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LECTURE 1. Algebraic Number Fields (5 p.)

(see algzth., 3. Ganzheit bis Satz 3.4 und Satz 3.6)

- integrality, integral closure, ring of integers
- ideals, prime ideals, primary ideals
- regular representation
- norm and trace
- discriminant

LECTURE 2. Rings in Arithmetic (4 p.)

- local ring http://en.wikipedia.org/wiki/Local_ring
- discrete valuation rings http://en.wikipedia.org/wiki/Discrete_valuation_ring
- Dedekind rings http://en.wikipedia.org/wiki/Dedekind_domain

LECTURE 3. Absolute Values (8 p.)

(see transcendence-fs2010, vers.2010-01-03; Chapter 3)

LECTURE 4. Heights and Siegel's Lemma (4 p.)

(see transcendence-fs2010, Chapter 4)

LECTURE 5. Logarithmic Forms (8 p. +?)

(see transcendence-fs2010, Chapter 6)

LECTURE 6. Lattice Theory (7 p.)

(see algzth., to add: logarithmic space, Dirichlet's unit theorem)

LECTURE 7. Unit equation (4 p.)

(see transcendence-fs2010, Chapter 7)

LECTURE 8. Diophantine Curves (4 p.)

(see transcendence-fs2010, Chapter 7)

LECTURE 9. Class Number I (5 p.)

REFERENCES.

- G. Wuestholz, Algebra
- J. Neukirch, Algebraic Number Theory
- M. Atiyah, I. G. Macdonald, Introduction to Commutative Algebra
- A. Baker, G. Wuestholz, Logarithmic Forms and Diophantine Geometry
- Gerald J. Janusz, Algebraic Number Fields, (American Math. Soc., Graduate Studies in Mathematics, Vol. 7, (1996))

Exercise classes:

28.3, 23.4, 25.4, 23.5.