AYDIN ADNAN MENDERES UNIVERSITY
COURSE INFORMATION FORM

Course Title	Biomarkers						
Course Code	BYK628		Couse Level	Third Cycle (Doctorate Degree)			
ECTS Credit	5	Workload	125 *(Hours)*	Theory	3	Practice	0	Laboratory	0
Objectives of the Course	The Basic Purpose of this course is learning types of biomarkers.						
Course Content	Definition and classification of biomarkers, biomarkers associated with physiological and pathological conditions, the detection methods of biomarkers in body fluids and tissues, Role of proteomics in biomarker determination studies.						
Work Placement	N/A						
Planned Learning Activities and Teaching Methods			Explanation (Presentation), Discussion, Case Study, Project Based 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	Basic Pathology, Robbins and Cortran. (2008).
2	Ackerman Pathology, Rosai, (2009), Surgical Pathology

Week	Weekly Detailed Course Contents	
1	Theoretical	What is the histochemistry
2	Theoretical	The mechanisms of immunhistochemistry
3	Theoretical	Histochemical markers which are basically used
4	Theoretical	İmmunhistochemical markers which are basically used.
5	Theoretical	Molecular markers
6	Theoretical	Basic molecular pathology
7	Theoretical	Biomarkers heterogeneity: what to measure depends on the stability of the sample, resolution of method and preparation of the sample.
8	Intermediate Exam	Biomarkers Midterm Exam
9	Theoretical	Understanding the underlying principles of antibody-based analyses
10	Theoretical	Understanding the underlying principles of nucleic acid-based techniques
11	Theoretical	Understanding the underlying principles of mass-spectrometry analyses
12	Theoretical	Critical selection of Method
13	Theoretical	Critical view on reference range
14	Theoretical	Novel biomarkers
15	Theoretical	Therapy biomarkers
16	Final Exam	Biomarkers 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	19	2	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 about the basic mechanisms of histochemistry and immunohistochemistry

2	Learning the basic immunohistochemical and molecular markers
3	To learn how platform analyses of selected biomarkers are dependent on proper choice of method and proper sample preparation
4	To learn underlying principles in quantification of biomarkers in central techniques designed on subcellular fractions
5	To have knowledge about novel biomarkers and the biomarkers currently in use

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