# PROPERTIES OF SKELETAL MUSCLE AND STRUCTURES

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| 1 | Course Title: | PROPERTIES OF SKELETAL MUSCLE AND STRUCTURES | |
| 2 | Course Code: | BIO5509 | |
| 3 | Type of Course: | Optional | |
| 4 | Level of Course: | Second Cycle | |
| 5 | Year of Study: | 1 | |
| 6 | Semester: | 1 | |
| 7 | ECTS Credits Allocated: | 6.00 | |
| 8 | Theoretical (hour/week): | 3.00 | |
| 9 | Practice (hour/week): | 0.00 | |
| 10 | Laboratory (hour/week): | 0 | |
| 11 | Prerequisites: | None | |
| 12 | Language: | Turkish | |
| 13 | Mode of Delivery: | Face to face | |
| 14 | Course Coordinator: | Prof. Dr. SIBEL TAŞ | |
| 15 | Course Lecturers: | | |
| 16 | Contact information of the Course Coordinator: | smeral@uludag.edu.tr | |
| 17 | Website: | | |
| 18 | Objective of the Course: | Structure and organization of skeletal muscle, muscle types and molecular mechanisms employed in the contraction of these muscle. | |
| 19 | Contribution of the Course to Professional Development: | | |
| 20 | Learning Outcomes: | | |
| | | **1** | To describe the concentration of ions between the inta and extracellular fluid |
| | | **2** | To know transport mechanisms in the cell |
| | | **3** | To describe that the structural properties and functions of skeletal muscle |
| | | **4** | To describe action potential in the muscle fiber |
| | | **5** | To describe the neuromuscular junction |
| | | **6** | To describe the mechanisms that muscle fibers use to obtain ATP for muscle contraction. |
| | | **7** | To describe structure and functions of the cardiovascular system, including the mechanical and electrical properties of cardiac muscle function |
| | | **8** | To describe structure and functions of the smooth muscle |
| | | **9** | |
| | | **10** | |
| 21 | Course Content: | | |

**Course Content:**

| Week | Theoretical | Practice |
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| 1 | Transport of ions and molecules across cell membranes | |
| 2 | The basic pyhsics of membrane potentials and action potential | |
| 3 | The importance and structure of Na-K-pump | |

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| **4** | Nerve action potentials | |
| **5** | Exceptions in nerve signal transmission | |
| **6** | Skeletal muscle contraction | |
| **7** | Energy source in muscle contraction | |
| **8** | Neurumuscular junction-exitation and contraction | |
| **9** | Smooth muscle contraction | |
| **10** | Smooth muscle contraction and effects of hormones | |
| **11** | Properties of the heart muscle | |
| **12** | Rhythmic stimulation of the heart | |
| **13** | Rhythmical excitation of heart, the cardiac cycle and the conduction system | |
| **14** | Anomalies of heart transmission system | |

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| **22** | Textbooks, References and/or Other Materials: | Medical Physiology; Arthur C Guyton and John E Hall, 2010<br>MedicalPhysiology; William F Ganong, 2010<br>Human anatomyandPhysiology; Robert Carola, John P Harley, Charles R Noback,2002<br>Biological Science; I,II; William T. Keeton, James L Gould, 1999 |
| **23** | Assesment | |

| Activites | Number | Duration (hour) | Total Work Load (hour) |
|---|---|---|---|
| Theoretical | 14 | 3.00 | 42.00 |
| Practicals/Labs | 0 | 0.00 | 0.00 |
| Self study and preperation | 14 | 2.00 | 28.00 |
| Homeworks | 5 | 20.00 | 100.00 |
| Projects | 0 | 0.00 | 0.00 |
| Field Studies | 0 | 0.00 | 0.00 |
| Midterm exams | 0 | 0.00 | 0.00 |
| Others | 0 | 0.00 | 0.00 |
| Final Exams | 1 | 40.00 | 40.00 |
| Total Work Load | | | 210.00 |
| Total work load/ 30 hr | | | 7.00 |
| ECTS Credit of the Course | | | 6.00 |

| **25** | **CONTRIBUTION OF LEARNING OUTCOMES TO PROGRAMME QUALIFICATIONS** | | | | | | | | | | | | | | | |
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| | **PQ1** | **PQ2** | **PQ3** | **PQ4** | **PQ5** | **PQ6** | **PQ7** | **PQ8** | **PQ9** | **PQ10** | **PQ11** | **PQ12** | **PQ13** | **PQ14** | **PQ15** | **PQ16** |
| **ÖK1** | 3 | 1 | 1 | 5 | 5 | 5 | 4 | 3 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **ÖK2** | 3 | 1 | 1 | 5 | 5 | 5 | 4 | 3 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **ÖK3** | 3 | 1 | 1 | 5 | 5 | 5 | 4 | 3 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **ÖK4** | 3 | 1 | 1 | 5 | 5 | 5 | 4 | 3 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

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| **ÖK5** | 3 | 1 | 1 | 5 | 5 | 5 | 4 | 3 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **ÖK6** | 3 | 1 | 1 | 5 | 5 | 5 | 4 | 3 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **ÖK7** | 3 | 1 | 1 | 5 | 5 | 5 | 4 | 3 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **ÖK8** | 3 | 1 | 1 | 5 | 5 | 5 | 4 | 3 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

**LO: Learning Objectives PQ: Program Qualifications**

| **Contribution Level:** | **1 very low** | **2 low** | **3 Medium** | **4 High** | **5 Very High** |
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