



Bioinformatics

First Semester Academic Year 2023-2024

Instructor(s): Dr. Rana Jahanban – Dr. Effat Alizadeh

Theoretical and Practical Units Level: Masters Unit

Type: 2 Units

Practical Session Number of Sessions: 8 Theoretical and 16 Practical Sessions

Session Start and End Dates: 2023-10-03 to 2024-01-08

Venue for In-person Sessions: Informatics Classroom, Faculty of Advanced Medical Sciences

Overall Goal and Course Introduction: Application of Bioinformatics in Biotechnology. The student, by using various bioinformatics tools and accessing and extracting data from important databases, will understand the importance, principles, and various applications of biological data analysis in biomedical studies and will apply them in studies and research.

Course Learning Objectives

It is expected that learners, after completing this course, will be able to:

- 1. Define bioinformatics and name related fields.**
- 2. Perform advanced searches in the NCBI database using keywords and operators.**
- 3. Name different protein, RNA, and DNA databases.**



4. Design primers manually and using software and check their quality.

5. Explain the applications of BLAST analysis.

6. Independently draw a phylogenetic tree and interpret it.

7. Independently work with protein structure analysis software.

Teaching Methodology

Interactive Lecture (Q&A, Quizzes, Group Discussion, etc.), Active class participation, participation in discussions, TBL, Brainstorming, Video Projector (PowerPoint) and Whiteboard.

Student Assessment Method

During Semester: Quiz 1 mark, Attendance 1 mark, Active participation in discussions 2 marks, DOPS assessment

End of Semester: Descriptive Exam 10 marks

Minimum passing grade for this course: 14

Educational Resources

- **Hooman Rashidi. Lukas K. Buehler. Bioinformatics Basics: Applications in Biological Science and Medicine (last edition).**

Additional Study Resources

Bioinformatics Made Simple Book

Learning Opportunities

Bioinformatics Workshop Sessions (Instructor: Dr. Seyedeh Parinaz Poursafa) Every Tuesday at 10 AM

Informatics Faculty

Contact Information



دانشگاه علوم پزشکی

دانشکده علوم نو

Course Instructor(s) (Phone, Email, etc.)

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