



## AYDIN ADNAN MENDERES UNIVERSITY COURSE INFORMATION FORM

Course Title		Biological Membranes and Transport Systems							
Course Code		VBY526		Course Level		Second Cycle (Master's Degree)			
ECTS Credit	4	Workload	103 ( <i>Hours</i> )	Theory	2	Practice	0	Laboratory	0
Objectives of the Course		The aim of course is to explain the structure and function of biological membranes.							
Course Content		General properties of biological membranes, membrane structure, membrane lipids, membrane proteins, glycolipids, glycoproteins and lipoproteins, membrane permeability and liposomes, membrane asymmetry, membrane transport, , structure of bacterial membranes, synthesis and membrane localization of membrane proteins, membrane lipid synthesis and membrane localization, oncogenes and membranes, membrane working techniques							
Work Placement		N/A							
Planned Learning Activities and Teaching Methods				Explanation (Presentation), Individual Study					
Name of Lecturer(s)		Prof. Pınar Alkım ULUTAŞ							

### Assessment Methods and Criteria

Method	Quantity	Percentage (%)
Final Examination	1	100

### Recommended or Required Reading

1	Nelson D.L., Cox M.M (2005) Lehninger Biyokimyanın İlkeleri. Çeviri Editörü: Nedret Kılıç. Palme Yayıncılık. ANKARA.
2	Yeagle P.Y The Structure of Biological Membranes . C.R.C Pres. U.S.A

Week	Weekly Detailed Course Contents	
1	Theoretical	Overview of biological membranes
2	Theoretical	General properties of biological membranes
3	Theoretical	The membrane structure
4	Theoretical	Membrane lipids
5	Theoretical	Membrane proteins
6	Theoretical	Glycolipids, glycoproteins and lipoproteins
7	Theoretical	The importance of naturally occurring peptides
8	Theoretical	Midterm exam
9	Theoretical	Membrane permeability and liposomes
10	Theoretical	Ionophores
11	Theoretical	Membrane asymmetry and membrane transport
12	Theoretical	The structure of bacterial membranes
13	Theoretical	Biosynthesis and localization of membrane proteins and membrane lipids
14	Theoretical	Oncogenes, membranes and working techniques of membranes

### Workload Calculation

Activity	Quantity	Preparation	Duration	Total Workload
Lecture - Theory	14	3	2	70
Assignment	2	2	1	6
Reading	3	1	0	3
Quiz	2	4	0.5	9
Midterm Examination	1	4	1	5
Final Examination	1	9	1	10
Total Workload (Hours)				103
[Total Workload (Hours) / 25*] = ECTS				4
*25 hour workload is accepted as 1 ECTS				

### Learning Outcomes

1	To be able to comprehend the general properties of biological membranes
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2	To be able to explain the structure of the membrane.
3	To be able to comprehend permeability of the membrane, membrane asymmetry and membrane transport.
4	To be able to explain the biosynthesis of membrane proteins.
5	To be able to explain membrane working techniques.

**Programme Outcomes (Biochemistry (Veterinary Medicine) Master)**

1	To be able to tell and describe the interdisciplinary interaction with the associated fields.
2	To be able to express original ideas using his/her higher education knowledge theoretically and practically information and to be able to creat original definations,products,methods improving and questioning these ideas.
3	To be able to manage a free research according to scientific and metodological methods and be able to hypothetically and practically about his/her own field.
4	To be able to compose and interpret the information from different disciplines, and create solution suggestions and scientific information which can contribute to the solution process.
5	To be able to involves in professional organizations and institutions related with the educational background.
6	To be able to take responsibility for individual and group work, and do the assignments in line with the skills.
7	To be able to communicate with the professionals out of the field when it is necessary, and contribute to the solution as a team member.
8	To be able to tell about the production and publishing methods of scientific information.
9	To be able to design the source and the type of information that is needed related with the field and chooses the activities that s/he wants to participate, by using his/her critical thinking abilities that is developed in the education.
10	To be able to use technological devices both for professional and social purposes.
11	To be able to compose and interpret any kind of data related with the field (field observations, produced scientific information etc.) and analyzes and interprets the results according to the aims of the research.
12	To be able to define the environmental health rules and apply them for prevention.
13	To be able to apply the knowledge gained in professional level with the awareness of the needs of the region and the country, and develop a defense capability.
14	To be able to conceptualize the phenomena and the events related with the field; study scientific methods and techniques, interpret results; analyze and hypothesize methods in accordance with the results and design solution or treatment alternatives addressing the problems.
15	To be able to interpret the updates of information in the field by using all kinds of sources (scientific information, legislations etc.), and use when needed.

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

	L1	L2	L3	L4	L5
P2	5	5	5	5	5
P4				5	5
P9				5	5
P13	5	5	5	5	5

