



AYDIN ADNAN MENDERES UNIVERSITY COURSE INFORMATION FORM

Course Title		Immunocytochemistry							
Course Code		VHE634		Couse Level		Third Cycle (Doctorate Degree)			
ECTS Credit	5	Workload	125 (<i>Hours</i>)	Theory	2	Practice	2	Laboratory	0
Objectives of the Course		To teach needed the information for immunocytochemistry							
Course Content		Antigens, immunoglobulins, polyclonal and monoclonal antibody, preparation of material and keeping, fixation, embedding and other procedure, enzyme conjugates, immunoenzyme staining techniques (direct methods and indirect methods), fluorescence conjugates, immunofluoresan staining techniques, control sections and bacground staining.							
Work Placement		N/A							
Planned Learning Activities and Teaching Methods				Explanation (Presentation), Demonstration, Discussion, Individual Study					
Name of Lecturer(s)		Lec. Özay GÜLEŞ, Prof. Mustafa SANDIKÇI							

Assessment Methods and Criteria

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

Recommended or Required Reading

1	Alberts B, Bray D, Lewis J, Raff M, Roberts K, Watson JD. (1989) Molecular Biology of the Cell, Garland Publishing, Inc. London.
2	Artan E. (1988) Histoloji, İstanbul
3	Banks WJ. (1986) Applied Veterinary Histology, Williams & Wilkins, USA.
4	Dellman HD, Brown LM. (1987) Textbook of Veterinary Histology, Lea & Febiger, USA.
5	Gartner LP, Hiatt JL. (1997) Color Textbook of Histology, W.B. Saunders Company, USA.
6	Junqueira LC, Carneiro J. (1983) Basic Histology, The McGraw-Hill Companies, USA
7	Leeson RR, Leeson TS, Paparo AA. (1985) Textbook of Histology, W.B. Saunders Company. USA
8	Ross MH, Reith EJ, Romrell LJ. (1989) Histology. A Text and Atlas, Williams & Wilkins, London
9	Sağlam M, Aştı RN, Özer A. (2001) Genel Histoloji Ders Kitabı, Yorum Matbaacılık, Ankara

Week	Weekly Detailed Course Contents	
1	Theoretical	Antigens
	Practice	Antikor titres ve dilüsyonların hazırlanması
2	Theoretical	Antigens
	Practice	Antibody titer and preparation of dilutions
3	Theoretical	Immunoglobulins
	Practice	Preparation and storage of solutions
4	Theoretical	Immunoglobulins
	Practice	Preparation and storage of solutions
5	Theoretical	Polyclonal and monoclonal antibody
	Practice	Preparation of a suitable medium for staining
6	Theoretical	Preparation of material and keeping, fixation
	Practice	Preparation of a suitable medium for staining
7	Theoretical	Embedding and other procedure
	Practice	Preparation of a suitable medium for staining
8	Intermediate Exam	Midterm
9	Theoretical	Enzyme conjugates, immunoenzyme staining techniques (direct methods and indirect methods)
	Practice	Direct staining method
10	Theoretical	Enzyme conjugates, immunoenzyme staining techniques (direct methods and indirect methods)
	Practice	Applications of complex methods of enzyme-antienzyme
11	Theoretical	Enzyme conjugates, immunoenzyme staining techniques (direct methods and indirect methods)
	Practice	PAP(Peroxidase-antiperoxidase) staining



12	Theoretical	Fluorescence conjugates, immunofluoresan staining tecniques
	Practice	APAAP stainig
13	Theoretical	Fluorescence conjugates, immunofluoresan staining tecniques
	Practice	Applications of methods Avidin-Biotin
14	Theoretical	Control sections and bacground staining.
	Practice	Stainig of immunofluoresan
15	Theoretical	Control sections and bacground staining.
	Practice	Stainig of immunofluoresan
16	Final Exam	Final Exam

Workload Calculation

Activity	Quantity	Preparation	Duration	Total Workload
Lecture - Theory	14	0	2	28
Lecture - Practice	14	0	2	28
Assignment	2	0	5	10
Midterm Examination	1	19	1	20
Final Examination	1	38	1	39
Total Workload (Hours)				125
[Total Workload (Hours) / 25*] = ECTS				5

*25 hour workload is accepted as 1 ECTS

Learning Outcomes

1	To be knowledgeable about antigens
2	To be knowledgeable about immunoglobilins
3	To be knowledgeable about antibody of polyclonal and monoclonal
4	Staining methods and staining problems encountered immunocytochemistry and solving these problems
5	To provide solutions to problems

Programme Outcomes (Histology and Embryology (Veterinary Medicine) Doctorate)

1	Gains expert knowledge on the function and basic histological features of cells, tissues and systems in animals.
2	Gains expert knowledge on the stages of embryonal and fetal development in both mammals and birds.
3	Based on his/her training during the Master of Science program, he/she has in depth knowledge in the field of histology/embryology as well as in areas related to his/her area of expertise.
4	Using basic knowledge gained during the undergraduate and master of science program, develops ,critically evaluates and tests novel ideas in his/her area of expertise.
5	Endowed with theoretical and practical knowledge as for the scientific research and methodology to be able to conduct an independent research project.
6	Has theoretical knowledge concerning skills (leadership, entrepreneurship, ability to reach information technologies, organization, industrial correspondence etc.). Knows laws and regulations concerning his/her area of expertise and related subjects.
7	Determines and uses laboratory equipment and consumables in a histology laboratory. Has the ability to solve problems in his/her area of expertise.
8	Has the ability to design and develop scientific methodology concerning new developments in his/her area of expertise. Has the ability to put established methods in use to tackle current problems in his/her area of expertise.
9	Designs and conducts an independent research project on his/her own.
10	Critically evaluates and reaches to a synthesis of new ideas in his/her area of expertise and related fields.
11	Uses and develops modern technologies in his/her area of expertise towards the industry in a systematic and critical manner.
12	Performs his/her expertise with the recognition of the rights and responsibilities obtained with the completion of doctorate program in histology/embryology.
13	Is able to break down new and immature ideas into simple components and suggest alternative solutions by using his/her ability to recognize possible relationships among these components.
14	If the need arises, designs an interdisciplinary research project , forms a team, leads and finalizes the research project to solve an old or a new problem in the field of histology/embryology.
15	Attends to activities such as congresses, panels, symposiums, workshops, seminars, journal clubs in his/her area of expertise, shares information in his/her area of expertise and contributes to the solution of a problem by interacting with experts in other fields.
16	Expands a growing body of information in his/her area of expertise by publishing scientific articles in national and international journals.



17	Is in recognition of taking professional and ethical responsibilities.
18	Develop new ideas and methods that has the potential to ignite social and cultural progress or add values to the information society by using practical and theoretical knowledge gained throughout his/her training and his/her skill to work independently and to take responsibilities.
19	Makes the concept of life-long learning a matter of principle and recognizes the fact that evidence-based information is the most important gain of education.
20	Provides information and manages information exchanges on issues of public and animal health in committees with the aim of defining and solving a problem using his/her expertise.

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

	L1	L2	L3	L4
P4	4	4	4	4
P7	4	4	4	4
P14	3	3	3	3

