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Comprehensive
Applied Mathematical
Modeling in
the Natural and
Engineering Sciences
Theoretical Predictions Compared with
Data

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Comprehensive Applied Mathematical Modeling in the Natural and Engineering Sciences

Theoretical Predictions Compared with Data

- Provides an emphasis on the formulation and validation mappings of comprehensive applied mathematical modeling
- Includes a concentration on the simplification procedures required to make prospective models
- · Can be used as a valuable textbook or reference

This text demonstrates the process of comprehensive applied mathematical modeling through the introduction of various case studies. The case studies are arranged in increasing order of complexity based on the mathematical methods required to analyze the models. The development of these methods is also included, providing a self-contained presentation. To reinforce and supplement the material introduced, original problem sets are offered involving case studies closely related to the ones presented. With this style, the text's perspective, scope, and completeness of the subject matter are considered unique. Having grown out of four self-contained courses taught by the authors, this text will be of use in a two-semester sequence for advanced undergraduate and beginning graduate students, requiring rudimentary knowledge of advanced calculus and differential equations, along with a basic understanding of some simple physical and biological scientific principles.

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