

## Syllabus for the Exams in "Mathematische Logik", Autumn 2006 [pdf](#)

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 via the links below.

### Module N 4.1: "Structures for Algebraic Logic: Relational and Functional Structures"

(Download [N4.1, Introduction to Mathematical Logic](#), pdf-Format)

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:
  - **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

(Download [N4.2, Model Theory, Universal Algebra and Order](#), pdf-Format)

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

- **Chapter 1** The General Background:
  - **Section 1.3** Cartesian Products and Projections
  - **Section 1.4** Equivalence Relations
  - **Section 1.5** Reduced Products
- **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 (**without** Proofs, **without** Lemma 7.2.10)
- **Chapter 8** The Semantical Characterization of Elementary Classes:
  - **Section 8.1** Ultraproducts in Elementary Classes
  - **Section 8.2** Ultraproducts in Basic-Elementary Classes (up to Corollary 8.2.6)

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

(July 2006, MS)

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The computer program "Algebra Workbench" (AWB) was created by Markus Sprenger. The documentation found here is based on a 2005 [master thesis](#) by Christoph Röthlisberger. The translation and adaptation of the material was done by Cindy-Jane Armbruster.

This page was designed by [cja](#) in 2006. It was last updated on July 29, 2006.