

## Course Syllabus

Title of the course	<b>Advanced Microeconomics 1</b>				
Title of the Academic Programme					
Type of the course					
Prerequisites	intermediate micro				
ECTS workload					
Total indicative study hours	Directed Study	Self-directed study	Total		
	52	176	228		
Course Overview	This course covers the essential core of the first part of modern microeconomic theory including consumer theory, firm theory, and general equilibrium.				
Intended Learning Outcomes (ILO)	Students should acquire an understanding of the principles and methods of analyzing 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 in equilibrium.				
Teaching and Learning Methods	Lectures; Seminars (discussions; work in groups)				
<b>Content and Structure of the Course</b>					
№	Topic / Course Chapter	Total	Directed Study		Self-directed Study
			Lectures	Tutorials	
1	The Consumer Theory	88	8	12	68
2	The Producer Theory	34	4	4	26
3	Partial equilibrium	34	4	4	26
4	General equilibrium	53	6	6	41
5	Introduction to imperfect competition	19	2	2	15
<b>Total study hours</b>		<b>228</b>	<b>24</b>	<b>28</b>	<b>176</b>
Indicative Assessment Methods and Strategy	<ol style="list-style-type: none"> <li>1. Individual weekly homework assignments (25%)</li> <li>2. In-class participation (5%)</li> <li>3. Interim written assignment (29%)</li> <li>4. Exam (41%)</li> </ol>				
Readings / Indicative Learning Resources	<p><u>Mandatory:</u> Jehle, G. A., and P. J. Reny . <i>Advanced Microeconomic Theory</i>. Prentice Hall: Financial Times, 2011</p> <p><u>Optional:</u> Mas Coller, A., Whinston, M. D., and J. R. Green. <i>Microeconomic theory</i>. Oxford University Press, 1995</p> <p>Rubinstein Ariel. <i>Lecture Notes in Microeconomic Theory</i>, Princeton University Press, 2012, Authorized access:  <a href="http://gametheory.tau.ac.il/arielDocs/">http://gametheory.tau.ac.il/arielDocs/</a></p> <p>Фридман, А. А. Лекции по курсу микроэкономики продвинутого уровня, [Текст] / А. А. Фридман; Гос. ун-т—Высшая школа экономики. — М. : Изд. дом ГУ ВШЭ, 2008</p>				
	<b>Type</b>			+/-	<b>Hours</b>

	Reading for seminars / tutorials (lecture materials, mandatory and optional resources)	+	
	Assignments for seminars / tutorials / labs	+	
	E-learning / distance learning (MOOC / LMS)	-	
	Fieldwork	-	
	Project work	-	
	Other (please specify)		
	Preparation for the exam	+	
Academic Support for the Course	Academic support for the course is provided via LMS, where students can find: guidelines and recommendations for doing the course; guidelines and recommendations for self-study; samples of assessment materials		
Course Instructor	Yulia Kuchumova		

## Course Content

### Part I. The Consumer Theory

#### Topic 1. Preference relations and ration choice

[2 lecture hours, 2 seminar hours]

Key concepts: the consumption set, the feasible set, the preference relation, and the behavioral assumptions.

A preference relation – a binary relation that is complete and transitive. Strict preference relation. Indifference relations. Indifference curves.

Properties of preference relations: continuity, local non-satiation, strict monotonicity, convexity, strict convexity.

Utility function. Debreu Theorem of existence of a utility function representing the preference relation.

Invariance of the utility function to positive monotonic transformations.

Mandatory readings: Jehle and Reny (2011) – ch. 1.1, and 1.2.

Optional reading: Mas Colell et al. (1995) – ch. 1; ch. 3, part 3.C.

#### 2. The Consumer's Problem

[3 lecture hours, 5 seminar hours]

The main question of the classical consumer theory: which consumers' actions conform with the hypothesis of rational agents behavior.

The notion of the market economy and system of market prices. Budget constraint and budget set of a consumer.

The consumer's utility-maximization problem. The conditions for the existence and uniqueness of the consumer's problem optimum. The first-order conditions.

The marginal utility of income. The marginal rate of substitution.

Marshallian demand functions and its properties. The use of the Envelope Theorem as a tool to analyze of the Marshallian demand.

The main classes of preferences and utility functions: additive, quasi-linear, separable, homothetic, and CES. The solution of the consumer's problem for these classes of utility functions.

The dual approach to the consumer's problem. The indirect utility function and its properties. Roy's identity. The consumer's expenditure-minimization problem. The expenditure function and its properties. The Hicksian's demand function. Shephard's lemma. The relations between the indirect utility and expenditure functions and between Marshallian and Hicksian demand functions. Slutsky equation. Slutsky matrix. Law of Demand. Substitution matrix for Hicksian demand and its symmetry and semi-definiteness.

Mandatory readings: Jehle and Reny (2011) – ch. 1.3, 1.4, and 1.5.

Optional reading: Mas Colell et al. (1995) – parts 2.A – 2E; parts 3.D – 3.G.

### 3. The additional topics of consumer theory

[3 lecture hours, 5 seminar hours]

The notion of elasticity of demand. Own-price elasticity, cross-price elasticity, income elasticity. Income shares and elasticities relations. Engel aggregation and Cournot aggregation formula.

Integrability. Antonelli's Theorem. Characterization of demand functions that are generated by maximization of "well-behaved" utility functions.

Revealed preferences. Pro and cons compare to the classical approach. Weak axiom of revealed preferences (WARP). Problem of violation of transitivity of preference under WARP. Generalized axiom of revealed preferences.

Uncertainty. Expected utility theory. Gambles, preference relation over gambles. Simple and compound gambles. Von Neumann-Morgenstern utility. Uniqueness of VNM utility functions up to Positive Affine Transformations.

Gambles over wealth. Risk attitude. The Arrow-Pratt measure of Absolute Risk Aversion. Relative Risk Aversion. Certainty equivalent. Risk premium. Applications: investments in risky asset, model of property damage insurance.

Mandatory readings: Jehle and Reny (2011) – ch. 1.5, 2.2, 2.3, and 2.4.

Optional reading: Mas Colell et al. (1995) – ch. 6.

## Part II. The Producer Theory

### 4. Production technology and cost

[2 lecture hours, 2 seminar hours]

The notion of a firm. Profit maximization hypothesis. Hart's critics of the approach modeling a firm as a black box that maximizes profit.

Ways to describe production technology. Production possibility set. Production function. Transformation function. The production possibility frontier.

Single-product firm production function and its properties. The CES production function.

The analysis of the behavior of production functions: isoquants, marginal rate of technical substitution, the elasticity of substitution. Returns to scale. The elasticity of scale.

Mandatory readings: Jehle and Reny (2011) – ch. 3.1, 3.2, 3.3.

Optional reading: Mas Colell et al. (1995) – parts 5.A and 5.B.

### 5. The competitive firm

[2 lecture hours, 2 seminar hours]

Cost-minimization problem. The conditions of the existence and uniqueness of the optimum. The first-order conditions.

Cost function and its properties. Conditional input demands. Shepard's lemma. Short-run and Long-run cost functions.

Price-taking behavior of a firm. Profit-maximization problem of a firm. The conditions of the existence and uniqueness of the optimum. The first-order conditions.

The profit function and its properties. Output supply function. Input demand functions. Hotelling lemma. Positive slope of the supply curve.

Connection between profit-maximization and cost-minimization problems.

Mandatory readings: Jehle and Reny (2011) – ch. 3.3, and 3.5.

Optional reading: Mas Colell et al. (1995) – parts 5.C and 5.D.

## Part III. Partial equilibrium

### 6. Perfect competition

[2 lecture hours, 2 seminar hours]

The notion of competitive equilibrium. The difference between partial and general equilibriums.

Short-run partial equilibrium. Market demand and market supply. Sufficient conditions for "law of demand" and "law of supply" to hold. Determination of equilibrium price and quantities.

Long-run equilibrium. Free entry condition. Indeterminacy of equilibrium when production is characterized by constant return to scale.

Comparative statics: analysis of the result of changes in a model's exogenous parameters (due to external shocks).

Mandatory readings: Jehle and Reny (2011) – ch. 4.1 .

Optional reading: Mas Colell et al. (1995) – parts 10.C and 10. F

### 7. Welfare analysis under partial equilibrium

[2 lecture hours, 2 seminar hours]

Equivalent and compensating variations. The relation of compensating variation to the expenditure function and Hicksian demand function

Consumers' surplus and producers' surplus. Weak income effect as sufficient condition for approximation of compensating variation with consumer surplus

Efficiency of the competitive outcome. The total surplus maximization at the equilibrium.

Pareto improvement. Pareto efficient. First and second welfare theorem at the context of partial equilibrium.

Mandatory readings: Jehle and Reny (2011) – ch. 4.3.

Optional reading: Mas Colell et al. (1995) – parts 10.D and 10.E

## Part IV. General equilibrium

### 8. Equilibrium in exchange economy and in competitive market

[2 lecture hours, 2 seminar hours]

Pure exchange economy. Initial endowments. Edgeworth box. Contract curve. The core of an exchange economy.

Perfectly competitive market system. Excess demand. Walras' law. Walrasian equilibrium. Existence of Walrasian equilibrium. Comparative statics with respect to initial endowments.

Pareto efficiency. Core and equilibria in competitive economies. First and second welfare theorems.

Mandatory readings: Jehle and Reny (2011) – ch. 5.1 and 5.2.

Optional reading: Mas Colell et al. (1995) – part 15.B

### 9. Equilibrium in competitive market with production

[2 lecture hours, 2 seminar hours]

An example: the classical Robinson Crusoe economy. Graphical illustration.

The description of production sector. Basic properties of supply and profits.

Aggregate profit maximization. Demand with profit shares.

Existence of Walrasian Equilibrium with production.

Pareto efficient allocation with production. First and second welfare theorems with production.

Mandatory readings: Jehle and Reny (2011) – ch. 5.3.

Optional reading: Mas Colell et al. (1995) – part 10.C

### 10. Equilibrium with contingent commodities

[2 lecture hours, 2 seminar hours]

Contingent commodities. Accounting for time and uncertainty.

Classical Arrow-Debreu model. Generalization of the model to dynamic and stochastic cases. Walrasian equilibrium with contingent commodities.

Core and equilibria. A limit theorem on the core.

Example: Arrow security.

Mandatory readings: Jehle and Reny (2011) – ch. 5.4, and 5.5.

Optional reading: Mas Colell et al. (1995) – part 10.F

## Part V. Introduction to imperfect competition

### 11. Monopoly

[2 lecture hours, 2 seminar hours]

Pure monopoly. Monopolist's problem. Markup. The formula for monopoly price.

Pass-through effect and pass-through rate illustrated based on iso-elastic and linear demand functions.

Strategic firms interaction. Cournot oligopoly. Cournot-Nash equilibrium.

Bertrand oligopoly. Bertrand-Nash equilibrium.

Monopolistic competition. Free entry, increasing return to scale, negligibility hypothesis, and product differentiation.

Mandatory readings: Jehle and Reny (2011) – ch. 4.2.

## Assessment Methods and Criteria

### Assessment Methods

Types of Assessment	Forms of Assessment	Modules			
		1	2	3	4
Formative Assessment	Weekly homework assignments	*	*		
	In-class Participation	*	*		
Interim Assessment	Written assignment	*			
Summative Assessment	Exam		*		

### Assessment Criteria

#### In-class Participation

Grades	Assessment Criteria
«Excellent» (8-10)	A critical analysis which demonstrates original thinking and shows strong evidence of preparatory research and broad background knowledge.
«Good» (6-7)	Shows strong evidence of preparatory research and broad background knowledge. Excellent oral expression.
«Satisfactory» (4-5)	Satisfactory overall, showing a fair knowledge of the topic, a reasonable standard of expression. Some hesitation in answering follow-up questions and/or gives incomplete or partly irrelevant answers.
«Fail» (0-2)	Limited evidence of relevant knowledge and an attempt to address the topic. Unable to offer relevant information or opinion in answer to follow-up questions.

#### Project Work

Grades	Assessment Criteria
«Excellent» (8-10)	A well-structured, analytical presentation of project work. Shows strong evidence and broad background knowledge. In a group presentation all members contribute equally and each contribution builds on the previous one clearly; Answers to follow-up questions reveal a good range and depth of knowledge beyond that covered in the presentation and show confidence in discussion.
«Good» (6-7)	Clearly organized analysis, showing evidence of a good overall knowledge of the topic. The presenter of the project work highlights key points and responds to follow up questions appropriately. In group presentations there is evidence that the group has met to discuss the topic and is presenting the results of that discussion, in an order previously agreed.
«Satisfactory» (4-5)	Takes a very basic approach to the topic, using broadly appropriate material but lacking focus. The presentation of project work is largely unstructured, and some points are irrelevant to the topic. Knowledge of the topic is limited and there may be evidence of basic misunderstanding. In a group presentation, most of the work is done by one or two

	students and the individual contributions do not add up.
«Fail» (0-2)	Fails to demonstrate any appropriate knowledge.

**Written Assignments (Essay, Test/Quiz, Written Exam, etc.)**

<b>Grades</b>	<b>Assessment Criteria</b>
«Excellent» (8-10)	Has a clear argument, which addresses the topic and responds effectively to all aspects of the task. Fully satisfies all the requirements of the task; rare minor errors occur;
«Good» (6-7)	Responds to most aspects of the topic with a clear, explicit argument. Covers the requirements of the task; may produce occasional errors.
«Satisfactory» (4-5)	Generally addresses the task; the format may be inappropriate in places; display little evidence of (depending on the assignment): independent thought and critical judgement include a partial superficial coverage of the key issues, lack critical analysis, may make frequent errors.
«Fail» (0-2)	Fails to demonstrate any appropriate knowledge.

## **Recommendations for students about organization of self-study**

Self-study is organized in order to:

- Systemize theoretical knowledge received at lectures;
- Extending theoretical knowledge;
- Learn how to use legal, regulatory, referential information and professional literature;
- Development of cognitive and soft skills: creativity and self-sufficiency;
- Enhancing critical thinking and personal development skills;
- Development of research skills;
- Obtaining skills of efficient independent professional activities.

Self-study, which is not included into a course syllabus, but aimed at extending knowledge about the subject, is up to the student's own initiative. A teacher recommends relevant resources for self-study, defines relevant methods for self-study and demonstrates students' past experiences. Tasks for self-study and its content can vary depending on individual characteristics of a student. Self-study can be arranged individually or in groups both offline and online depending on the objectives, topics and difficulty degree. Assessment of self-study is made in the framework of teaching load for seminars or tests.

In order to show the outcomes of self-study it is recommended:

- Make a plan for 3-5 presentation which will include topic, how the self-study was organized, main conclusions and suggestions and its rationale and importance.
- Supply the presentation with illustrations. It should be defined by an actual task of the teacher.

### **Recommendations for essay**

An essay is a written self-study on a topic offered by the teacher or by the student him/herself approved by teacher. The topic for essay includes development of skills for critical thinking and written argumentation of ideas. An essay should include clear statement of a research problem; include an analysis of the problem by using concepts and analytical tools within the subject that generalize the point of view of the author.

Essay structure:

1. *Introduction and formulation of a research question.*
2. *Body of the essay* and theoretical foundation of selected problem and argumentation of a research question.
3. *Conclusion* and argumentative summary about the research question and possibilities for further use or development.

## **Special conditions for organization of learning process for students with special needs**

The following types of comprehension of learning information (including e-learning and distance learning) can be offered to students with disabilities (by their written request) in accordance with their individual psychophysical characteristics:

1. *for persons with vision disorders:* a printed text in enlarged font; an electronic document; audios (transferring of learning materials into the audio); an individual advising with an assistance of a sign language interpreter; individual assignments and advising.
2. *for persons with hearing disorders:* a printed text; an electronic document; video materials with subtitles; an individual advising with an assistance of a sign language interpreter; individual assignments and advising.
3. *for persons with muscle-skeleton disorders:* a printed text; an electronic document; audios; individual assignments and advising.