

1. Record Nr.	UNINA9910300108203321
Autore	Lee Gregory T
Titolo	Abstract Algebra : An Introductory Course // by Gregory T. Lee
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2018
ISBN	3-319-77649-5
Edizione	[1st ed. 2018.]
Descrizione fisica	1 online resource (XI, 301 p. 7 illus.)
Collana	Springer Undergraduate Mathematics Series, , 1615-2085
Disciplina	512.02
Soggetti	Group theory Associative rings Rings (Algebra) Algebra Field theory (Physics) Group Theory and Generalizations Associative Rings and Algebras Field Theory and Polynomials
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Includes index.
Nota di contenuto	Part I Preliminaries -- 1 Relations and Functions -- 2 The Integers and Modular Arithmetic -- Part II Groups -- 3 Introduction to Groups -- 4 Factor Groups and Homomorphisms -- 5 Direct Products and the Classification of Finite Abelian Groups -- 6 Symmetric and Alternating Groups -- 7 The Sylow Theorems -- Part III Rings -- 8 Introduction to Rings -- 9 Ideals, Factor Rings and Homomorphisms -- 10 Special Types of Domains -- Part IV Fields and Polynomials -- 11 Irreducible Polynomials -- 12 Vector Spaces and Field Extensions -- Part V Applications -- 13 Public Key Cryptography -- 14 Straightedge and Compass Constructions -- A The Complex Numbers -- B Matrix Algebra -- Solutions -- Index.
Sommario/riassunto	This carefully written textbook offers a thorough introduction to abstract algebra, covering the fundamentals of groups, rings and fields. The first two chapters present preliminary topics such as properties of the integers and equivalence relations. The author then explores the first major algebraic structure, the group, progressing as far as the

Sylow theorems and the classification of finite abelian groups. An introduction to ring theory follows, leading to a discussion of fields and polynomials that includes sections on splitting fields and the construction of finite fields. The final part contains applications to public key cryptography as well as classical straightedge and compass constructions. Explaining key topics at a gentle pace, this book is aimed at undergraduate students. It assumes no prior knowledge of the subject and contains over 500 exercises, half of which have detailed solutions provided.
