

Course Title: Bioinformatics

Field and Level of Study: PhD in Clinical Biochemistry

Faculty: Medicine

Course Code:

Academic Year: 2025-2026 (1405-1404 Persian Calendar)

Semester: Bahman (Incomplete from previous semester)

Prerequisite: None

Number of Credits: 2

Type of Credits: 1 Theoretical Credit - 1 Practical Credit

Teaching Staff: Dr. Fereydoon Nejad / Dr. Shokati / Dr. Ijder / Dr. Rezaei

Class Day and Time: Mondays, 10-12:00 AM –

[Instructor Name]	[Teaching Method]	[Learner Activities]	[Concepts Expected to be Taught]	[Date]	[Session]
[Dr. Shokati]	[Theory using PowerPoint]	[History and Introduction to Bioinformatics]	[Principles and Fundamentals of Bioinformatics]		[First]
		[Initial Familiarization with Types of DNA and Protein Sequences]			
[Dr. Ijder]	[Practical using the Internet]	[Familiarization with the Concept of Gene Banks]	[Nucleotide Databases]		[Second]
[Dr. Ijder]	[Practical using the Internet]	[Obtaining a Sequence from Databases, Analyzing Sequence Composition, Searching Different Regions of a Sequence such as Coding and Non-Coding Regions]	[How to Use Gene Databases and Work with Them]		[Third]
[Dr. Shokati]	[Practical using the Internet]	[Polymorphism and Restriction Enzyme Recognition Site and Cutting]	[Working with DNA Sequences]		[Fourth]
[Dr. Shokati]	[Theoretical and Practical using the Internet]	[Primer Design Method] [Criteria for Validating Designed Primers and BLASTing]	[Primer Design]		[Fifth]
[Dr. Shokati]	[Theoretical and Practical using the Internet]	[Primer Design Method] [Criteria for Validating Designed Primers and BLASTing]	[Primer Design]		[sixth]
Dr. Fereydoon Nejad	[Theoretical and Practical using the Internet]	[Introduction to Databases and How to Work with Them]	[Specialized Protein Sequence Databases]	[1404/08/19]	[Seventh]
		[Reading Swiss-Prot Pages]			
[Dr. Fereydoon Nejad]	[Practical using the Internet]	[Examining Primary Structure, Predicting Post-Translational Modifications]	[Working with Protein Sequences]	[1404/08/26]	[Eighth]
		[Searching for Protein Domains]			
[Dr. Fereydoon Nejad]	[Practical using the Internet]	[Comparing and Aligning Two Protein Sequences]	[BLAST and Sequence Alignment of Proteins]	[1404/09/03]	[Ninth]
[Dr. Fereydoon Nejad]	[Practical using the Internet]	[Predicting Secondary Structure]	[Working with Three-Dimensional Protein Structures]	[1404/09/10]	[Tenth]
		[Structure from Primary to Tertiary]			
[Dr. Fereydoon Nejad]	[Theoretical and Practical using the Internet]	[Predicting Interactions Between Two Proteins]	[Protein Docking]	[1404/09/17]	[Eleventh]

[Dr. Fereydoon Nejad]	[Theoretical and Practical using the Internet]	[Modeling Based on Similarity]	[Modeling]	[1404/09/24]	[Twelfth]
[Dr. Rezaei]	[Theoretical and Practical using the Internet]		[An Introduction to Artificial Intelligence]	[1404/10/01]	[Thirteenth]
[Dr. Rezaei]	[Theoretical and Practical using the Internet]		[Application of AI in Research]	[1404/10/08]	[Fourteenth]
[Dr. Rezaei]	[Theoretical and Practical using the Internet]		[Application of AI in Article Writing]	[1404/10/15]	[Fifteenth]