

S2016 Algebraic number theory

Time/Place: TF 11:40-12:55, Math 307 (**NOTE: the first meeting will be on Thursday Jan 21**)

Instructor: Wei Zhang, wzhang@math.columbia.edu

Office: Math 629.

Office hours: T2:30-4pm.

TA Pak-Hin Lee (phlee@math.columbia.edu)

Homework There will be weekly homework (except spring recess), and probably a round table run by TA.

Prerequisites Galois theory, and basic algebraic number theory (local and global fields, and adeles); e.g., the notes by J. Milne *Algebraic number theory*.

Course description The main topic of this course is class field theory, both local and global. We will mainly follow

J. Milne, Class field theory, available on his homepage.

If we still have time after finishing this, we may discuss some classical topics (e.g., Tate thesis) or some recent development on local class field theory.

Some useful references

1. Algebraic number theory, Proceedings of an Instructional Conference Organized by the London Mathematical Society. by W. Cassels, A. Frohlich.
2. Algebraic number theory, J. Neukirch.
3. Algebraic number theory, S. Lang.
4. Local fields, Serre
5. More to be added.

Syllabus

0.1 Local CFT, group cohomology

Chapter (I): 4 lectures

Chapter (II): 5 lectures

Chapter (III): 5 lectures

0.2 Global CFT

Chapter (V): 5 lectures

Chapter (VI): 2 lectures

Chapter (VII): 4 lectures