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| **COURSE IDENTIFICATION FORM** |
| **Course Code and Name:** SM-611 Fish Immunology and Terminology | **Department of :** |
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| **Semester** |

 | **Theoretic Hour** | **Practice Hour** | **Total Hour** | **Credits** | **ECTS** | **Education Language** | **Type: Compulsory Elective** |
| Fall | 3 | 0 | 3 | 3 | 6 | Turkish | Optional |
| **Prerequisite (s)** |  |
| **Instructor** | Prof. Dr. Azime KÜÇÜKGÜL | **Mail : akucukgul@munzur.edu.tr** **Web :** |
| **Course Assistant** |  | **Mail :****Web :** |
| **Groups / Classes** |  |  |
| **Course Aim** | The aim of the course is to enable immune system in fish, the general mechanisms of the immune system, a brief history of fish immunology, terminology and general concepts, mechanisms of protection against diseases in fish the students |
| **Course Goals** | * The immune system in fish, comparison of immune system in fish and other creatures, terms and concepts related these issues, specific and non-specific immune system, inflammation, natural barriers, immune system, cellular and humoral factors, phagocytosis, immune system, influencing factors, probiotics, immunostimulators
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| **Course Learning Outs and Proficiencie*s*** | * Will learn introduction to the immune system in fish, terminology and concepts.
* Will be able to learn the factors that affect the immune system
* Will be able to learn terms of phagocytosis, lysozyme, complement, C-reactive protein, transferrin, interferons
* Will be able to learn and apply the basic information about vaccination, probiotics, immunostimulants

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| **Course Basic and Auxiliary Contexts** | * Süheyla Karataş Steinum. Balık İmmünolojisi ve Aşılama. Ders NotlarıIwan Roitt, Jonattan Brostoff, David Male 1996. Immunology 4. EditionGeorge Iwama, Teruyuki Nakanishi, 1996. The Fish Immune System.Akın Candan, Süheyla Karataş Steinum 2010. Balık Sağlığı.
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| **Methods of Give a Lecture** | Lecture, The relevant notes from application, Question-answer, Discussion, Individual study, Relevant web information |

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| **Assessment Criteria** |  | **If Available, to Sign (x)** | **General Average Percentage (%) Rate** |
| **1. Quiz** | **X** | **40** |
| **2. Quiz** |  |  |
| **3. Quiz** |  |  |
| **4. Quiz** |  |  |
| **5. Quiz** |  |  |
| **Oral Examination** |  |  |
| **Practice Examination (Laboratory, Project etc.)** |  |  |
| **Final Examination** | **X** | **60** |
| **Semester Course Plan** |
| **Week** | **Subjects** |
| **1** | Introduction to the immune system of fish, terminology and concept  |
| **2** | Non-spesific immune system |
| **3** | The main fuction of the immune system |
| **4** | Cell-mediated and humoral immunity |
| **5** | Phagocytosis, lysozym, complement, C reactive proteins, transferine, interferon and lectinin |
| **6** | Organs and tissues |
| **7** | Lenfoid organs of fish |
| **8** | Intermediate exam |
| **9** | Specific immune system in fish |
| **10** | Antibody and antibody types and complex |
| **11** | Immune memory, Antigen processing and presentation |
| **12** | Factors that affect the Immune System |
| **13** | Vaccination of aquaculture |
| **14** | Final exam |