

Syllabus for the Exams in "Mathematische Logik", Autumn 2009

The subject of this lecture is treated in the two ViLoLa modules: N 4.1 and N 4.2. Therefore, the syllabus contains parts of the scripts for both of these modules. The chapter and section numbers refer to the newest editions of the scripts, which are available for download in pdf-format.

Modul N 4.1: Structures for Algebraic Logic: Relational and Functional Structures

The following chapters and sections may be subjects of the exams:

- **Chapter 1** Introduction:
all sections
- **Chapter 2** Formal languages:
all sections
- **Chapter 3** Semantics:
all sections
- **Chapter 4** Deductions:
all sections
- **Chapter 5** Properties of our deductive system:
all sections except **Section 5.2** The Undecidability of First-Order Logic, i.e. the Chapter-introduction and the sections
 - **Section 5.1** Correctness
 - **Section 5.3** Derived inference rules
 - **Section 5.4** Sentences suffice
 - **Section 5.5** The Deduction Theorem
 - **Section 5.6** An example of a formal proof
- **Chapter 6** Completeness:
all sections

Please note that **Section 5.2** (The Undecidability of First-Order Logic) will not be subject of the exams.

Modul N 4.2: Structures for Algebraic Logic: Effective Computations

The following chapters and sections may be subjects of the exams:

- **Chapter 4** First Steps in Model Theory:
 - **Section 4.1** Introducing Mod and Th
- **Chapter 6** Theories:
 - **Section 6.1** Theories and Complete Theories
- **Chapter 7** Ultraproducts:
 - **Section 7.1** Ultrafilters
 - **Section 7.2** Ultraproducts
 - **Section 7.3** The Compactness Theorem Revisited
- **Chapter 8** The Semantical Characterization of Elementary Classes:
 - **Theorem 8.1.5 (Elementary Classes)**, without proof!

Please note that **Appendix A** (A Proof for the Theorem of Los) will not be a subject of the exam.