This is a draft of the content of the course:

Istituzioni di Algebra Superiore
academic year: 2016—17
Alessandro Logar

Basic notions. Direct sum of modules, product of modules, homomorphisms, free modules. Abelian groups, fundamental theorem of finite abelian groups. The Jordan-Holder theorem.

Rings. Principal ideals rings, euclidean rings, unique factorization domains, artinian and noetherian rings. Primary decomposition of ideals (modules) over a noetherian ring.

Non commutative rings. The Wedderburn-Artin theorems, Maschkes theorem, characters of a group and character table.

Modules over PID. Generalization of the fundamental theorem of finite abelian groups. Canonical forms of matrices.

Dedekind domains. Characterization of Dedekind domains. Unique factorization of ideals. Fractional ideals, groups associated to the ideals of a Dedekind domain.

Further topics. ...

Basic bibliography

Alperin, Bell, Groups and Representations
Atyah, Mac Donald, Introduction to commutative algebra
Birkhoff, Mac Lane, Algebra
Rotman, Advanced Modern Algebra