Digital Spectral Analysis
MATLAB® Software User Guide
S. Lawrence Marple, Jr.

This user guide serves as a companion to Dover’s Digital Spectral Analysis, Second Edition, illustrating all of the text’s techniques and algorithms. The spectral demonstrations use MATLAB software that encompasses the full experience. Four software categories support the demonstrations: the main MATLAB spectral demonstration scripts, supporting MATLAB plotting scripts, MATLAB technique processing functions, and signal sample data sources. Free downloads of scripts and demonstration data files are available from the Dover website.

Dover Original. 128pp. 6 x 9.

Author Profile
S. Lawrence Marple, Jr., is a Professor in the School of Electrical Engineering and Computer Science at Oregon State University.

Also Available


Commutative Algebra
Volume I
Oscar Zariski and Pierre Samuel
A precise, fundamental study of commutative algebra, this text pays particular attention to field theory and the ideal theory of Noetherian rings and Dedekind domains. Much of the material appeared here in book form for the first time. Intended for advanced undergraduates and graduate students in mathematics, the treatment’s prerequisites are the rudiments of set theory and linear algebra, including matrices and determinants.


Commutative Algebra
Volume II
Oscar Zariski and Pierre Samuel
The second volume of this treatise addresses three basic topics that extend the classical material of Volume I and are of a more advanced nature and recent vintage. These are valuation theory, theory of polynomial and power series rings (including generalizations to graded rings and modules), and local algebra. The connection of this material to algebraic geometry is stressed throughout the presentation.

Analytic Functions
M. A. Evgrafov

This highly regarded text is directed toward advanced undergraduates and graduate students in mathematics who are interested in developing a firm foundation in the theory of functions of a complex variable. Topics include analytic functions and their properties, singular points and expansion in series, conformal mappings, the theory of residues, the Laplace transform, harmonic and subharmonic functions, extremal problems, distribution of values, and more.

Ordinary Differential Equations and Stability Theory
An Introduction
David A. Sánchez

This is a brief modern introduction to the subject of ordinary differential equations, with an emphasis on stability theory. Concisely and lucidly expressed, it is intended as a supplementary text for advanced undergraduates or beginning graduate students who have completed a first course in ordinary differential equations. Problems at the end of each chapter and two Appendixes on special topics enrich the text.

Worked Examples in Mathematics for Scientists and Engineers
G. Stephenson

This rich collection of fully worked problems in many areas of mathematics will be useful to undergraduates in mathematics; students in engineering, physics, and chemistry; and postgraduate scientists looking for a way to refresh their skills in specific topics. The problems can supplement any text and be employed to efficiently review exam topics, including functions, complex variables, vector algebra, Fourier series, and more.

Induction in Geometry
L. I. Golovina and I. M. Yaglom

This volume discusses the application of the method of mathematical induction to the solution of geometric problems. The treatment includes both examples with detailed solutions and those with only hints. To provide additional background, the book incorporates the concise text The Method of Mathematical Induction, which introduces this manner of mathematical proof via many examples from algebra, geometry, and trigonometry.
Elements of Modern Mathematics
Kenneth O. May

An unusually thoughtful and well-constructed introduction to the serious study of mathematics, this book requires no background beyond high school courses in plane geometry and elementary algebra. It provides a fundamental orientation in modern mathematics, an essential vocabulary of mathematical terms, and some facility in the use of mathematical concepts and symbols. Exercises and problems appear throughout the text; some answers are included.


---

Special Relativity for Physicists
G. Stephenson and C. W. Kilmister

This concise account of special relativity is generally directed to nonspecialists and includes detailed coverage of the Lorentz transformation, optical and dynamical applications, applications to modern physics, and much more. "Even in the most technical sections, the authors' writing is delightfully lucid, and they give many applications to classical and modern physics . . . Undergraduates, and those who require some understanding of special relativity for their work in other fields, will find this elegant work a pleasure to read." — Technology.


---

The Struggle for Existence
A Classic of Mathematical Biology and Ecology
G. F. Gause

This groundbreaking work presents a lucid introduction to the tools of mathematical biology and discusses the author’s own research with microbial populations. A landmark in modern science’s grasp of the complexities of population competition, it provides a microcosm of the processes at work on a larger scale throughout the biosphere and offers the means for quantitative evaluation. Easily understood by anyone acquainted with higher mathematics.

Reprint of the Williams & Wilkins, Baltimore, 1934 edition. 176pp. 5 1/2 x 8 1/2.

---

Nonnegative Matrices and Applicable Topics in Linear Algebra
Alexander Graham

Nonnegative matrices is an increasingly important subject in economics, control theory, numerical analysis, Markov chains, and other areas. This concise treatment is directed toward undergraduates in mathematics and related fields without specialized knowledge of the subject at the postgraduate level. Topics include graph theory, unitary and Hermitian matrices, and positive definite matrices as well as stochastic, genetic, and economic models. Problems, with solutions, enhance the text.

The Variational Theory of Geodesics
M. M. Postnikov
Edited by Bernard R. Gelbaum

Riemannian geometry is a fundamental area of modern mathematics, and the subdiscipline of geodesics (shortest paths) is of particular significance. Compact and self-contained, this text by a noted theorist presents the essentials of modern differential geometry as well as the basic tools for the study of Morse theory. The advanced treatment emphasizes analytical rather than topological aspects of Morse theory. Requires a solid background in calculus.

Mathematical Maturity via Discrete Mathematics
Vadim Ponomarenko

Designed for a one-semester course for undergraduate majors in math, computer science, and computer engineering, this text helps students take the crucial step from consuming mathematics to producing mathematics. Author Vadim Ponomarenko employs the general concept of discrete mathematics to introduce the basic knowledge of proof techniques and their uses. Theorizing that providing solutions inhibits learning, he offers only hints to the many exercises.
Dover Original. 192pp. 5 x 8.

An Introduction to Stochastic Processes
Edward P. C. Kao

A vigorous response to the challenges of incorporating computer use into teaching and learning stochastic processes, this book takes an applications- and computer-oriented approach rather than the standard formal and mathematically rigorous approach. It is suitable for advanced undergraduates and beginning graduate students in operations research, management science, finance, engineering, statistics, computer science, and applied mathematics. A Solutions Manual is available to instructors upon request.

A Heat Transfer Textbook
Fifth Edition
John H. Lienhard V and John H. Lienhard IV

Written by two recognized experts in the field, this introduction to heat and mass transfer for advanced undergraduate and graduate engineering students has been used in the classroom for over 38 years, and it’s been revised and updated regularly. Topics include conduction, convection, radiation, and phase-change. Worked examples and end-of-chapter exercises appear throughout the book, along with well-drawn, illuminating figures.
<table>
<thead>
<tr>
<th>Book Title</th>
<th>Author(s)</th>
<th>Edition Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Title</td>
<td>Author</td>
<td>Description</td>
</tr>
<tr>
<td>------------------------------------------------------------</td>
<td>-------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Understanding Vector Calculus</td>
<td>Jerrold Franklin</td>
<td>This concise text is a workbook for using vector calculus in practical calculations and derivations. Part One briefly develops vector calculus from the beginning and addresses more detailed applications. Part Two consists of answered problems. Physical examples are often employed but no familiarity with physics is necessary to study the mathematics of vector calculus, only a knowledge of one-dimensional differential and integral calculus.</td>
</tr>
<tr>
<td>Obstacle Problems in Mathematical Physics</td>
<td>José Francisco Rodrigues</td>
<td>An important category of free boundary problems in the area of mathematical physics, obstacle problems involve the applicability of elliptic variational inequalities. This research monograph is intended for advanced undergraduates and graduate students in mathematics and engineering. The three-part treatment introduces mathematical physics, discusses unilateral elliptic variational inequalities, and explores this material in terms of its applications in mechanics and physics. Includes a substantial Bibliography.</td>
</tr>
<tr>
<td>Learning Fundamentals of Astrodynamics with MATLAB® and STK</td>
<td>William W. Saylor</td>
<td>Written for undergraduate engineering students in the field of astrodynamics, this book provides a detailed course in solving astrodynamics problems with MATLAB and STK software. It is intended to be a companion volume to the long-awaited 2019 second edition of Dover’s classic and widely used text, <em>Fundamentals of Astrodynamics</em>, which was originally published in 1971.</td>
</tr>
<tr>
<td>Molecular Magnetism</td>
<td>Olivier Kahn</td>
<td>This highly regarded and historic book represents the first comprehensive discussion of both theoretical and experimental aspects of molecular magnetism research. It covers basic concepts of magnetization and magnetic susceptibility, establishes the fundamental equations of molecular magnetism, and examines molecules containing a unique magnetic center. This newly updated edition features contributions from the author’s colleagues, including Dr. Michel Verdaguer.</td>
</tr>
</tbody>
</table>