# AYDIN ADNAN MENDERES UNIVERSITY
# COURSE INFORMATION FORM

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|---|---|---|---|---|---|---|---|---|---|
| Course Title | Mycotoxins and Analysis | | | | | | | | |
| Course Code | VFT607 | | Couse Level | | Third Cycle (Doctorate Degree) | | | | |
| ECTS Credit | 6 | Workload | 151 *(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. Selim SEKKİN | | | | | | | | |

| Assessment Methods and Criteria | | |
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| Method | Quantity | Percentage (%) |
| Midterm Examination | 1 | 40 |
| Final Examination | 1 | 60 |

| Recommended or Required Reading | |
|---|---|
| 1 | Hayes, WA (2007) Prenciples 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 | Penisilium toxins-I |
| | Practice | Chromatographic analysis and methods of mycotoxins |
| 9 | Theoretical | Penisilium 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)-I |
| 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 |

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|---|---|---|
| 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 | 14 | 2 | 2 | 56 |
| Assignment | 5 | 2 | 1 | 15 |
| Individual Work | 7 | 2 | 1 | 21 |
| Midterm Examination | 1 | 5 | 1 | 6 |
| Final Examination | 1 | 10 | 1 | 11 |
| | | | Total Workload (Hours) | 151 |
| | | | [Total Workload (Hours) / 25*] = **ECTS** | 6 |

**25 hour workload is accepted as 1 ECTS*

**Learning Outcomes**

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|---|---|
| 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** *(Pharmacology and Toxicology (Veterinary Medicine) Doctorate)*

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|---|---|
| 1 | Gains expert knowledge on field of pharmacology and toxicology in veterinary medicine and, gains expert knowledge on interdisciplinary interaction in pharmacology and toxicology |
| 2 | To be equipped with the knowledge to develop original ideas about necessary issues in the field by using of both graduate and expertise levels knowledge, to be able to develop original definitions, products and diagnostic procedures, etc. via deepening and questioning these knowledge. |
| 3 | Develops and uses strategies in his/her field of expertise in PhD Program of Pharmacology and Toxicology |
| 4 | Reviews, evaluates and interprets any data (field observations, available scientific information etc.) towards a specific purpose. |
| 5 | Gains 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. |
| 6 | Gains expert knowledge on the function and basic toxicological features of poison, classifications and types of poisoning, toxicokinetic, general principles of treatment of poisoning. |
| 7 | Can offer training to technical staff who will work in pharmacology and toxicology laboratory |
| 8 | Reach to competence to prepare courses at the undergraduate level |
| 9 | Determines and uses laboratory equipment and consumables in a pharmacology and toxicology laboratory. |
| 10 | To be able to plan an interdisciplinary project and build team for the known or new defined problems and to manage and complete such a project when necessary. |
| 11 | To share his/her knowledge in the field with others by attending at field-related or other congresses, panels, symposiums, workshops, seminars, article discussions and problem solving sessions, etc., and to contribute to the solution in the team by establishing relations with the experts in different fields. |
| 12 | To contribute the scientific knowledge in the field via publications in national and international peer-reviewed scientific journals. |
| 13 | Takes roles in vocational organizations and institution. |
| 14 | Forms ideas to solve complex problems using theoretical and practical information gained throughout the pharmacology and toxicology education. |
| 15 | To adopt lifelong learning as a principle and acknowledge that the information gained through research is the most valuable gain. |
| 16 | Knows and protects rights of ideas and industrial property (patent right) |

**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 | 4 | 5 | 4 | 4 |
| P2 | 4 | 5 | 4 | 5 | 5 |
| P3 | 3 | 3 | 5 | 5 | 4 |
| P4 | 4 | 4 | 4 | 4 | 4 |
| P6 | 4 | 4 | 4 | 4 | 3 |
| P7 | 5 | 5 | 5 | 3 | 4 |
| P8 | 5 | 4 | 5 | 5 | 5 |
| P9 | 4 | 3 | 4 | 4 | 4 |
| P10 | 4 | 4 | 5 | 5 | 3 |
| P11 | 3 | 5 | 4 | 4 | 4 |
| P12 | 4 | 4 | 3 | 3 | 5 |
| P13 | 4 | 3 | 4 | 4 | 4 |
| P14 | 5 | 4 | 5 | 5 | 4 |
| P15 | 5 | 5 | 4 | 5 | 5 |
| P16 | 4 | 4 | 3 | 4 | 3 |