

**OSTİM TECHNICAL UNIVERSITY  
FACULTY OF ECONOMICS AND ADMINISTRATIVE SCIENCES  
MARKETING DEPARTMENT  
COURSE SYLLABUS FORM**

<b>ECON 106 Research Methods with Computer Applications II</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 II	ECON 106	2	2	1	0	3	5

<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 aim of the course is to introduce students to the principles and practicalities of doing research. Basic grounding in social science concepts, analytical approaches, research tools, selecting problems, reviewing the literature and presenting research are the major topics of the course.

<b>Learning Outcomes</b>
The students who become successful in this course will be able; <ul style="list-style-type: none"> <li>· to comprehend the process of emergence of social sciences,</li> <li>· to have good knowledge about different methodologies in social sciences.</li> <li>· to understand the place of economics within social sciences.</li> <li>· to understand the divisions within economics and different methodologies utilized in economics.</li> <li>· to learn how to develop and investigate a research question in economics.</li> <li>· to have a knowledge about the data analysis with Excel, R, Gretl, Phyton and MATLAB programs.</li> </ul>

### **Course Outline**

This course introduces statistical reasoning, emphasizing how Statistics can help us understand the world. Topics include multiple regression, analysis of variance methods and model building with multiple regression. Students will learn to apply statistical concepts to data and reach conclusions about real-world problems. Statistical reasoning is necessary to conduct research at any level, and hence to make decisions. This course is the starting point to develop your statistical skills. It is followed by the Statistics sequence in the second year. That sequence will be more technical, using calculus, and more comprehensive. Eventually, the Econometrics sequence in the third year will contribute towards developing your analytical skills in economics.

<b>Weekly Topics and Related Preparation Studies</b>		
<b>Weeks</b>	<b>Topics</b>	<b>Preparation Studies</b>
1	Introduction to Multivariable Relationships (Agresti, Chap.10)	<ul style="list-style-type: none"> <li>–Association and Causality</li> <li>–Controlling for Other Variables</li> <li>–Types of Multivariate Relationships</li> <li>–Inferential Issues in Statistical Control</li> </ul>
2	Introduction to Multiple Regression (Agresti, Chap.11)	<ul style="list-style-type: none"> <li>–The Multiple Regression Model</li> <li>–Multiple Correlation and R<sup>2</sup></li> <li>–Inferences for Multiple Regression Coefficients</li> </ul>
3	Introduction to Multiple Regression (Agresti, Chap.11)	<ul style="list-style-type: none"> <li>–Modeling Interaction Effects</li> <li>–Comparing Regression Models</li> <li>–Partial Correlation</li> <li>–Standardized Regression Coefficients</li> </ul>
4	Regression with Categorical Predictors: Analysis of Variance Methods (Agresti, Chap.12)	<ul style="list-style-type: none"> <li>–Regression Modeling with Dummy Variables for Categories</li> <li>–Multiple Comparisons of Means</li> <li>–Comparing Several Means: Analysis of Variance</li> </ul>
5	Regression with Categorical Predictors: Analysis of Variance Methods (Agresti, Chap.12)	<ul style="list-style-type: none"> <li>–Two-Way ANOVA and Regression Modeling</li> <li>–Repeated-Measures Analysis of Variance</li> <li>–Two-Way ANOVA with Repeated Measures on a Factor</li> </ul>
6	Multiple Regression with Quantitative and Categorical Predictors (Agresti, Chap.13)	<ul style="list-style-type: none"> <li>–Models with Quantitative and Categorical Explanatory Variables</li> <li>–Inference for Regression with Quantitative and Categorical Predictors</li> <li>–Case Studies: Using Multiple Regression in Research</li> <li>–Adjusted Means</li> <li>–The Linear Mixed Model</li> </ul>
7	Review	<ul style="list-style-type: none"> <li>–Problem solving session</li> </ul>

8	<b>MIDTERM EXAM</b>	
9	Model Building with Multiple Regression (Agresti, Chap.14)	–Model Selection Procedures –Regression Diagnostics
10	Model Building with Multiple Regression (Agresti, Chap.14)	–Generalized Linear Models –Nonlinear Relationships: Polynomial Regression
11	Model Building with Multiple Regression (Agresti, Chap.14)	–Exponential Regression and Log Transforms –Robust Variances and Nonparametric Regression
12	Python Programming Language	–Writing First Python Program –Strings and Number Data Types –Variables, Functions, Conditionals, Loops in Python
13	Python Programming Language	–Comments, Sets, Data Types in Python –Dictionary Data Type –Modularize a project with Modules –Sample Projects
14	Matrix Laboratory (MATLAB) Language	
15	Review	–Problem solving session
16	<b>FINAL EXAM</b>	

<b>Textbook(s)/References/Materials:</b>
<b>Textbook:</b> Agresti, A. (2018). Statistical methods for the social sciences. Pearson.
<b>Supplementary References:</b>
<b>Other Materials:-</b>

<b>Assessment</b>		
<b>Studies</b>	<b>Number</b>	<b>Contribution margin (%)</b>
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>30</b>
<b>General Exam / Final Jury</b>	<b>1</b>	<b>50</b>
<b>Total</b>		<b>100</b>
<b>Success Grade Contribution of Semester Studies</b>		<b>50</b>
<b>Success Grade Contribution of End of Term</b>		<b>50</b>
<b>Total</b>		<b>100</b>

<b>ECTS / Workload Table</b>			
<b>Activities</b>	<b>Number</b>	<b>Duration (Hours)</b>	<b>Total Workload</b>
<b>Course hours (Including the exam week): 16 x total course hours)</b>	16	2	32
Laboratory			
Application	16	1	16
Course-Specific Internship (if any)			
Field Study			
<b>Study Time Out of Class</b>	10	4	40
Presentation / Seminar Preparation			
Projects	1	20	20
Reports			
Homework			
Quizzes / Studio Review			
Preparation Time for Midterm Exams / Midterm Jury	1	12	12
Preparation Period for the Final Exam / General Jury	1	15	15
<b>Total Workload</b>		<b>(135/25 = 5.4)</b>	<b>135</b>

<b>Course' Contribution Level to Learning Outcomes</b>						
<b>Nu</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 master the basic concept of statistics in social science					X
<b>L02</b>	to be able to comprehend methodological discussions in social sciences and natural sciences.					X
<b>L03</b>	to know basic research methods in economics.					X
<b>L04</b>	to be familiar with multiple regression statistical analysis.					X
<b>L05</b>	to integrate analytical concepts into economic analysis					X
<b>L06</b>	to evaluate and enhance data for effectively produce economic analysis					X
<b>L07</b>	to have the knowledge and equipment to be able to execute and complete the project by taking part in national and international projects and project teams.					X

<b>Relationship Between Course Learning Outcomes and Program Competencies (Department of Marketing)</b>							
<b>Nu</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>	Understanding the formal and informal processes associated with a business structure		2				
<b>2</b>	Evaluate a business on the basis of all functional units		2				



<b>3</b>	To use analytical thinking effectively in the decisions taken for the problem solving process			3			
<b>4</b>	Having a vision of self-improvement and learning						
<b>5</b>	To carry out all activities within this framework, equipped with ethics						
<b>6</b>	To analyze the cases encountered by doing research and studies individually and as a team within the organization.						<b>5</b>
<b>7</b>	To convey his thoughts and suggestions at the level of knowledge and skills he has acquired in the field of marketing to the relevant people in writing and orally						
<b>8</b>	Developing effective and creative marketing mix strategies that will adapt to different market conditions and buyer types in national and international dimensions						
<b>9</b>	To have the ability to interpret and analyze data, to identify problems and to suggest solutions by using the knowledge acquired in the field of marketing					<b>4</b>	
<b>10</b>	To have sufficient awareness of the universality of social rights, social justice, quality and cultural values, environmental protection, occupational health and safety.						
<b>11</b>	Evaluate the knowledge and skills gained by the marketing education with a critical perspective within the framework of the practices in business life.		<b>2</b>				
<b>12</b>	To follow and correctly interpret the current trends developing within the framework of marketing						

**Policies and Procedures**

**Web page:** <https://www.ostimteknik.edu.tr/marketing-1242>

**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 Economics 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 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.