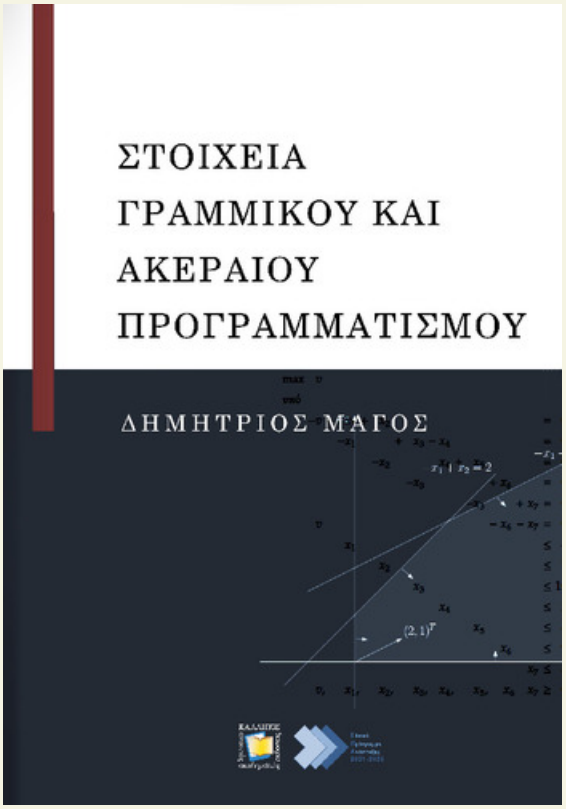

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Abstract

The book is an introduction to the section of Mathematical Programming concerning the optimization of a linear function subject to a set of linear constraints. A distinction is made in respect to whether the domain of the variables is continuous or discrete. In the first case the section is referred to as Linear Programming while in the second case as Integer (Linear) Programming. The book covers a great range of the former while it presents basic knowledge of the latter. Three core features of the subject are explored in the book: a) the modeling development reflecting practical problems, b) the theoretical study of the underlying structures that these models describe, c) the algorithmic techniques for solving the models developed in (a) based on the analysis presented in (b). Consequently, the book is a holistic approach to this specific field; the presentation of the underlying theory and its exploitation for model solving, the algorithmic techniques developed for that purpose and the analysis of the information that they provide as an output as well as the wide range of applications are some of the feature of this book which aims at motivating the reader to become more involved in this fascinating subject.

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