OSTIM TECHNICAL UNIVERSITY
FACULTY OF ECONOMICS AND ADMINISTRATIVE SCIENCES
DEPARTMENT OF BUSINESS ADMINISTRATION
COURSE SYLLABUS FORM

BUS 306 **Data Analytics for Business and Economics**							
Course Name	**Course Code**	**Period**	**Hours**	**Application**	**Laboratory**	**Credit**	**ECTS**
Data Analytics for Business and Economics	BUS 306	6	3	3	1	3	5

Language of Instruction	English
Course Status	Compulsory
Course Level	Bachelor
Learning and Teaching Techniques of the Course	Lecture, Question-Answer, Problem Solving, Teamwork, Report Writing

Course Objective
The purpose of this course is to introduce the students to the technologies that are generally and collectively called analytics (or business analytics) but have been known by other names such as decision support systems, executive information systems, and business intelligence, among others. We use these terms interchangeably. This course presents the fundamentals of the methods, methodologies, and techniques used to design and develop these systems. In addition, we introduce the essentials of AI both as it relates to analytics as well as a standalone discipline for decision support. Moreover, this course is designed to follow an EEEE approach in learning process: *Exposure, Experience, Explore* and *Execute*. primarily providing exposure to various analytics techniques and their applications. The idea is that a student will be inspired to learn from how other organizations have employed analytics to make decisions or to gain a competitive edge and inspired to realize an original project to address a real-life issue in their workplaces as small teams.

Learning Outcomes
On successful completion of this course, students should be able to: 1. Understand the big picture of data analytics as a transformative force in the world of modern business and economics. 2. Define “big data” and the increasing role of evidence-based decision making to support business decision making. 3. Understand and use predictive, prescriptive, and descriptive analytics, and the business questions that can be answered with each approach. 4. Use software to perform statistical operations and prepare visual representations of business data. 5. Apply the principles of business analytics to examples in marketing, finance, management and entrepreneurship, accounting, and economics. 6. Identify opportunities to use analytics to address unstructured business problems and show these skills in a real-life project.

Course Outline		
This course provides an introduction to business intelligence and analytics, defined as the extensive use of data, statistical and quantitative analysis, exploratory, predictive and prescriptive models, and fact-based management to drive decisions and actions. The development and use of data warehouses and data marts, and the application of selected data (including text and web) mining techniques to business decision making is illustrated. Students actively participate in the delivery of the course through case and/or project presentations.		
Weekly Topics and Related Preparation Studies		
Weeks	**Topics**	**Preparation Studies**
1-2	Introduction and Overview of Business Intelligence	• CH1 Overview of Business Intelligence, Analytics, Data Science, and Artificial Intelligence: Systems for Decision Support (pp. 38-106=68)
3	Artificial Intelligence: Concepts	• CH2 Artificial Intelligence: Concepts, Drivers, Major Technologies, and Business Applications (pp. 109-150=41
4-5	Statistical Models and Visualization	• CH3 Nature of Data, Statistical Modeling, and Visualization (pp. 153-226=73)
6-7	Data Mining	• CH4 Data Mining Process, Methods, and Algorithms (pp. 229-284=55)
8	**MIDTERM EXAM**	
9-10	Machine-Learning	• CH5 Machine-Learning Techniques for Predictive Analytics (pp. 287-348= 61)
11-12	Deep Learning and Cognitive Computing	• CH6 Deep Learning and Cognitive Computing (pp. 351-420=69)
13	Text Mining, Sentiment Analysis, and Social Analytics	• CH7 Text Mining, Sentiment Analysis, and Social Analytics (pp. 424-492=68)
14	Prescriptive Analytics: Optimization and Simulation	• CH8 Prescriptive Analytics: Optimization and Simulation (pp. 495-542=47)
15	Project presentations	• One or more methods discussed during this course will be applied to a real-life issue in *your workplace*. • Projects will be held by 2 or max 3 persons team. • Project reports will be submitted before the presentations.
16	**FINAL EXAM**	

Textbook(s)/References/Materials:
TEXTBOOK: Sharda, R., Delen, D., & Turban, E. (2021). Analytics, data science, & artificial intelligence: Systems for decision support. Pearson. * Provost, F., & Fawcett, T. (2013). Data Science for Business: What you need to know about data mining and data-analytic thinking. O'Reilly Media, Inc.

Assessment		
Studies	**Number**	**Contribution margin (%)**
Attendance		
Lab		
Classroom and application performance grade	**1**	**10**
Field Study		
Course-Specific Internship (if any)		
Quizzes / Studio / Critical		
Homework	**10**	**10**
Presentation		
Projects		
Report		
Seminar		
Midterm Exam/Midterm Jury	**1**	**30**
General Exam / Final Jury	**1**	**50**
	Total	**100**
Success Grade Contribution of Semester Studies		**50**
Success Grade Contribution of End of Term		**50**
	Total	**100**

ECTS / Workload Table			
Activities	**Number**	**Duration (Hours)**	**Total Workload**
Course hours (Including the exam week: 16 x total course hours)	16	2	32
Laboratory	14	1	14
Application			
Course-Specific Internship			
Field Study			
Study Time Out of Class	16	3	48
Presentation / Seminar Preparation			
Projects			
Reports			
Homework	14	1	16
Quizzes / Studio Review			
Preparation Time for Midterm Exam / Midterm Jury	1	5	5
Preparation Period for the Final Exam / General Jury	1	5	5
Total Workload/25 hours	**(120/25 = 5)**		
ECTS	**5**		

Relationship Between Course Learning Outcomes and Program Competencies

No	Learning Outcomes	Contribution Level				
		1	2	3	4	5
LO1	Understand the big picture of data analytics as a transformative force in the world of modern business and economics.					X
LO2	Define "big data" and the increasing role of evidence-based decision making to support business decision making.					X
LO3	Understand and use predictive, prescriptive, and descriptive analytics, and the business questions that can be answered with each approach.					X
LO4	Use software to perform statistical operations and prepare visual representations of business data.					X
LO5	Apply the principles of business analytics to examples in marketing, finance, management and entrepreneurship, accounting, and economics.					X
LO6	Identify opportunities to use analytics to address unstructured business problems and show these skills in a real-life project.					X

Relationship Between Course Learning Outcomes and Program Competencies)								
No	**Program Competencies**	**Learning Outcomes**						**TOTGAL EFFECT (1-5)**
		LO1	**LO2**	**LO3**	**LO4**	**LO5**	**L06**	
1	Know the basic concepts and practical information about the science of business administration and core business activities	x	x	x	x	x		5
2	Evaluate global and local issues by using ideas and concepts from the field of business administration; examine and analyze management related information and applications in line with scientific principles by using appropriate qualitative and quantitative methods; interpret and synthesize the data and find solutions to business related problems	x	x	x	x	x		5
3	Take responsibility as a member of an interdisciplinary team to solve unpredictable and complex business problems; be able to work effectively in teams of various functions and disciplines; effectively carry out project activities					x	x	2
4	Carry out independent studies in the field by utilizing obtained knowledge and skills		x	x		x	x	4
5	Set goals and objectives for the institution he/she works at; detect and solve basic problems; analyze the internal and external environment of the business; evaluate the developments, support continuous improvement and provide innovative strategies		**x**	**x**	**x**	x	x	5
6	Acquire the skill to manage activities aimed at the improvement of the employees as a leader, make decisions and implement them		x	x		x	x	4

7	Acquire the entrepreneurship skill; design and manage a business; promote innovativeness and sustainability					x	x	2
8	Maintain life-long learning activities; achieve self-improvement; follow higher level educational programs	**x**	**x**	**x**		x	x	5
9	Inform stakeholders with a sense of social responsibility as an individual with effective communication skills; share his/her emotions, thoughts and solutions to problems verbally and in writing; understand the behaviors and psychology of his/her colleagues					x	x	2
10	Use the information and communication technologies and computer software required by the field	**x**	**x**		**x**	x	x	5
11	Effectively use English to follow, read, write and speak about the universal information in the field of business and management sciences and be able to communicate with colleagues in a foreign language with professional proficiency	x	x			x	x	4
12	Act according to the law in all his/her affairs; have a sense of professional and ethical responsibility and code of business conduct and act in line with social values			x			x	2
13	Be aware of the contemporary business problems as well as the interdisciplinary scope of business administration and analyze these; have the competence to understand the effects of business and management sciences on these problems on a universal, environmental, legal, social and societal level and in terms of health, security and globalization	x	x	x	x	x		5
14	Give research proposals, be able to design research studies, prepare and present research reports			x		x	x	3
15	Manage work time and personal time; fulfil the requirements of his/her duties on time						x	1
16	Have the competence to work in non-governmental organizations, private sector and public entities						x	1
	TOTAL EFFECT	6	9	9	5	13	13	55

Policies and Procedures
Web page: https://www.ostimteknik.edu.tr/business-administration-1240/907
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 phenomena, through analyzing the situation, distinguishing problems, and suggesting solutions. The written exams can be of two types, ie. open-ended questions, which can also be in the form of problems or multiple-choice questions. The case could also be carried to the Dean's Office for additional disciplinary action.
Assignments: Quizzes and Homework (Assignments) might be applicable. Scientific Research Ethics Rules are very important while preparing assignments. The students should be careful about citing any material used from outside sources and reference them appropriately.
Missed exams: Any student missing an exam needs to bring an official medical report to be able to take a make-up exam. The medical report must be from a state hospital.
Projects: Not applicable.
Attendance: Attendance requirements are announced at the beginning of the term. Students 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 toplace an objection to the Faculty or the Department. The claim is examined and the student is notified about its outcome.