



# *The Hebrew University of Jerusalem*

## *Syllabus*

### *Models of Peano arithmetic - 80620*

*Last update 23-08-2022*

*HU Credits:* 2

*Degree/Cycle:* 2nd degree (Master)

*Responsible Department:* Mathematics

*Academic year:* 2023

*Semester:* 2nd Semester

*Teaching Languages:* Hebrew

*Campus:* E. Safra

*Course/Module Coordinator:* Shimon Garti

*Coordinator Email:* [shimon.garty@mail.huji.ac.il](mailto:shimon.garty@mail.huji.ac.il)

*Coordinator Office Hours:* Sunday, 9:00-10:00

*Teaching Staff:*

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Dr. Shimon Garty

Course/Module description:

The course will focus on the model-theoretic aspect of Peano Arithmetic.

Course/Module aims:

To acquire basic familiarity with models of Peano.

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

The students will be able to learn more advanced material in the area.

Attendance requirements(%):

None.

Teaching arrangement and method of instruction: Frontal lecture.

Course/Module Content:

- a. The standard model, order types of Peano models, induction axioms, Robinson's theorem (overspill).
- b. Collection axioms, Gaifman's splitting theorem, prime models, end-extensions, MacDowell-Specker theorem.
- c. Saturation, recursive saturation, Tennenbaum's theorem Kaufmann models.

Required Reading:

None.

Additional Reading Material:

- a. Richard Kaye, *Models of Peano Arithmetic*.
- b. Roman Kossak and James Schmerl, *The Structure of Models of Peano Arithmetic*.

Course/Module evaluation:

End of year written/oral examination 0 %

Presentation 0 %

Participation in Tutorials 0 %

Project work 100 %

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*Assignments 0 %*  
*Reports 0 %*  
*Research project 0 %*  
*Quizzes 0 %*  
*Other 0 %*

*Additional information:*