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| Code of course: **BMI-LOTD17-102E BMA-LOTD17-102 BBN-FIL18-301 BBN-FIL-301.1 BMA-FILD-301.1** |
| Title of course: **Logic, lecture** |
| Lecturer: **Péter Mekis** |
| **General aim of the course:**  The course provides a concise introduction to the basic concepts and methods of modern formal logic.  **Content of the course:**  The lectures will cover the following topics:   1. introduction: the concept of modern formal logic and its place in the foundational studies; 2. syntax and semantics of standard first-order languages; 3. first-order analytic trees and the decision problem; 4. first-order theories: basic concepts and methods; 5. Peano arithmetic: language, definitions, basic theorems, and the standard model; 6. standard first-order calculus: deductions and metatheorems; 7. soundness and completeness of the standard first-order calculus; 8. the compactness theorem and nonstandard models of Peano arithmetic; 9. the downward Löwenheim-Skolem theorem; 10. overview of Gödel's incompleteness results; 11. higher-order logic; 12. definite descriptions and semantic value gaps; 13. modal and intensional logic.   The topics may change during the course, in accordance with student demand. The Hungarian version of the course will be easier and covers less topics.  **Grading criteria, specific requirements:**  The course ends with an oral exam. After the last lecture, students will get the final list of the topics covered in the course. Logic masters students can pick two items of this list that they don't want to study. Other students can pick four such items. The exam will cover the rest of the topics.  **Required reading:**   * Lecture notes (updated during the course) * Gamut, L. T. F., *Logic, Language, and Meaning*. Vol 1: *Introduction to Logic*. Chicago UP, 1991.   Mendelson, E., *Introduction to Mathematical logic* . 4th ed. Springer, 1997. |