Logic lecture

2024 Fall

Lecturer: Zalán Molnár

Code of the course: BMI-FILD-301, BMA-LOTD-102, BMA-LOTD-102E

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.

In the lecture we focus on the two most important formal logical frameworks.

- **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 lecture is accompanied by an *exercise class* in which we practice and see applications of the concepts and techniques we covered in the lectures.

Grading criteria: (oral) exam

References

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

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