



AYDIN ADNAN MENDERES UNIVERSITY COURSE INFORMATION FORM

Course Title		Biochemistry of Neurodegenerative Disorders							
Course Code		BYK624		Course Level		Third Cycle (Doctorate Degree)			
ECTS Credit	3	Workload	75 (Hours)	Theory	2	Practice	0	Laboratory	0
Objectives of the Course		The aim of this course is to investigate the metabolic roles of neurotransmitters formed by decarboxylation of important amino acids and molecular level of neurons, to give detailed information about neuron biochemistry, to discuss the development of the nervous system and its connections with neurodegenerative diseases.							
Course Content		Mechanisms and pathogenesis of degenerative diseases of central and peripheral nervous. (Parkinson's Disease (PD), Alzheimer's Disease (AD), Gaucher's disease, Amyotrophic lateral sclerosis, Multiple Sclerosis, etc.) Neuronal cell death, aggregation, and mitochondrial pathology, epidemiological studies, genetic studies, neurobiomarkers, gene therapy. Relationship between neurodegenerative diseases and environmental toxic substances and aging.							
Work Placement		N/A							
Planned Learning Activities and Teaching Methods				Explanation (Presentation), Discussion					
Name of Lecturer(s)									

Assessment Methods and Criteria

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

Recommended or Required Reading

1	Intracellular Traffic and Neurodegenerative Disorders: Peter H. St. George-Hyslop
2	Oliver von Bohlen und Halbach and Rolf Dermietzel, Neurotransmitters and Neuromodulators, Wiley-Blackwell (2006).
3	Neurodegenerative Diseases: Unifying Principles, Jagan A Pillai

Week	Weekly Detailed Course Contents	
1	Theoretical	Overview of amino acid metabolism
2	Theoretical	Decarboxylation reactions of amino acids
3	Theoretical	Neurotransmitters
4	Theoretical	Acetylcholine and dopamine
5	Theoretical	Gamma-amino butyric acid
6	Theoretical	Glutamate and aspartate
7	Theoretical	Glycine and histamine
8	Intermediate Exam	Biochemistry of Neurodegenerative Disorders Midterm Exam
9	Theoretical	Norepinephrine and serotonin
10	Theoretical	Introduction to neurobiochemistry and structural properties of nerve cells
11	Theoretical	Neuron biochemistry: Structure and functions of neurons
12	Theoretical	Neuron-glia cells
13	Theoretical	Neuropeptides and Receptors
14	Theoretical	Ion channels and structures
15	Theoretical	Neurodegenerative diseases
16	Final Exam	Biochemistry of Neurodegenerative Disorders Final Exam

Workload Calculation

Activity	Quantity	Preparation	Duration	Total Workload
Lecture - Theory	14	1	2	42
Midterm Examination	1	14	2	16



Final Examination	1	15	2	17
Total Workload (Hours)				75
[Total Workload (Hours) / 25*] = ECTS				3
*25 hour workload is accepted as 1 ECTS				

Learning Outcomes

1	Interpret the reactions of neurotransmitters
2	To be able to comprehend information about nerve cells and nerve conduction
3	Interpret neuron biochemistry and its relationship with diseases
4	Obtaining information about neurodegenerative diseases and their formation mechanisms
5	Literature review and interpretation of recent developments

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

