AYDIN ADNAN MENDERES UNIVERSITY
COURSE INFORMATION FORM

Course Title		Advanced Laboratory Techniques Used in Food Microbiology							
Course Code		VBH622		Couse Level		Third Cycle (Doctorate Degree)			
ECTS Credit	6	Workload	150 *(Hours)*	Theory	1	Practice	2	Laboratory	0
Objectives of the Course		The aim of this lecture is to give detailed information about advanced laboratory applications used in food microbiology.							
Course Content		ELISA (Enzyme Linked Immunosorbent Assay). RIA (Radio Immun Assay). CFT (Complement Fixation). Hemaglutination, hemaglutination inhibition, immunodiffusion (agar-gel precipitation, immunoelectrophoresis, zone electrophoresis), immunohistochemical methods (direkt and indirekt immunfleurosans), molecular techniques,PCR, Real Time and Multiplex PCR, DNA hybridisation, . Immunofleurosans. pulsed field gel electrophoresis (PFGE), Restriction Fragment Lenght Polymorphism (RFLP)							
Work Placement		N/A							
Planned Learning Activities and Teaching Methods				Explanation (Presentation), Experiment, Demonstration, 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	Koneman's Color Atlas and Textbook of Diagnostic Microbiology
2	Bergey's manual of systematic bacteriology
3	Handbook of Vertebrate Immunology
4	Veterinary Laboratory Medicine
5	The ELISA Guidebook
6	Temel Mikrobiyoloji
7	İmmunoloji
8	Compendium for foods

Week	Weekly Detailed Course Contents	
1	Theoretical	ELISA Test
	Practice	ELISA Test
2	Theoretical	RIA
	Practice	RIA
3	Theoretical	CF
	Practice	Practice on CF
4	Theoretical	Hemaglutination
	Practice	Practice on hemaglutination.
5	Theoretical	Hemaglutination inhibition test
	Practice	Practice on Hemaglutination inhibition test
6	Theoretical	Agar-gel precipitation
	Practice	Practice on Agar-gel precipitation
7	Theoretical	Immunoelectrophoresis
	Practice	Practice on immunoelectrophoresi
8	Intermediate Exam	Midterm exam
9	Theoretical	Immunofluorescence
	Practice	Practice on immunofluorescence.
10	Theoretical	Direct and indirect immunofluorescence
	Practice	Practice on direct and indirect immunfleurosans

11	Theoretical	Molecular techniques
	Practice	Practice on molecular techniques
12	Theoretical	Examination of toxins in foods
	Practice	Practice on toxins in foods
13	Theoretical	Pulsed field gel electrophoresis (PFGE)
	Practice	Practice on Pulsed field gel electrophoresis (PFGE)
14	Theoretical	Restriction Fragment Lenght Polymorphism (RFLP)
	Practice	Practice on - Restriction Fragment Lenght Polymorphism (RFLP)
15	Theoretical	Discussion
	Practice	Discussion

Workload Calculation

Activity	Quantity	Preparation	Duration	Total Workload
Lecture - Theory	14	0	1	14
Lecture - Practice	14	0	2	28
Assignment	7	0	2	14
Reading	14	0	1	14
Midterm Examination	1	30	1	31
Final Examination	1	48	1	49
			Total Workload (Hours)	150
			[Total Workload (Hours) / 25*] = **ECTS**	6

**25 hour workload is accepted as 1 ECTS*

Learning Outcomes

1	To gain sufficient knowledge about advanced laboratory techniques
2	To have sufficient knowledge related with ELISA (Enzyme Linked Immunosorbent Assay). RIA (Radio Immun Assay), CFT (Complement Fixation) molecular techniques.
3	To know detailed knowledge about Hemaglutination, hemaglutination inhibition, immunodiffusion (agar-gel precipitation, immunoelectrophoresis, zone electrophoresis), pulsed field gel electrophoresis (PFGE), Restriction Fragment Lenght Polymorphism (RFLP)
4	To have sufficient information related with immunohistochemical methods (direct and indirect immunofluorescence), immunofluorescence.
5	To gain the ability to use the basic knowledge related with advanced molecular applications in food science.

Programme Outcomes *(Food Hygiene and Technology (Veterinary Medicine) Doctorate)*

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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	5	5	5	5	5
P3	5	5	5	5	5
P4	5	5	5	4	5
P6	5	5	5	5	5

P9	4	5	5	5	5
P10	5	5	5	5	5
P13	5	5	5	5	5