Logic exercise class

2024 Fall

Lecturer: Zalán Molnár

Code of the course: BBN-FIL-302, BMI-FILD-302, BMA-LOTD-101, BMI-LOTD-101E

Content of the course: The lecture and exercise class together provide an introduction to mathematical logic. During this course we cover all the fundamental concepts and techniques that are inevitable for any further studies during the Logic and Theory of Science progam. Although there are no formal prerequisites, certain level of maturity of abstract thinking is expected. For students who are more interested in the deeper understanding of the material the *Set theory* course offered by the department is recommended.

The seminar covers exercises from the topics:

- **Class 1-4.** Basics of Propositional logic: syntax and semantics, proof theory.

- **Class 5-13.** Basics of First-order logic: syntax and semantics, basic model and proof theory. Completeness and Compacteness theorem, Löweheim-Skolem theorems. Limits of first-order logic.

The exercise class is accompanied by a *lecture* in which we cover all the concepts that will be applied during the exercise class.

Grading criteria: homework assignments

References

[1] David Marker. *An invitation to mathematical logic.* Springer. 2024.

[2] László Csirmaz, Zalán Gyenis *Mathematical logic. Exercises and solutions.* Springer. 2022.