

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

<b>MAR 407 Data Analytics</b>							
<b>Course Name</b>	<b>Course Code</b>	<b>Term</b>	<b>Theoretical</b>	<b>Practice</b>	<b>Laboratory</b>	<b>Credit</b>	<b>ECTS</b>
<b>Data Analytics</b>	MAR 407	7	3	0	0	3	4

Education Language	English
Course Status	Mandatory
Course Level	Licence
Learning and Teaching Techniques	Lecture, Question-Answer, Problem Solving, Application

<b>Course Objectives</b>
The aim of this course is to introduce data-driven problem solving. Basic knowledge of data analytics is demonstrated by applying conceptual knowledge of data analysis and visualisation through practice and application of R programming. By gaining the skills of using R programming software, data visualisation, data analysis and regression analysis competencies are developed.

<b>Learning Outcomes</b>
Students who are successful in this course:
i. Understand the basic syntax and structure of the R programming language
ii. Apply data structure and manipulation techniques
iii. Create various data visualisations using the relevant R packages
iv. Construct and interpret simple and multiple linear regression models
v. Will be able to present the results of data analysis effectively.

<b>Course Outline</b>
This course includes discussions on the fundamentals of data analysis with R programming applications. The course introduces a data-driven problem solving approach. Topics include R programming basics, data manipulation, descriptive data analysis, visualisation of data and regression analysis. The aim is to gain the ability to apply data analysis techniques using the R programming language and to reach conclusions about real-world problems.

<b>Weekly Topics and Related Preparatory Work</b>		
<b>Week</b>	<b>Subject</b>	<b>Subject Preparation Studies</b>
<b>1</b>	Introduction to Data Analytics with R	– Introduction and installation of R and R Studio.
<b>2</b>	Introduction to R	– Variables and data types
<b>3</b>	Statistical Analysis	– R Operations
<b>4</b>	Inferential Statistics	– Lists, tuples and dictionaries.
<b>5</b>	Hypothesis Testing	– Conditional Cases - if, elif, else and loops
<b>6</b>	Data Analytics in R	– Functions
<b>7</b>	Data Analysis and Visualisation	– Methods
<b>8</b>	<b>MIDTERM EXAM</b>	
<b>9</b>	Advanced Data Visualisation Stages	– Customisation of graphics
<b>10</b>	Introduction to Regression Analysis	– Themes, colours, tags
<b>11</b>	Simple Linear Regression	– Regression model and assumptions
<b>12</b>	Multiple Regression Model	– Least squares method

		– Residue Analysis
<b>13</b>	Logistic Regression Model	– <input type="checkbox"/> Setting up the model
<b>14-15</b>	Project	<input type="checkbox"/> Interpretation of coefficients
<b>16</b>	<b>FINAL EXAM</b>	

**Course Book(s)/Resources/Materials:**

**Course Books:**

R for Data Science: Import, Tidy, Transform, Visualize, and Model Data, 2nd Edition, Hadley Wickham, Mine Çetinkaya-Rundel, Garrett Golemund, O'Reilly Media; 2023.

**Additional References:**

Statistics for Business and Economics, 14e, Metric Version, David R. Anderson etc., Cengage, 2020

**Other Materials:** Other notes of the course

<b>Evaluation</b>		
<b>Studies</b>	<b>Number</b>	<b>Contribution share (%)</b>
Participation		
Lab		
Class participation and performance		
Field Work		
Course Specific Internship (if any)		
Quizzes / Studio / Critical		
Homework		
Presentation		
Project	1	30
Report		
Seminar		
Midterm Examination/Midterm Examination Jury	1	20
General Examination / Final Jury	1	50
<b>Total</b>		<b>100</b>
Contribution to Semester Success Grade Studies		20
Success Grade End of Term Contribution		50
<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>
Class hours (including exam week): 16 x total teaching hours)	16	3	48
Laboratory			
Application			
Course Specific Internship (if any)			
Field Work			
Extracurricular Working Time	10	1	10
Presentation / Seminar Preparation			
Project	1	10	10
Report			
Homework			
Exams / Studio Review			
Preparation Time for Midterm Exams / Midterm Exam Jury	1	10	10
Preparation Time for Final Examination / General Jury	1	20	20
<b>Total Workload</b>		<b>(98/25 = 3,92)</b>	<b>98</b>

Learning Outcomes of the Course						
No	Learning Outcomes	Level of Contribution				
		1	2	3	4	5
LO1	To learn the basic concepts of R programming language and data analysis processes					X
LO2	Understanding data-driven decision-making processes					X
LO3	To have knowledge about data analysis with R					X
LO4	To master basic statistical concepts and learn regression analysis techniques					X
LO5	To improve analysis skills by learning data visualisation and manipulation techniques					X
LO6	To gain the ability to collect, visualise, evaluate and report data for data analysis					X

Nu	Programme Qualifications	Learning Outcomes						Total Effect (1-5)
		LO1	LO2	LO3	LO4	LO5	LO6	
1	Understanding the formal and informal processes of a business structure	X						1
2	To evaluate an enterprise on the basis of all functional units		X					2
3	To use analytical thinking effectively in the decisions taken for the problem solving process				X	X		2
4	To have a vision of self-improvement and learning		X			X		2
5	Being well-equipped in ethics and carrying out all activities within this framework							
6	To analyse the cases encountered by conducting individual and team research and studies within the organisation			X				3
7	To be able to transfer his/her thoughts and suggestions at the level of knowledge and skills acquired in the field of marketing to the relevant people in written and verbally	X		X				2
8	To develop effective and creative marketing mix strategies that will adapt to different market conditions and buyer types in national and international dimensions							
9	To have the ability to interpret and analyse data, identify problems and propose solutions by using the knowledge gained in the field of marketing			X		X		4
10	The universality of social rights, social							

	to have sufficient awareness of justice, quality and cultural values, environmental protection, occupational health and safety								
11	To evaluate the knowledge and skills gained by marketing education from a critical perspective within the framework of applications in business life		X		X				2
12	To follow the current trends in marketing and interpret them correctly		X		X		X		3
<b>Total Effect</b>									<b>21</b>

### Policies and Procedures

Web page: <a href="https://www.ostimteknik.edu.tr/marketing-1242">https://www.ostimteknik.edu.tr/marketing-1242</a>
Exams Examinations are intended to assess various dimensions of learning: knowledge of concepts and theory and the ability to apply this knowledge to real-world phenomena by analysing situations, distinguishing problems and proposing solutions. Written exams can be of two types, open-ended questions and also in the form of problems or multiple choice questions.
Homework Quizzes and Homework (Assignments) can be applied. The Code of Ethics for Scientific Research is very important when preparing homework. Students should be careful about referring to any material used from external sources and should reference them appropriately.
Missed exams: Any student who misses an exam must bring an official medical certificate in order to take a make-up exam. The medical certificate must be obtained from a public hospital.
Projects Applies to.
Attendance: Attendance requirements are announced at the beginning of the semester. Students are generally expected to attend at least 70% of the classes each semester.
Appeals: If a student detects a material error in his/her grade, he/she has the right to appeal to the Faculty or Department. The claim is examined and the student is informed about the outcome.