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| **COURSE IDENTIFICATION FORM** |
| **Course Code and Name:** SM-552 Stress Physiology and Immunology in Fish | **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 | 5 | 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 information about identification of immune system mechanism, system components, learning of the immune system types, immune response to stres, stress concept and management and stress-induced fish diseases |
| **Course Goals** | * Immune system tissue and cells, stress concepts, stress management, stress related diseases, the immune system's structure, development and function, the natural and passive immunity, laboratory practices and information and interpretation of experimental results.
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| **Course Learning Outs and Proficiencie*s*** | * Will learn the duties of the immune system components and the importance of immune system
* Will be able to review and compare to the components of immune system types and tasks
* Will recognize the mechanism of the immune response against
* Will be able to learn and reviews stress, stress symptoms fish diseases stress-induced in fish and immunological significance
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| **Course Basic and Auxiliary Contexts** | * Basic Immunology Updated Edition: Functions and Disorders of the Immune System AK. Abbas, AH. Lichtman, 3. Edition, Saunders, 2010.
* Roitt's Essential Immunology, PJ Delves, SJ Martin, DR Burton, IM Roitt, 12 edition, Wiley-Blackwell, 2011.
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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 Immunology |
| **2** | Immune system tissues, cells and tasks |
| **3** | Natural and passive immunity  |
| **4** | Cell-mediated immune response mechanism |
| **5** | Cellular and humoral immune responses  |
| **6** | Effecter mechanism of cellular immunity |
| **7** | Effecter mechanism of humoral immunity |
| **8** | Intermediate exam |
| **9** | Definition of stress and stress mechanism  |
| **10** | Stress physiology  |
| **11** | Stress management  |
| **12** | The immune response mechanism against stress  |
| **13** | Stress-induced fish immune diseases |
| **14** | Immunological tolerance and autoimmunity |