

**OSTİM TECHNICAL UNIVERSITY  
FACULTY OF ECONOMICS AND ADMINISTRATIVE SCIENCES  
INTERNATIONAL TRADE AND FINANCE DEPARTMENT  
COURSE SYLLABUS FORM  
2022-2023 FALL**

<b>ECON 105 Research Methods with Computer Applications I</b>							
<b>Course Name</b>	<b>Course Code</b>	<b>Period</b>	<b>Hours</b>	<b>Application</b>	<b>Laboratory</b>	<b>Credit</b>	<b>ECTS</b>
Research Methods with Computer Applications I	ECON 105	1	2	1	0	3	4

<b>Language of Instruction</b>	English
<b>Course Status</b>	Compulsory
<b>Course Level</b>	Bachelor
<b>Learning and Teaching Techniques of the Course</b>	Lecture, Question-Answer, Problem Solving

<b>Course Objective</b>
The course aims at introducing the basic concepts used in research and scientific social research methods and their approaches. It presents fundamental and advanced concepts in statistics and probability and shows how to effectively collect, analyze, and draw inferences from data in order to answer a research question and understand the analyses by others. The emphasis will be placed on statistical reasoning, problem solving, computer applications, and interpretation of the results.

<b>Learning Outcomes</b>
The students who become successful in this course will be able; <ul style="list-style-type: none"> <li>· to learn how to develop and investigate a research question in economics and other social sciences.</li> <li>· to know basic research methods in economics and other social sciences.</li> <li>· to have knowledge about data analysis with Excel, R and Gretl.</li> <li>· to master the basic concepts of statistics and be familiar with descriptive statistical analysis.</li> <li>· to evaluate and enhance data for effective economic analysis</li> </ul>

<b>Course Outline</b>
This course includes discussions on sampling techniques, research designs and techniques of analysis. The course also introduces statistical reasoning, emphasizing how Statistics can help us understand the world. Topics include numerical and graphical summaries of data, visualization of the data, data acquisition and experimental design, probability, hypothesis testing, confidence intervals, correlation and regression. Students will learn to apply statistical concepts to data and reach conclusions about real-world problems with the applications of Excel, R and Gretl.

**Weekly Topics and Related Preparation Studies**

Weeks	Topics	Preparation Studies
1	Introduction, Basic Concepts of Research Methodology	<ul style="list-style-type: none"> <li>– Research Process and Design</li> <li>– Research Problem</li> <li>– Variables and Their Types</li> <li>– Formulation of Hypothesis</li> <li>– Sampling</li> <li>– Tools of Data Collection</li> <li>– Data Analysis</li> <li>– Interpretation of Data</li> <li>– Research Methods</li> <li>– Descriptive or Survey Method</li> <li>– Experimental Method</li> <li>– Research Proposal</li> <li>– Research Report</li> </ul>
2	Description and Inference, Statistical Computing (Agresti, Chap.1)	<ul style="list-style-type: none"> <li>– Introduction to Statistical Methodology</li> <li>– Descriptive Statistics and Inferential Statistics</li> <li>– The Role of Computers and Software in Statistics</li> </ul>
3	Sampling and Measurement, Descriptive and Graphical Methods (Agresti, Chap.2)	<ul style="list-style-type: none"> <li>–Variables and Their Measurement</li> <li>–Randomization</li> <li>–Sampling Variability and Potential Bias</li> <li>–Other Probability Sampling Methods</li> <li>–and Population Parameters</li> </ul>
4	Sampling and Measurement, Descriptive and Graphical Methods (Agresti, Chap.3)	<ul style="list-style-type: none"> <li>–Describing Data with Tables and Graphs</li> <li>–Describing the Center of the Data</li> <li>–Describing Variability of the Data</li> <li>–Measures of Position</li> <li>–Bivariate Descriptive Statistics</li> <li>–Sample Statistics</li> </ul>
5	Probability Distributions and Sampling Distributions (Agresti, Chap.4)	<ul style="list-style-type: none"> <li>–Introduction to Probability</li> <li>–Probability Distributions for Discrete and Continuous Variables</li> <li>–The Normal Probability Distribution</li> <li>–Sampling Distributions Describe How Statistics Vary</li> <li>–Sampling Distributions of Sample Means</li> <li>–Review: Population, Sample Data, and Sampling Distributions</li> </ul>

6	Point Estimation and Interval Estimation for a Mean and Proportion (Agresti, Chap.5)	<ul style="list-style-type: none"> <li>–Point and Interval Estimation</li> <li>–Confidence Interval for a Proportion</li> <li>–Confidence Interval for a Mean</li> <li>–Choice of Sample Size</li> <li>–Estimation Methods: Maximum Likelihood and the Bootstrap</li> </ul>
7	Review	<ul style="list-style-type: none"> <li>–Problem solving session</li> </ul>
<b>8</b>	<b>MIDTERM EXAM</b>	
9	Significance Tests for Means and Proportions (Agresti, Chap.6)	<ul style="list-style-type: none"> <li>–The Five Parts of a Significance Test</li> <li>–Significance Test for a Mean</li> <li>–Significance Test for a Proportion</li> <li>–Decisions and Types of Errors in Tests</li> <li>–Limitations of Significance Tests</li> <li>–Small-Sample Test for a Proportion—The Binomial Distribution</li> </ul>
10	Comparing Two Groups (Means and Proportions) (Agresti, Chap.7)	<ul style="list-style-type: none"> <li>–Preliminaries for Comparing Groups</li> <li>–Categorical Data: Comparing Two Proportions</li> <li>–Quantitative Data: Comparing Two Means</li> <li>–Comparing Means with Dependent Samples</li> <li>–Other Methods for Comparing Means</li> <li>–Other Methods for Comparing Proportions</li> </ul>
11	Categorical Data Analysis (Agresti, Chap.8)	<ul style="list-style-type: none"> <li>–Contingency Tables</li> <li>–Chi-Squared Test of Independence</li> <li>–Residuals: Detecting the Pattern of Association</li> <li>–Measuring Association in Contingency Tables</li> <li>–Association Between Ordinal Variables</li> </ul>
12	Simple Linear Regression and Correlation (Agresti, Chap.9)	<ul style="list-style-type: none"> <li>–Linear Relationships</li> <li>–Least Squares Prediction Equation</li> <li>–The Linear Regression Model</li> <li>–Measuring Linear Association: The Correlation</li> <li>–Inferences for the Slope and Correlation</li> <li>–Model Assumptions and Violations</li> </ul>
13	Basics in Creating Web Page	<ul style="list-style-type: none"> <li>–Introduction to HTML</li> </ul>
14	Basics in Creating Web Page	<ul style="list-style-type: none"> <li>–Introduction to CSS</li> </ul>

15	Review	–Problem solving session
<b>16</b>	<b>FINAL EXAM</b>	

Textbook(s)/References/Materials:
<b>Textbook:</b> Agresti, A. (2018). Statistical methods for the social sciences. Pearson.
<b>Supplementary References:</b> Sekaran, U. & Bougie, R. (2020). Research Methods for Business: A Skill Building Approach. Wiley. 8 <sup>th</sup> Ed. ISBN 9781119609193
<b>Other Materials:</b> -

Assessment		
Studies	Number	Contribution margin (%)
Attendance		
Lab		
Class participation and performance	<b>1</b>	<b>10</b>
Field Study		
Course-Specific Internship (if any)		
Quizzes / Studio / Critical		
Homework		
Presentation		
Projects	<b>1</b>	<b>10</b>
Report		
Seminar		
<b>Midterm Exam/Midterm Jury</b>	<b>1</b>	<b>20</b>
<b>General Exam / Final Jury</b>	<b>1</b>	<b>40</b>
<b>Total</b>		<b>100</b>
<b>Success Grade Contribution of Semester Studies</b>		<b>40</b>
<b>Success Grade Contribution of End of Term</b>		<b>60</b>
<b>Total</b>		<b>100</b>

ECTS / Workload Table			
Activities	Number	Duration (Hours)	Total Workload
<b>Course hours (Including the exam week): 16 x total course hours)</b>	16	3	48
Laboratory			
Application			
Course-Specific Internship (if any)			
Field Study			
<b>Study Time Out of Class</b>	10	3	30
Presentation / Seminar Preparation			
Projects	1	10	10
Reports			
Homework			

Quizzes / Studio Review			
Preparation Time for Midterm Exams / Midterm Jury	1	16	16
Preparation Period for the Final Exam / General Jury	1	16	16
<b>Total Workload /25 ECTS</b>	<b>(120/25 =4.8)</b>	<b>120</b>	
	<b>4</b>		

<b>Course' Contribution Level to Learning Outcomes</b>						
<b>No</b>	<b>Learning Outcomes</b>	<b>Contribution Level</b>				
		<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
<b>L01</b>	to learn how to develop and investigate a research question in economics and other social sciences.					X
<b>L02</b>	to know basic research methods in economics and other social sciences.					X
<b>L03</b>	to have knowledge about data analysis with Excel, R and Gretl.					X
<b>L04</b>	to master the basic concepts of statistics and be familiar with descriptive statistical analysis.					X
<b>L05</b>	to evaluate and enhance data for effective economic analysis					X

<b>Relationship Between Course Learning Outcomes and Program Competencies (Department of International Trade and Finance)</b>							
<b>No</b>	<b>Program Competencies</b>	<b>Learning Outcomes</b>					<b>Total Effect (1-5)</b>
		<b>L01</b>	<b>L02</b>	<b>L03</b>	<b>L04</b>	<b>L05</b>	
<b>1</b>	Have advanced theoretical and up-to-date knowledge in discipline-specific areas such as international trade, finance, logistics, and general business and international business such as economics, marketing, management, accounting.	x	x	x	x	x	5
<b>2</b>	Evaluate, follow, absorb and transfer new information in the field of international trade.	x	x	x	x	x	5
<b>3</b>	Conduct market research, carry out projects and develop strategies for a business to open up to international markets.	x	x	x	x	x	5
<b>4</b>	Use knowledge of national and international trade law and legislation in the management of international commercial operation processes.	x		x		x	3
<b>5</b>	Work independently and within an organization, using the knowledge and skills acquired in the field and adopting continuous learning.	x	x	x	x	x	5
<b>6</b>	Have the ability to apply her theoretical knowledge in real life, with the experience she will gain through practice in departments such as marketing, accounting, foreign trade, finance, logistics.	x	x	x		x	4

7	Have the theoretical knowledge to carry out export, import, customs clearance, logistics, taxation and other international trade activities within the scope of global and regional commercial and economic organizations.	x	x			x	3
8	Can develop a business idea, commercialize the business idea, and design and manage their own venture using their entrepreneurial knowledge.	x	x			x	3
9	Using strategic, critical, innovative and analytical thinking skills, actively take part in the decision-making processes of the enterprise in the field of foreign trade and finance.	x		x		x	3
10	Act in accordance with ethical values, respectful to the environment, social and universal values in all activities it will carry out in its field.	x	x		x	x	4
11	Have the skills to follow up-to-date information at national and international level, to gather information about field, and to communicate with international institutions / organizations using her/him knowledge of English.	x	x	x	x	x	5
12	Gain professional competencies to take charge in national and international businesses, public and private sector organizations.			X		x	2
13	Can evaluate the problems and conflicts encountered in all areas related to international trade from different perspectives with a holistic approach and produce value-based solutions.	x	x			x	3
<b>Total Effect</b>							<b>32</b>

### Policies and Procedures

**Web page:** <https://www.ostimteknik.edu.tr/uluslararasi-ticaret-ve-finansman-bolumu-209>

<https://www.ostimteknik.edu.tr/international-trade-and-finance-232>

**Exams:** The exams aim at assessing various dimensions of learning: knowledge of concepts and theories and the ability to apply this knowledge to real world phenomenon, through analyzing the situation, distinguishing problems and by suggesting solutions. The written exams can be of two types, i.e., open-ended questions, which can also be in the form of problems or multiple-choice questions. Exams are composed of a final exam comprising 50% of the student's grade and a mid-term exam, with less weight. The rest of the grade comes from other assessment methods, shown in the assessment table included in this syllabus. The Department of ITF does not tolerate any act of academic dishonesty. Examinations are individual and must be completed without any outside assistance. Students who attempt to cheat during

exams will receive a failing grade from that exam. The case could also be carried to the Dean's Office for additional disciplinary action.

**Assignments:** The assignments (if any) could be in the form of Homework or paper writing. A paper must include 1- Abstract 2- Introduction, 3- Literature review 4- Research Method, 5- Findings and Discussion 6- Conclusion.

Scientific Research Ethic Rules are very important while preparing assignments. The students should be careful about citing any material used from outside sources and reference them appropriately. The students must not adopt "cut-copy-paste" behavior from the sources in the internet or use the contents of any type of previous work in their assignments. Plagiarism is unethical behavior and is subject to disciplinary action.

**Missed exams:** Any student missing an exam needs to bring an official medical report to be able to take a make-up exam.

**Projects:** The projects (if are a part of the course requirements) could be performed either individually or in groups, without engaging in plagiarism

**Attendance:** Attendance requirements are announced at the beginning of the term. Student are usually expected to attend at least 70% of the classes during each term.

**Objections:** If the student observes a material error in his/her grade, he/she has the right to place an objection to the Faculty or the Department. The claim is examined and the student is notified about its outcome.