



The Hebrew University of Jerusalem

Syllabus

ASTROPHYSICS AND COSMOLOGY - 77501

Last update 29-07-2015

HU Credits: 3

Degree/Cycle: 1st degree (Bachelor)

Responsible Department: physics

Academic year: 0

Semester: 1st Semester

Teaching Languages: Hebrew

Campus: E. Safra

Course/Module Coordinator: Dr. Yuval Birnboim

Coordinator Email: yuval@phys.huji.ac.il

Coordinator Office Hours: By appointment

Teaching Staff:

Dr. Yuval Birnboim
Dr. Orly Gnat

Course/Module description:

The course will deal with the physics of the stellar structure and evolution, and cosmology.

Course/Module aims:

See learning outcomes

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

Solve for the stellar structure under various approximations (See course content).
Identify the main stages of stellar evolution and solve for the behavior of the universe in simple cases.

Attendance requirements(%):

0

Teaching arrangement and method of instruction: Lecture and problem sets.

Course/Module Content:

The "Distance Ladder"
The Virial Theorem
Polytropes
Radiative Transfer
Convection
Nuclear Reactions
Homology
Stellar Evolution
Supernovae
Accretion Disks
Robertson-Walker metric for the Universe
Friedmann Equations

Required Reading:

None.

Additional Reading Material:

Astrophysics/Bowers and Deeming

Principles of Stellar Evolution and Nucleosynthesis/Clayton

Physical Universe: An Introduction to Astronomy/Frank Shu (at a lower level than the course)

Course/Module evaluation:

End of year written/oral examination 100 %

Presentation 0 %

Participation in Tutorials 0 %

Project work 0 %

Assignments 0 %

Reports 0 %

Research project 0 %

Quizzes 0 %

Other 0 %

Additional information:

None