

Classical Logic: A Metalogical Compendium

Tutorial by Norbert Gatzl (LMU Munich) · Tuesday 15 September, 08:45–12:00

COURSE DESCRIPTION

This course offers a concise compendium of classical first-order logic, from a proof-theoretic perspective. We introduce a formal language, a semantics, and a formal system, and establish some basic facts.

Afterwards the soundness and completeness theorems are formulated in two versions; these formulations highlight the strong connections between the concepts of *syntactic logical consequence*, *semantic logical consequence*, *having a model*, and *being consistent*. The major building blocks of the proofs of soundness and completeness are outlined.

TEXTS

1. Johannes Czermak, *Einführung in die Logik*. Universität Salzburg, unpublished manuscript, 1978.
2. Heinz-Dieter Ebbinghaus, Jörg Flum and Wolfgang Thomas, *Einführung in die mathematische Logik*, 6th ed. Springer Spektrum, Berlin, 2018.
3. Norbert Gatzl, *Von Logik zu Metalogik*. Hanser, Munich, 2026.
4. Geoffrey Hunter, *Metalogic: An Introduction to the Metatheory of Standard First Order Logic*. University of California Press, Berkeley, 1973.
5. Paolo Mancosu, Sergio Galvan and Richard Zach, *An Introduction to Proof Theory: Normalization, Cut-Elimination, and Consistency Proofs*. Oxford University Press, 2021.
6. Kurt Schütte, *Beweistheorie*. Springer, 1960.
7. Gerhard Schurz, *Logik*, 2nd ed. De Gruyter, 2021.