



## AYDIN ADNAN MENDERES UNIVERSITY COURSE INFORMATION FORM

|                                                  |   |                                                                                                                                                                                                      |                      |                                                                                                      |   |                                |   |            |   |
|--------------------------------------------------|---|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|------------------------------------------------------------------------------------------------------|---|--------------------------------|---|------------|---|
| Course Title                                     |   | Use of Drugs in Aquaculture and Their Applications                                                                                                                                                   |                      |                                                                                                      |   |                                |   |            |   |
| Course Code                                      |   | VFT667                                                                                                                                                                                               |                      | Course Level                                                                                         |   | Third Cycle (Doctorate Degree) |   |            |   |
| ECTS Credit                                      | 6 | Workload                                                                                                                                                                                             | 150 ( <i>Hours</i> ) | Theory                                                                                               | 1 | Practice                       | 2 | Laboratory | 0 |
| Objectives of the Course                         |   | To be informed about skills about drug use and applications in fishery products.                                                                                                                     |                      |                                                                                                      |   |                                |   |            |   |
| Course Content                                   |   | Introduction to aquaculture, drug application methods, mold, parasitic, bacterial, viral diseases and therapy, anesthetics, drug residues and their influence to human health subjects 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)                              |   |                                                                                                                                                                                                      |                      |                                                                                                      |   |                                |   |            |   |

### Assessment Methods and Criteria

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

### Recommended or Required Reading

|   |                                                                                                 |
|---|-------------------------------------------------------------------------------------------------|
| 1 | Principles and Methods of Toxicology, A. Wallace HAYES, Edward BROTHERS; Ann Arbor Press, 2001. |
| 2 | Modern Toxicology, Ernest HODGSON, Patricia E. LEVI; Elsevier, London, 1987.                    |

| Week | Weekly Detailed Course Contents |                                                   |
|------|---------------------------------|---------------------------------------------------|
| 1    | Theoretical                     | Introduction to fishery products                  |
|      | Practice                        | Introduction of aquatic products                  |
| 2    | Theoretical                     | Basic concepts in fishery products                |
|      | Practice                        | Examination of marine aquaculture                 |
| 3    | Theoretical                     | Methods of drug application fishery products      |
|      | Practice                        | Examination of marine aquaculture                 |
| 4    | Theoretical                     | Methods of drug application fishery products      |
|      | Practice                        | Examination of freshwater aquaculture             |
| 5    | Theoretical                     | Methods of drug application fishery products      |
|      | Practice                        | Examination of freshwater aquaculture             |
| 6    | Theoretical                     | The pharmacokinetics of drugs in aquaculture      |
|      | Practice                        | For analysis of blood taken from fish             |
| 7    | Theoretical                     | Article discussion                                |
|      | Practice                        | Fish in parenteral drug administration route      |
| 8    | Practice                        | Fish in parenteral drug administration route      |
|      | Intermediate Exam               | Midterm exam                                      |
| 9    | Theoretical                     | The pharmacokinetics of drugs in aquaculture      |
|      | Practice                        | Drug administration via the enteral route fish    |
| 10   | Theoretical                     | Permitted the use of drugs in aquaculture         |
|      | Practice                        | Drug administration via the enteral route fish    |
| 11   | Theoretical                     | Sweet-sea water products, differences in drug use |
|      | Practice                        | Residue analysis in aquaculture                   |
| 12   | Theoretical                     | Drugs and other residues in seafood               |
|      | Practice                        | Residue analysis in aquaculture                   |
| 13   | Theoretical                     | In fisheries regulations                          |
|      | Practice                        | Residue analysis in aquaculture                   |
| 14   | Theoretical                     | Homework (aquarium fish drug use)                 |
|      | Practice                        | Residue analysis in aquaculture                   |
| 15   | Theoretical                     | Article discussion                                |



|    |            |                    |
|----|------------|--------------------|
| 15 | Practice   | Paper presentation |
| 16 | Final Exam | FINAL              |

**Workload Calculation**

| Activity                                | Quantity | Preparation | Duration | Total Workload |
|-----------------------------------------|----------|-------------|----------|----------------|
| Lecture - Theory                        | 14       | 2           | 1        | 42             |
| Lecture - Practice                      | 15       | 3           | 2        | 75             |
| Assignment                              | 1        | 10          | 1        | 11             |
| Midterm Examination                     | 1        | 8           | 1        | 9              |
| Final Examination                       | 1        | 12          | 1        | 13             |
| Total Workload (Hours)                  |          |             |          | 150            |
| [Total Workload (Hours) / 25*] = ECTS   |          |             |          | 6              |
| *25 hour workload is accepted as 1 ECTS |          |             |          |                |

**Learning Outcomes**

|   |                                                                                                       |
|---|-------------------------------------------------------------------------------------------------------|
| 1 | Learn about drug use in aquaculture, basic concepts, methods of application.                          |
| 2 | Learn about drug residues in aquaculture, human and animal health effects, and the legal regulations. |
| 3 | To learn knowledge and propose suggestions on the area                                                |
| 4 | To find out and use resources about the profession in the area.                                       |
| 5 | To give lectures and/or presentations and discuss with professionals in the area.                     |

**Programme Outcomes (Pharmacology and Toxicology (Veterinary Medicine) Doctorate)**

|    |                                                                                                                                                                                                                                                                                                                       |
|----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 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 | 4  | 3  |    |    |    |
| P2 |    |    |    | 5  |    |
| P3 |    |    | 5  | 5  |    |
| P4 | 5  | 5  | 4  |    |    |
| P5 | 4  |    |    |    |    |
| P8 | 4  | 4  |    |    | 5  |



|     |   |   |   |   |   |
|-----|---|---|---|---|---|
| P9  | 5 | 4 |   |   |   |
| P11 |   |   | 5 |   | 5 |
| P12 |   |   |   | 4 |   |
| P13 |   | 5 |   |   |   |
| P14 |   |   | 5 |   | 5 |

