# PROTEIN BIOCHEMISTRY

| | | | |
|---|---|---|---|
| 1 | Course Title: | PROTEIN BIOCHEMISTRY | |
| 2 | Course Code: | BIO5405 | |
| 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: | Doç. Dr. EGEMEN DERE | |
| 15 | Course Lecturers: | Prof.Dr. Ferda ARI | |
| 16 | Contact information of the Course Coordinator: | Doç. Dr. Egemen DERE<br>Bursa Uludağ Üniversitesi Fen Ed. Fak Biyoloji Bl. Moleküler Biyoloji Anabilim Dalı<br>Tel: 0 224 41792<br>edere@uludag.edu.tr | |
| 17 | Website: | | |
| 18 | Objective of the Course: | The aim of the course is to comprehend the metabolic importance of proteins to students. It is to provide understanding of protein tasks in biological systems. | |
| 19 | Contribution of the Course to Professional Development: | Proteins are important molecules in our diet. Animals cannot synthesize every amino acid. They have to take these molecules, known as essential amino acids, through food. Proteins are involved in many metabolic events such as cell communication, immune response, and cell division. Students attending the course learn the structure and functions of proteins. They can better evaluate the results of the experiment. | |
| 20 | Learning Outcomes: | | |
| | | **1** | Students can grasp the structure of amino acids and their importance |
| | | **2** | Student can understand the formation of peptide and the task and structure of important peptides. |
| | | **3** | Student can understand the task of peptide hormones |
| | | **4** | Students can grasp the protein synthesis and their regulations |
| | | **5** | Student can understand protein folding |
| | | **6** | Students can understand non-ribosomal protein synthesis |
| | | **7** | Students can grasp the role of antigen and anti-core of protein |
| | | **8** | Student can understand the purification of proteins and their obtain |
| | | **9** | Students can grasp metabolism of amino acids and protein |
| | | **10** | |
| 21 | Course Content: | | |
| | **Course Content:** | | |

| Week | Theoretical | Practice |
|---|---|---|
| **1** | 1 Amino acids, Modify amino acids, nonstandard amino acids that protein structure not contain - | |
| **2** | Peptide structures and properties, biological important peptides | |
| **3** | Peptide hormones | |
| **4** | Reactions of amino acids | |
| **5** | Genetic code, synthesis of protein and regulation | |
| **6** | Protein targeting, chaperon in protein folding, | |
| **7** | Exam and answer of examination questions, general discussion | |
| **8** | Primer, secondary and tertiary folding | |
| **9** | Classification of proteins, structure and function of some important protein | |
| **10** | Bioactive peptides, synthesis by way out of the ribosome. | |
| **11** | Feature of antigen-antibody of proteins, | |
| **12** | Protein isolation and purification Fragmentation of proteins, | |
| **13** | Three-dimensional structure and crystallography, | |
| **14** | Metabolism of amino acid and protein. | |

| Activites | Number | Duration (hour) | Total Work Load (hour) |
|---|---|---|---|
| Theoretical | 14 | 3.00 | 42.00 |
| Practicals/Labs | 0 | 0.00 | 0.00 |
| Self study and preparation | 14 | 5.00 | 70.00 |
| Homeworks | 2 | 15.00 | 30.00 |
| Projects | 1 | 15.00 | 15.00 |
| Field Studies | 0 | 0.00 | 0.00 |
| Midterm exams | 1 | 2.00 | 2.00 |
| Others | 5 | 4.00 | 20.00 |
| Final Exams | 1 | 3.00 | 3.00 |
| Total Work Load | | | 182.00 |
| Total work load/ 30 hr | | | 6.07 |
| ECTS Credit of the Course | | | 6.00 |

| | |
|---|---|
| Total | 100.00 |
| Measurement and Evaluation Techniques Used in the Course | Homework, oral and classical exam |

**24 ECTS / WORK LOAD TABLE**

**25 CONTRIBUTION OF LEARNING OUTCOMES TO PROGRAMME QUALIFICATIONS**

| | PQ1 | PQ2 | PQ3 | PQ4 | PQ5 | PQ6 | PQ7 | PQ8 | PQ9 | PQ10 | PQ11 | PQ12 | PQ13 | PQ14 | PQ15 | PQ16 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **ÖK1** | 3 | 0 | 3 | 4 | 3 | 5 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **ÖK2** | 3 | 0 | 3 | 4 | 3 | 5 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **ÖK3** | 4 | 0 | 3 | 4 | 4 | 5 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **ÖK4** | 5 | 0 | 4 | 4 | 3 | 5 | 3 | 3 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **ÖK5** | 4 | 0 | 4 | 4 | 3 | 5 | 3 | 3 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **ÖK6** | 4 | 0 | 4 | 4 | 3 | 5 | 3 | 3 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **ÖK7** | 4 | 0 | 4 | 4 | 3 | 5 | 3 | 3 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **ÖK8** | 4 | 0 | 4 | 4 | 3 | 5 | 3 | 3 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **ÖK9** | 4 | 0 | 4 | 4 | 3 | 5 | 5 | 3 | 3 | 2 | 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** |
|---|---|---|---|---|---|