



## AYDIN ADNAN MENDERES UNIVERSITY COURSE INFORMATION FORM

Course Title		Biochemistry of Carbohydrates							
Course Code		VBY501		Course Level		Second Cycle (Master's Degree)			
ECTS Credit	5	Workload	126 ( <i>Hours</i> )	Theory	2	Practice	0	Laboratory	0
Objectives of the Course		giving basic information about biochemistry of carbohydrates							
Course Content		Classification of carbohydrates, stereoisomerism, mutarotasyon, formulas of monosaccarits configuration, carbonhydrate derivatives, disaccarides, polisacarides, substances of blood groups, glucoseaminoglicans, synthesis of carbonhydrates, degradation of carbonhydrates							
Work Placement		N/A							
Planned Learning Activities and Teaching Methods				Explanation (Presentation), Discussion					
Name of Lecturer(s)		Prof. Ayşegül BİLDİK, Prof. Funda KIRAL							

### Assessment Methods and Criteria

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

### Recommended or Required Reading

1	Kaya, N. (1993) Biyokimya, Atatürk Üniversitesi, Erzurum.
2	Murray, R.K. (1993) Harper's Biochemistry, Appleton and Lange, Norwalk
3	Onat, T., Emerk, K. (1997) Biyokimya, Saray, İzmir.
4	Sittman, D. (2000) Biyokimya, çev. Güner G., Nobel, İstanbul.
5	Nihat BAYŞU, Nalan Bayşu SÖZBİLİR.(2008) Biyokimya Güneş Tıp kitabevleri, 2008....

Week	Weekly Detailed Course Contents	
1	Theoretical	Overview of carbohydrates (definition, significance, structure and classification)
2	Theoretical	Definition and classification of monosaccharide, open and closed formulas, the configuration formulas, ring formulas)
3	Theoretical	Optical isomerism at monosaccharides, Monosaccharide's reduction, features of their OH groups
4	Theoretical	Biologically important sugar derivatives
5	Theoretical	Description, classification, formulas of disaccharides and their properties.
6	Theoretical	definition, classification, types, characteristics of polysaccharides and their importance.
7	Theoretical	Digestion and absorption of carbohydrates, blood sugar, hormonal regulation of blood sugar
8	Theoretical	Mechanisms of hepatic providing glucose into the bloodstream: glikoneogenesis Glikogenolizis, conversion of some monosaccharide to glucose .
9	Intermediate Exam	Midterm exam
10	Theoretical	Hepatic Mechanisms that reduce the blood glucose: Glycogenesis, conversion of glucose into fatty acids, amino acids and other carbohydrates
11	Theoretical	Oxidation of glucose for energy.
12	Theoretical	The pentose phosphate pathway
13	Theoretical	Uronic acid gateway, metabolism of some hexoses
14	Theoretical	Citric acid cycle
16	Final Exam	Final exam

### Workload Calculation

Activity	Quantity	Preparation	Duration	Total Workload
Lecture - Theory	15	3	2	75
Reading	1	15	1	16
Midterm Examination	1	14	1	15



Final Examination	1	19	1	20
Total Workload (Hours)				126
[Total Workload (Hours) / 25*] = ECTS				5
*25 hour workload is accepted as 1 ECTS				

### Learning Outcomes

1	To be able to respond these questions: What is a Carbohydrate? What is its importance in organism?
2	To be able to explain the structure and classification of carbohydrates
3	To be able to comprehend knowledge about monosaccharides, disaccharide, polysaccharides
4	To be able to comprehend how the digestion and absorption of carbohydrates occur.
5	To be able to explain glycolysis, gluconeogenesis, pentose phosphate pathway, glikojenez and glycogenolysis, and metabolism of important hexoses and of uric acid pathway and citric acid cycle
6	To be able to comprehend the structure and function of glycoproteins and glycolipids.

### Programme Outcomes (Biochemistry (Veterinary Medicine) Master's Without Thesis)

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 create original definitions, products, methods improving and questioning these ideas.
3	To be able to manage a free research according to scientific and methodological 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 involve 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	L6
P2	3	3	3	3	3	3
P4				3	3	3
P9				3	3	
P14	3	3	3	3	3	3

