics: A Modern Approach*, W. W. Norton & Company; Eighth Edition edition, 2009 [V]

Pindyck Robert S., Daniel L. Rubinfeld, *Microeconomics*, 8th Edition, Pearson Series in Economics, 2013 [P&R]

2. Additional readings

Varian H., *Microeconomic Analysis*, 3rd edition, W.W.Norton & Company, New York, London, 1992.
Osborn M.J., *An Introduction to Game Theory*, Oxford University Press, 2009.

Section 5. Examination/Evaluation

Sample test questions

1. Short questions

(a) "Risk-loving person always gambles." True or false? (Provide a proof if you think that the statement is correct and propose a counterexample otherwise)

(b) Consider a firm with the following cost function $C(Q) = Q^2 + 3Q + 25$. Find the long-run supply and the short-run supply of the firm, under the assumptions that the total cost function is the same in the long and in the short run, but the fixed cost is sunk in the short run.

(c) Consider a perfectly competitive industry. Is it true that a per unit subsidy increases economic efficiency?

(d) A person responds to increase in the rate of interest by first increasing his saving and then (with further increases in the interest rate) reducing his saving. Is he necessarily irrational? Explain.

(e) If insurance companies cannot observe the type (riskiness) of potential insurance policyholders, the usual competitive market supply logic of selling more insurance packages at a higher price does not always hold. Is this true or false? Explain your answer.

(f) With an external cost in production, is society clearly better-off under perfect competition than under a monopoly in that industry?

2. Consider an industry with inverse market demand $P(Q) = 22 - Q$. There are two firms: firm A has cost function $C_A(q_A) = 2q_A$ and firm B has cost function $C_B(q_B) = 6q_B$.

(a) Find the Cournot equilibrium. Illustrate graphically.

(b) Now consider a three-stage game, where firm A moves first, then at second stage firm B observes the output of firm A and chooses its own output, finally at stage 3 firm A can change its mind about how much to produce and makes a final output decision. Find equilibrium. Compare the resulting profits with part (a) and explain the difference. Provide graphical solution using diagram from (a).

(c) Calculate the value of deadweight loss in (a) and (b). Compare and explain the reasons for inefficiency.

3. A firm that specializes in import of used cars decided to insure its cargo. At present the assets of the firm are valued at \$1 million (you may think that the wealth of the firm's owner is equal to the value of the firm's assets). The value of the cargo is \$100 thousands. Suppose that utility function of the firm's owner is $u(w) = -e^{-bw}$, where $b > 0$ and w stays for his wealth.

(a) It was observed that the firm purchased full insurance against the losses of its cargo and \$5000 was paid for this insurance contract. How does this firm assess the probability of an accident?

(b) Suppose that probability of an accident is 1. Assume that insurance company is risk neutral and has zero operation cost. Suppose that insurance contract specifies the insurance coverage denoted by X and the price of the contract P (the sum paid by the cargo owner to the insurance company). Illustrate all mutually beneficial contracts in contingent commodities space. .

Denote by I if the insurance market is monopolized and monopolist proposes a

(c) Suppose that the insurance company considered in (b) is the only company that is willing to insure this cargo. Find the optimal insurance contract offered by this monopolist. Provide both graphical and analytical solutions. Explain the result intuitively.

Grading system and how both the course and final test will be graded

Written tests are graded out of 100 points. Then the results for the written tests and quizzes are used to calculate the final mark using the weights specified in section 3 and the resulting mark is converted into 10-points scale.

Make-up policies and form of the make-up

If a student didn't attend Test 1 in the Fall term and the medical document is provided to the study office in time then the weight of this test is transferred to the Test 2 so that the formula for the Fall term in this case is

- Average mark for quizzes [25%]
- Test 2 [75%]

If a student didn't attend Test 2 in the Fall term and the medical document is provided to the study office in time then he can write Test 2 (a different version of the test) on other day (the same for all students missing Test 2). If a student didn't attend this Test for the second time he/she gets zero score for Test 2 (even if the medical document is provided). If a student doesn't attend the midterm test in the Spring term or doesn't attend a quiz or doesn't submit a home assignment in time then he/she gets zero score for the corresponding activity.

If the Fall term mark is below 4 out of 10 then the student can sit one written re-take exam (Commission) in the end of January/beginning of February set in accordance with the HSE's [Internal Regulations](#). This exam covers all the material studied in the Fall term.

Section 6. Academic Integrity

The Higher School of Economics strictly adheres to the principle of academic integrity and honesty. Accordingly, in this course there will be a zero-tolerance policy toward academic dishonesty. This includes, but is not limited to, cheating, plagiarism (including failure to properly cite sources), fabricating citations or information, tampering with other students' work, and presenting a part of or the entirety of another person's work as your own. HSE uses an automated plagiarism-detection system to ensure the originality of students' work. Students who violate university rules on academic honesty will face disciplinary consequences, which, depending on the severity of the offense, may include having points deducted on a specific assignment, receiving a failing grade for the course, being expelled from the university, or other measures specified in HSE's [Internal Regulations](#).