The Department of Mathematics
2017–18–B term

Course Name  Introduction to Model Theory
Course Number  201.2.0091

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Office Hours  https://www.math.bgu.ac.il/en/teaching/hours

Abstract

Requirements and grading

We will present some basic notions and constructions from model theory, motivated by concrete questions about structures and their theories. Notions we expect to cover include:

- Types and spaces of types
- Homogeneous and saturated models
- Quantifier elimination and model companions
- Elimination of imaginaries
- Definable groups and fields

Prerequisites  Students should be familiar with the following concepts from logic: Languages, structures, formulas, theories, the compactness theorem. In addition, some familiarity with field theory, topology and probability will be beneficial.

1Information may change during the first two weeks of the term. Please consult the webpage for updates
Course topics

This course will cover a number of fundamentals of model theory including:

• Quantifier Elimination
• Applications to algebra including algebraically closed fields and real closed fields.
• Types and saturated models.

Given time, the course may also touch upon the following topics:

• Vaught’s conjecture and Morley’s analysis of countable models
• \( \omega \)-stable theories and Morley rank
• Fraisse’s amalgamation theorem.

Prerequisites Students should be familiar with the following concepts: Languages, structures, formulas, theories, Godel’s completeness theorem and the compactness theorem.