Gödel's Incompleteness Theorems

2025 Spring

Code of course: BMA-LOTD-329.08, BMI-LOTD-329E.08
Title of course: Gödel's Incompleteness Theorems
Lecturer: Zalán Molnár

Content of the course:
This course is an introduction to Gödel's incompleteness theorems and recursion theory. The course covers some of the most fundamental results in mathematical logics such regarding recursive functions, Robinson Arithmetic, representability of recursive functions, Church's Theorem, Gödel's First incompleteness Theorem, Gödel's Fix Point Theorem, Tarski's "undefinability of truth", semantic interpretability of theories, undecidability of ZFC and other theories, Gödel's Second Incompleteness Theorem, Presburger Arithmetic, quantifier elimination, decadibility of Presburger Arithmetic.

Grading criteria, specific requirements:
Grading is based on homeworks and a final exam.
Prerequisites: Introductory logic (first order logic).

Required reading:
• László Csirmaz, Zalán Gyenis Mathematical logic. Exercises and solutions. Springer. 2022.
• David Marker. An invitation to mathematical logic. Springer. 2024.
• Lecture notes