



AYDIN ADNAN MENDERES UNIVERSITY COURSE INFORMATION FORM

Course Title		Eukaryotic Gene Expression							
Course Code		ZBY518		Couse Level		Second Cycle (Master's Degree)			
ECTS Credit	8	Workload	206 (<i>Hours</i>)	Theory	3	Practice	0	Laboratory	0
Objectives of the Course		The objective of this course is to provide an overview of the structure of the eukaryotic genome, gene expression and molecular control mechanisms.							
Course Content		In this course, it is told about the structure of eukaryotic genome and the molecular processes of gene expression, various molecular mechanisms that regulate gene expression in an eukaryotic cell, gene expression and control mechanisms in prokaryotic and eukaryotic organisms and regulation of gene expression during development.							
Work Placement		N/A							
Planned Learning Activities and Teaching Methods				Explanation (Presentation), Discussion, Case Study, Individual Study					
Name of Lecturer(s)									

Assessment Methods and Criteria

Method	Quantity	Percentage (%)
Midterm Examination	1	30
Final Examination	1	60
Assignment	1	10

Recommended or Required Reading

1	Molecular Biology of the Gene. Watson, J.D. et al. 6th ed. 2007. Benjamin Cummings
2	Lewin's Genes X. Krebs, J.E. et al. 10th ed. 2009. Jones and Bartlett Publishers
3	Molecular Biology of the Cell. Alberts, B. et al. 5th ed. 2007. Garland Science
4	Molecular Cell Biology. Lodish, H. et al. 6th ed. 2007. W.H. Freeman and Company

Week	Weekly Detailed Course Contents	
1	Theoretical	Eukaryotic cell and genome structure from yeast to higher organisms
2	Theoretical	RNA genes, RNA polymerases
3	Theoretical	Transcriptional control mechanisms
4	Theoretical	Nucleosomes and transcription
5	Theoretical	Genetic recombination, repeating sequences, gene amplification
6	Theoretical	Gene clusters, gene families, transposons
7	Theoretical	Translation: components and mechanisms
8	Intermediate Exam	Midterm exam
9	Theoretical	Regulation mechanisms of gene expression
10	Theoretical	Proteins and targeted protein cleavage
11	Theoretical	Gene expression according to growth phase and tissue
12	Theoretical	Gene expression according to growth phase and tissue
13	Theoretical	Regulatory networks and signal transduction pathways
14	Theoretical	Introns and exons
15	Theoretical	RNA splicing
16	Final Exam	Final exam

Workload Calculation

Activity	Quantity	Preparation	Duration	Total Workload
Lecture - Theory	14	10	3	182
Assignment	1	6	1	7
Midterm Examination	1	7	1	8



Final Examination	1	8	1	9
Total Workload (Hours)				206
[Total Workload (Hours) / 25*] = ECTS				8
*25 hour workload is accepted as 1 ECTS				

Learning Outcomes

1	Explain the structure of eukaryotic genome and identify the molecular processes of gene expression.
2	Discuss various molecular mechanisms that regulate gene expression in an eukaryotic cell.
3	Compare gene expression and control mechanisms in prokaryotic and eukaryotic organisms.
4	Define regulation of gene expression during development.
5	Gene regulation mechanism is learned

Programme Outcomes (Agricultural Biotechnology Master)

1	Students learn various techniques and evaluates resources about agricultural biotechnology
2	Make the necessary projects in agricultural biotechnology and to conduct a study of the basic level independently
3	Students learns how to conduct a scientific research and prepares themselves for the scientists in the direction of their ideals.
4	Students may reveal new ideas in social and scientific issues and can benefit from the ideas and produce something new winning independent and teamwork skills.
5	Students can use its products for the benefit of humanity, they can produce technology and collaborate with industry

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

	L1	L2	L3	L4	L5
P1	5	5	5	5	4
P2	5	5	5	5	4
P3	5	5	5	5	5
P4	3	3	3	3	3
P5	2	2	2	2	2

