The Hebrew University of Jerusalem

Syllabus

MODEL THEORY (1) - 80616

Last update 01-11-2019

HU Credits: 3

Degree/Cycle: 2nd degree (Master)

Responsible Department: Mathematics

Academic year: 0

Semester: 1st Semester

Teaching Languages: English and Hebrew

Campus: E. Safra

Course/Module Coordinator: Prof. Omer Ben Neria

Coordinator Email: omer.bn@mail.huji.ac.il

Coordinator Office Hours: meeting can be set by mail.

Teaching Staff:

Prof Omer Ben-Neria

Course/Module description:

Model theory looks at mathematical structures from the standpoint of language; specific mathematical languages are suitable to different fields, reflecting the algebraic structure and notions of limit in it. This class a first introduction to the methods of model theory, taking up the story from Logic I.

Course/Module aims:

Achieving understanding of basic ideas of model theory. See moodle page.

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

Ability to prove and apply the theorems presented in the course.

Ability to apply correctly the mathematical methodology in the context of the course.

Acquiring the fundamentals as well as basic familiarity with the field which will assist in the understanding of advanced subjects.

Ability to understanding and explain the subjects taught in the course.

Attendance requirements(%):

0

Teaching arrangement and method of instruction: Lectures, required reading, homework problems.

Course/Module Content:

Languages and structures; compactness. Omitting types. Countable models of complete theories: homogeneous models, Ryll-Nardjewski. Saturated models. Applications to definability theorems (Robinson, Beth, and more). Simple applications to algebra. Definable and algebraic closure. Indiscernibles. Morley's theorem.

Required Reading:
Tent, Ziegler: A course in Model Theory.

An alternative: the first three chapters of Change and Keisler, as well as 4.1, 7.1, 7.2.

Chang, C. C.; Keisler, H. J. Model theory. Third edition. Studies in Logic and the Foundations of Mathematics, 73. North-Holland Publishing Co., Amsterdam, 1990. xvi+650 pp. ISBN: 0-444-88054-2

Additional Reading Material:
Poizat, Bruno A course in model theory. An introduction to contemporary mathematical logic. Translated from the French by Moses Klein and revised by the author. Universitext. Springer-Verlag, New York, 2000. xxxii+443 .pp

Course/Module evaluation:
End of year written/oral examination 0 %
Presentation 0 %
Participation in Tutorials 0 %
Project work 70 %
Assignments 30 %
Reports 0 %
Research project 0 %
Quizzes 0 %
Other 0 %

Additional information:
none