

Syllabus for Algebra Qualifying Exam

[Correspondsng to Serge Lang's Algebra book]

- Chapter 1: Groups
- Chapter 2: Rings (omit §3 localization)
- Chapter 3: Modules
- Chapter 4: Homology (only §4 Jordan Holder theorem)
- Chapter 5: Polynomials (omit §10 resultant)
- Chapter 6: Notherian rings and modules (omit §4 and §5 associated primes and primary decomposition).
- Chapter 7: Algebraic Extensions
- Chapter 8: Galois theory (show that general equation of degree $n \geq 5$ is not solvable, impossibility of doubling cube, and trisecting general angle)
- Chapter 13: Matrices and Linear Maps
- Chapter 14: Structure of Bilinear forms (omit §6 Witt group, §7 forms over ordered fields, §8 Clifford algebra)
- Chapter 15: Representation of one endomorphism
- Chapter 16: Multilinear Products