האוניברסיטה העברית בירושלים
THE HEBREW UNIVERSITY OF JERUSALEM

The Hebrew University of Jerusalem

Syllabus

CONVEX OPTIMIZATION AND APPLICATIONS - 67731

Last update 18-08-2019

HU Credits: *4*

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

Responsible Department: *Computer Sciences*

Academic year: *0*

Semester: *2nd Semester*

Teaching Languages: *Hebrew*

Campus: *E. Safra*

Course/Module Coordinator: *Ami Wiesel*

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

Coordinator Office Hours: *Coordinate in advance*

Teaching Staff:

Prof Ami Wiesel
Mr. Nisan Chiprut

Course/Module description:
One dimensional optimization problem.
Convex functions [BV 3].
Least squares [PSU 4].
Unconstrained optimization [BV 9].
Convex sets [BV 2].
Constrained optimization over a convex set [B 2].
Quiz.
Standard convex optimization [BV 4].
Duality and optimality conditions [BV 5].
Interior point methods [BV 10--11].
Semidefinite programming [papers].

Course/Module aims:
See learning outcomes

Learning outcomes - On successful completion of this module, students should be able to:
Identify functions and convex sets.

Formulate a convex optimization problem and solve it numerical.

Dual problem and develop optimal conditions.

Attendance requirements(%):
0

Teaching arrangement and method of instruction: workshop

Course/Module Content:
One dimensional optimization problem.
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Quiz.

Standard convex optimization [BV 4].
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Interior point methods [BV 10--11].
Semidefinite programming [papers].

Required Reading:
Recommended to read Boyd's lecture notes from Stanford.

Additional Reading Material:
NA

Course/Module evaluation:
End of year written/oral examination 80 %
Presentation 0 %
Participation in Tutorials 0 %
Project work 0 %
Assignments 0 %
Reports 0 %
Research project 0 %
Quizzes 20 %
Other 0 %

Additional information:
Boyd and Vandenberghe, Convex Optimization.
Bertsekas, Nonlinear Programming.
Peressini, Sullivan and Uhl, The Mathematics of Nonlinear programming.
Nemirovski, Lecture notes.