



AYDIN ADNAN MENDERES UNIVERSITY COURSE INFORMATION FORM

Course Title		Molecular Mechanisms of Disease							
Course Code		BYK603		Course Level		Third Cycle (Doctorate Degree)			
ECTS Credit	5	Workload	125 (<i>Hours</i>)	Theory	3	Practice	0	Laboratory	0
Objectives of the Course		The aim of this course is to provide the students with the knowledge of biochemistry, microbiology, genetics, medical biology and system biology that they have acquired during their education with the mechanisms that form the basis of diseases and to link all learned metabolic pathways with diseases. In the application part of the course, it is envisaged that the current laboratory tests used in the diagnosis and follow-up of the disease and the basic principles of the analysis methods will be provided to the students in the related department of the central laboratory under the supervision of the responsible faculty member / members and to provide the students with the knowledge of the analysis process.							
Course Content		Cell and extracellular matrix, cell injury, cell death, adaptation and repair. Inflammation, shock and sepsis, hemostasis and thrombosis, and metabolic diseases, identification of the molecular mechanisms involved in the pathogenesis of diseases of the immune system.							
Work Placement		N/A							
Planned Learning Activities and Teaching Methods				Explanation (Presentation), Discussion, Case Study					
Name of Lecturer(s)									

Assessment Methods and Criteria

Method	Quantity	Percentage (%)
Midterm Examination	1	40
Final Examination	1	60

Recommended or Required Reading

1	Biology of Disease. Eds: Ahmed N., Dawson M., Smith C., Wood E. 2007 by Taylor and & Francis Group, New York.
2	Textbook of Clinical Chemistry and Molecular Diagnostics. Eds: Burtis CA, Ashwood ER, Bruns DE, 4th edition, 2006, Elsevier Saunders, St Louis.
3	Human Molecular genetics 3. Tom Strachan and Andrew P. Read. Garland Science, UK 2004

Week	Weekly Detailed Course Contents	
1	Theoretical	Introduction-Endocrine system diseases and its examination
2	Theoretical	Formation mechanisms of neoplastic diseases and examination at molecular level, Neoplastic disease markers
3	Theoretical	Molecular mechanism and diagnostic techniques of infectious diseases
4	Theoretical	Molecular mechanisms of blood diseases Hemoglobinopathies, Anemia (Fe metabolism), Thalassemia, G6PDH deficiency, Hemophilia
5	Theoretical	Molecular development mechanisms of autoimmune diseases
6	Theoretical	Formation mechanisms of cardiac circulatory system disorders Atherosclerosis (Hypercholesterolemia) Myocardial infarction and plasma enzymes, marker proteins Thromboembolism markers
7	Theoretical	Kidney structure and function Water, Na, K, Ca, Pi, Mg homeostasis disorders. Renal function tests, Electrolyte, citrate, oxalate analysis
8	Intermediate Exam	Molecular Mechanisms of Disease Midterm
9	Theoretical	Gastrointestinal system, molecular mechanism of liver diseases Liver function tests, plasma proteins Hepatitis, Cirrhosis, Cholelithiasis
10	Theoretical	Molecular mechanisms of carbohydrate metabolism diseases and laboratory analysis Diabetes Mellitus, Hypoglycemia, Ketone bodies and carbohydrate metabolism laboratory tests
11	Theoretical	Molecular mechanisms of aging and degenerative diseases
12	Theoretical	Molecular mechanism of connective tissue diseases and its molecular markers
13	Theoretical	Molecular basis of metabolic diseases, screening and determination in laboratory
14	Theoretical	Molecular basis of genetic diseases, screening and determination in laboratory
15	Theoretical	Diseases of membrane organelles and cell skeleton, Plasma membrane diseases, Mitochondrial diseases, Lysosomal diseases, muscular dystrophies
16	Final Exam	Molecular Mechanism of Disease Final Exam



Workload Calculation

Activity	Quantity	Preparation	Duration	Total Workload
Lecture - Theory	14	4	2	84
Midterm Examination	1	18	2	20
Final Examination	1	20	1	21
Total Workload (Hours)				125
[Total Workload (Hours) / 25*] = ECTS				5
*25 hour workload is accepted as 1 ECTS				

Learning Outcomes

1	To have knowledge of basic theoretical metabolism related to metabolism and to help understanding biochemistry
2	To have basic theoretical knowledge about cellular metabolism
3	To be able to critically analyze a bundle of information about cellular metabolism
4	To be able to interpret the problems related to metabolism on various models
5	To be able to present research findings related to metabolism to both academic and non-academic communities effectively

Programme Outcomes (Biochemistry (Medical) Doctorate)

1	To have basic theoretical knowledge about biochemistry and to help understanding biochemistry
2	To have the basic laboratory knowledge, apparatus and methods used in biochemistry
3	Analysis: To be able to analyze information critically
4	Synthesis: To be able to synthesize and adapt the knowledge in the field from different directions
5	Evaluation: To critically evaluate research in the field

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	5
P2	5	5	4	5	4
P3	4	5	5	4	5
P4	5	4	5	5	5
P5	5	5	5	4	5

