

Course Description					
Name	Code	Semester	T+A Hour	Credit	ECTS
PROTEIN: STRUCTURE and FUNCTION	BME3149450	Fall Semester	3+0	3	6
Prerequisites Courses	HÜCRESEL VE MOLEKÜLER BİYOLJİ				
Recommended Elective Courses					
Language of Instruction	English				
Course Level	First Cycle (Bachelor's Degree)				
Course Type	Elective				
Course Coordinator	Assoc.Prof. Özge ŞENSOY				
Name of Lecturer(s)	Assoc.Prof. Özge ŞENSOY				
Assistant(s)					
Aim	The aim of the course is to understand the 3D structure of proteins and make connection between the structure and the function of proteins. In addition, novel proteins can be designed with tailored functions.				
Course Content	This course contains; Basic Structural Principles,Folding and Flexibility,DNA Structure,Structure, Function and Engineering,The mechanism of DNA recognition in prokaryotes and eukaryotes ,Enzyme Catalysis,Membrane Proteins,Signal Transduction,Fibrous Proteins,The mechanism of recognition of foreign molecules by immune system,The Structure of Spherical Viruses,The principles of prediction, Engineering and Design of Protein Structures,Determination of Protein Structures,Special Topics.				
Course Learning Outcomes			Teaching Methods	Assessment Methods	
Capable of building the relation between protein structure and function			10, 12, 14, 16, 19, 9	A, E, F	
Proteins can be designed with novel functions.			10, 12, 14, 16, 19, 5, 9	A, E, F	
The impact of environment on the enzyme kinetics can be interpreted.			10, 16, 19, 20	A, E, F	
Capable of interpretation of the results obtained from molecular dynamics simulations in terms of protein structure-function relationship.			16, 19, 20	A, E, F	
Teaching Methods	10: Discussion Method, 12: Problem Solving Method, 14: Self Study Method, 16: Question - Answer Technique, 19: Brainstorming Technique, 20: Reverse Brainstorming Technique, 5: Cooperative Learning, 9: Lecture Method				
Assessment Methods	A: Traditional Written Exam, E: Homework, F: Project Task				
Lecture Schedule					
Sequence	Topics	Preliminary Preparation			
1	Basic Structural Principles				
2	Folding and Flexibility				
3	DNA Structure				
4	Structure, Function and Engineering				
5	The mechanism of DNA recognition in prokaryotes and eukaryotes				
6	Enzyme Catalysis				
7	Membrane Proteins				
8	Signal Transduction				
9	Fibrous Proteins				
10	The mechanism of recognition of foreign molecules by immune system				
11	The Structure of Spherical Viruses				
12	The principles of prediction, Engineering and Design of Protein Structures				
13	Determination of Protein Structures				
14	Special Topics				
Evaluation Methods		Weight(%)			
Midterm Exam		30			
General Exam		70			

Resources

Introduction to Protein Structure, 2 nd Edition, Carl Brendon and John Tooze