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	Sommario/riassunto	Most of the existing monographs on generalized inverses are based on linear algebra tools and geometric methods of Banach (Hilbert) spaces to introduce generalized inverses of complex matrices and operators and their related applications, or focus on generalized inverses of matrices over special rings like division rings and integral domains, and does not include the results in general algebraic structures such as arbitrary rings, semigroups and categories, which are precisely the most general cases. In this book, five important generalized inverses are introduced in these algebraic structures. Moreover, noting that the (pseudo) core inverse was introduced in the last decade and has attracted much attention, this book also covers the very rich research results on it, so as to be a necessary supplement to the existing monographs. This book starts with decompositions of matrices, introduces the basic properties of generalized inverses of matrices, and

then discusses generalized inverses of elements in rings and semigroups, as well as morphisms in categories. The algebraic nature of generalized inverses is presented, and the behavior of generalized inverses are related to the properties of the algebraic system. Scholars and graduate students working on the theory of rings, semigroups and generalized inverses of matrices and operators will find this book helpful.