



## AYDIN ADNAN MENDERES UNIVERSITY COURSE INFORMATION FORM

Course Title		Mycotoxins and Analysis							
Course Code		VFT504		Couse Level		Second Cycle (Master's Degree)			
ECTS Credit	4	Workload	99 (Hours)	Theory	1	Practice	2	Laboratory	0
Objectives of the Course		To teach causes of mycotoxins in animal feeds, health risks to humans and animals, control of mycotoxins and their methods of analysis.							
Course Content		Mycotoxins, factors capable of forming mycotoxin contamination in feeds and feedstuffs, the effects of mycotoxicosis to human and animals, tolerance levels of the mycotoxins permitted in the foods and foodstuffs and their analytical procedures are examined.							
Work Placement		N/A							
Planned Learning Activities and Teaching Methods				Explanation (Presentation), Experiment, Demonstration, Discussion, Individual Study, Problem Solving					
Name of Lecturer(s)		Prof. Ferda AKAR, Prof. Selim SEKKİN							

### Assessment Methods and Criteria

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

### Recommended or Required Reading

1	Hayes, WA (2007) Principles and Methods of Toxicology, 5th Edition, Taylor and Francis, London.
2	Klaassen, C. (2008) Casarett & Doull's Toxicology: The Basic Science of Poisons, 7th Edition, McGraw-Hill Companies, USA.
3	Hodgson, E (2010) A textbook of modern toxicology, 4 th Edition, John Wiley and Sons, Inc., Hoboken, Canada.

Week	Weekly Detailed Course Contents	
1	Practice	Presentation of toxicology laboratory.
2	Theoretical	Factors affecting the synthesis of the mycotoxin
	Practice	The introduction of instruments and equipments (spectrophotometer, centrifuge with cooler, rotary evaporator, water distiller, incubator, balance, water bath etc.) in the laboratory of toxicology, chromatographic systems and analysis in toxicology (TLC, HPLC)-I
3	Theoretical	Mechanism of action and classification
	Practice	The introduction of instruments and equipments (spectrophotometer, centrifuge with cooler, rotary evaporator, water distiller, incubator, balance, water bath etc.) in the laboratory of toxicology, chromatographic systems and analysis in toxicology (TLC, HPLC)-II
4	Theoretical	Mycotoxin poison types and residues
	Practice	Sampling and laboratory transport of mycotoxins contaminated food, report preparation.
5	Theoretical	Aspergillus toxins-I
	Practice	Analysis methods of mycotoxins
6	Theoretical	Aspergillus toxins-II
	Practice	Extraction processes-I
7	Practice	Extraction processes-II
	Intermediate Exam	Midterm exam
8	Theoretical	Penicillium toxins-I
	Practice	Chromatographic analysis and methods of mycotoxins
9	Theoretical	Penicillium toxins-II
	Practice	Thin layer chromatography with the sample analysis (TLC)-I
10	Theoretical	Fusarium toxins -I
	Practice	Thin layer chromatography with the sample analysis (TLC)-II
11	Theoretical	Fusarium toxins-II
	Practice	High performance liquid chromatography with the sample analysis-I
12	Theoretical	The other mycotoxins
	Practice	High performance liquid chromatography with the sample analysis-II
13	Theoretical	Mycotoxin prevention and control in food-I



13	Practice	ELISA with the sample analysis-I
14	Theoretical	Mycotoxin prevention and control in food-II
	Practice	ELISA with the sample analysis-II
15	Theoretical	Discussion
	Practice	Generally assessment
16	Final Exam	Final

**Workload Calculation**

Activity	Quantity	Preparation	Duration	Total Workload
Lecture - Theory	14	2	1	42
Lecture - Practice	15	1	2	45
Midterm Examination	1	8	1	9
Final Examination	1	2	1	3
Total Workload (Hours)				99
[Total Workload (Hours) / 25*] = ECTS				4

\*25 hour workload is accepted as 1 ECTS

**Learning Outcomes**

1	To learn mycotoxins in feeds/feed additives are important for human and animal health
2	To learn the investigation – examination of mycotoxins, to get the specimens and send to laboratory, diagnose and therapy of mycotoxins toxicity.
3	To learn the specifications, causes, symptoms, diagnose and therapy options of mycotoxins.
4	To learn the food contaminations and food residues and its importance for animals and humans.
5	To learn analysis methods of mycotoxins.

**Programme Outcomes (Veterinary Pharmacology and Toxicology Master's Without Thesis)**

1	to be able to comprehend expert knowledge on field of pharmacology and toxicology in veterinary medicine
2	to be able to define expert knowledge on interdisciplinary interaction in pharmacology and toxicology
3	to be able to formulate ideas to solve complex problems using theoretical and practical information gained throughout the pharmacology and toxicology education
4	to be able to integrate and interpret information in the area of pharmacology and toxicology with information in different fields and, if the need arises, provides scientific information and solutions to solve problems.
5	to be able to develop and use strategies in his/her field of expertise in Master's Program of Pharmacology and Toxicology
6	to be able to comprehend methods of obtained and submitted scientific knowledge
7	to be able to analyse current information related to his/her field of expertise (scientific information, procedures etc.) and use them when necessary.
8	to be able to apply technological tools in social relationships of vocational and professional environment
9	to be able to review, evaluate and interpret any data (field observations, available scientific information etc.) towards a specific purpose.
10	to be able to comprehend expert knowledge on the function and basic pharmacological features of pharmacology and sub-branches of science, relationship between the drug and poison, pharmacokinetic, effects of the drugs, the dose-intensity and dose-effect relationship.
11	to be able to identify expert knowledge on the function and basic toxicological features of poison, classifications and types of poisoning, toxicokinetic, general principles of treatment of poisoning
12	to be able to define and use laboratory equipment in a pharmacology and toxicology laboratory.

**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	1	5	5	5	4
P2	4		4		
P3				5	
P5	4	5	4	5	4
P8	4	5	4	5	4
P10			5		
P11	5	5			
P12					5

