



## AYDIN ADNAN MENDERES UNIVERSITY COURSE INFORMATION FORM

Course Title		Advanced Programming Techniques							
Course Code		ZT420		Course Level		First Cycle (Bachelor's Degree)			
ECTS Credit	2	Workload	55 (Hours)	Theory	2	Practice	0	Laboratory	0
Objectives of the Course		Provide the student with knowledge of R-programming language, its functions and to teach R-programming by using its functions							
Course Content		Installation of R-project, packages in r-project, data types, matrices and vectors, reading and writing data, writing functions, producing advanced graphics							
Work Placement		N/A							
Planned Learning Activities and Teaching Methods				Explanation (Presentation), Demonstration, Discussion, Case Study, Individual Study, Problem Solving					
Name of Lecturer(s)									

### Assessment Methods and Criteria

Method	Quantity	Percentage (%)
Midterm Examination	1	40
Final Examination	1	70

### Recommended or Required Reading

1	1. ULUSLARARASI GENOMİK VE BİYOİNFORMATİK KONFERANSI R-Kursu notları
2	The R Book Michael J. Crawley Imperial College London at Silwood Park, UK

Week	Weekly Detailed Course Contents	
1	Theoretical	Introduction to R-programming
2	Theoretical	Data structures and types, numbers and vectors
3	Theoretical	Arrays and matrices
4	Theoretical	Arrays and matrices
5	Theoretical	Lists and data structures
6	Theoretical	Reading and writing data
7	Theoretical	Reading and writing data
8	Theoretical	Probability distributions
9	Theoretical	Loops and if statement
10	Intermediate Exam	Midterm Exam
11	Theoretical	Functions
12	Theoretical	Graphics
13	Theoretical	Graphics
14	Theoretical	Trellis graphics
15	Theoretical	Ggplots
16	Final Exam	Final Exam

### Workload Calculation

Activity	Quantity	Preparation	Duration	Total Workload
Lecture - Theory	14	0	2	28
Midterm Examination	1	10	1	11
Final Examination	1	15	1	16
Total Workload (Hours)				55
[Total Workload (Hours) / 25*] = ECTS				2

\*25 hour workload is accepted as 1 ECTS

### Learning Outcomes

1	Earning fundamental knowledge about R-programming
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2	Learning about data types
3	Earning the ability of programming
4	Learning how to read, write and organize data
5	Earning the ability to create graphics
6	Earning the ability to write function for the analysis of research and observational data
7	Earning the ability to interpret the results and the ability of decision making for future based on the results

#### Programme Outcomes (Agricultural Biotechnology)

1	To be able to develop skills in identifying, modeling and solving problems in agricultural biotechnology
2	To be able to synthesize life and engineering sciences for the effective resource planning of agricultural biotechnology applications
3	To be able to interpret about living organisms structure, metabolic and physiological processes in order to propose biotechnological solutions to the agricultural problems
4	To be able to analyze genomic, metabolomic and proteomic information via bioinformatic tools.
5	To have the ability to analyze collected data and interpret the results.
6	To have the ability of individual working ability and to make independent decisions, to work in inter-disciplinary and interdisciplinary teamwork, to communicate by expressing their ideas orally and in writing, clearly and concisely
7	To have the awareness of professional liabilities and ethics
8	To be able to follow current national and international problems

#### Contribution of Learning Outcomes to Programme Outcomes 1:Very Low, 2:Low, 3:Medium, 4:High, 5:Very High

	L1	L2	L3	L4	L5	L6	L7
P1	1	1	1	1	1	1	1
P2	1	1	3	1	1	1	1
P3	1	1	1	1	1	1	1
P4	1	1	1	1	1	1	1
P5	1	1	2	2	4	3	3
P6	1	3	3	1	4	3	3
P7	1	2	3	1	4	3	3
P8	1	2	2	1	4	3	3

