

The Hebrew University of Jerusalem

Syllabus

MOLECULAR BIOLOGY - 72332

Last update 26-02-2019

HU Credits: 5

Degree/Cycle: 1st degree (Bachelor)

Responsible Department: Life Sciences

Academic year: 0

Semester: 2nd Semester

Teaching Languages: Hebrew

Campus: E. Safra

Course/Module Coordinator: Prof Eran Meshorer

Coordinator Email: eran.meshorer@mail.huji.ac.il

Coordinator Office Hours: By appointment

Teaching Staff:

Dr. Oren Ram
Dr. Tamar Avin Wittenberg
Prof Eran Meshorer
Ms.
Ms.
Ms.
Ms.

Course/Module description:

The course discusses the structure of macro-molecules and DNA in particular; genome architecture; chromatin structure; functional/structure of the eukaryotic genome; transcription and regulation of transcription in prokaryotes and eukaryotes; transcriptional regulation; The structural basis for DNA recognition by transcription factors; RNA processing; translation; micro-RNAs; transgenic systems; recombinant DNA, and introduction to cellular differentiation. High-throughput methods: next generation sequencing and mass-spectrometry

Course/Module aims:

Acquire tools to analyze problems in molecular biology

Learning outcomes - On successful completion of this module, students should be able to:

Students will have acquired the ability to answer key questions in molecular biology

Attendance requirements(%):

Attendance is required in exercises

Teaching arrangement and method of instruction: Lecture and exercise

Course/Module Content:

1. Introduction (DNA, protein nature, Molecular Biology Dogma)
2. Structure of Macromolecules
3. Transcription I
4. Transcription II
5. Translation I

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6. Translation II
 7. Databases and software
 8. RNA processing
 9. Alternative splicing & RNA editing
 10. RNA stability
 11. Regulatory RNAs
 12. Complexity
 13. Transgenic engineering

Required Reading:

Selected chapters in: Mol Biol Cell, 6TH Ed.

Additional Reading Material:

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Course/Module evaluation:

End of year written/oral examination 90 %

Presentation 0 %

Participation in Tutorials 0 %

Project work 0 %

Assignments 10 %

Reports 0 %

Research project 0 %

Quizzes 0 %

Other 0 %

Additional information:

None