



METADATA

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Abstract

Mathematical modeling is a very active field of research with broad and interdisciplinary content, which extends beyond mathematics to all positive sciences (physics, chemistry, biology, materials science), engineering, economics, and the humanities. For this reason, this textbook can be a very useful aid for various courses in all of the above scientific disciplines. The main objective of the textbook is to present the central chapters of mathematical modeling, highlighting the above perspective, and to prepare undergraduate and graduate students for interdisciplinary research, highlighting the challenges that arise in each area. More specifically, the main objectives of the textbook are as follows: The description and understanding of processes and corresponding simple mathematical models from the sciences (physics, biology,

economics, and others). The understanding of basic methods for dealing with (finding solutions to) models. Acquiring skills for developing mathematical models for problems in theoretical and applied sciences. Each chapter of the textbook corresponds to approximately two teaching weeks and is organized into Learning Objects (LO), each of which is an autonomous unit of educational content and is linked to one or more learning outcomes. In addition, each LO will be developed in accordance with the basic principles of accessibility (using appropriate metadata), reusability (in different educational contexts), and interoperability (independent of the platform used). At the end of each chapter there will be exercises and problems, followed by bibliographical references with comments and a roadmap on how to read them.

