האוניברסיטה העברית בירושלים
THE HEBREW UNIVERSITY OF JERUSALEM

The Hebrew University of Jerusalem

Syllabus

MATHEMATICAL FOUNDATIONS OF ARTIFICIAL INTELLIGE - 67686

Last update 13-04-2015

HU Credits: *2*

Degree/Cycle: *1st degree (Bachelor)*

Responsible Department: *Computer Science*

Academic year: *3*

Semester: *2nd Semester*

Teaching Languages: *Hebrew*

Campus: *E. Safra*

Course/Module Coordinator: *Omer Lev*

Coordinator Email: *omerl@cs.huji.ac.il*

Coordinator Office Hours: *Wednesday, 16:30-17:30*

Teaching Staff:
Omer Lev

Course/Module description:
In the first part, we will focus on classic AI problems: Robotic Search and Coverage; Data representation and Neural Networks; and Constraint Satisfaction Problems.
In the second part, we will deal with systems that incorporate many agents, with emphasis on non-cooperative environments, applying game-theoretic tools. We will review problems like Preference Aggregation and Voting; Coalition Formation; and Fair division of a resource among agents.

Course/Module aims:
Ability to critically read theoretical papers in AI and analyze their main points.

Basic understanding of some of the various mathematical techniques used in AI, and solving problems using them.

Learning outcomes - On successful completion of this module, students should be able to:
Ability to critically read theoretical papers in AI and analyze their main points.

Basic understanding of some of the various mathematical techniques used in AI, and solving problems using them.

Attendance requirements(%):
0

Teaching arrangement and method of instruction: Frontal lecture

Course/Module Content:
Elevator algorithms and variants (including online algorithms)
Constraint satisfaction problems
Neural networks and Hebbian learning
On game theoretical issues --- Voting and social choice,
Fair division,
Cooperative games,

and further subjects

Required Reading:
NA

Additional Reading Material:
NA

Course/Module evaluation:
End of year written/oral examination 0 %
Presentation 0 %
Participation in Tutorials 0 %
Project work 0 %
Assignments 100 %
Reports 0 %
Research project 0 %
Quizzes 0 %
Other 0 %

Additional information:
NA