Ordinary Differential Equations Mit Press

Ordinary Differential Equations: A Dynamical Point Of View
Optimal Control Theory with Applications in Economics
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Analytical Methods in Economics
Perspectives of Nonlinear Dynamics: Volume 2
Differential Equations: A Dynamical Systems Approach
A Course in Differential Geometry
Neural Engineering
Обыкновенные Дифференциальные Уравнения. Ordinary Differential Equations. Translated and Edited by Richard A. Silverman
Handbook of Differential Equations
Geometrical Methods in the Theory of Ordinary Differential Equations
Introduction to Random Vibrations

FULLER PATRICK

Ordinary Differential Equations: A Dynamical Point Of View Routledge
This problem book contains exercises for courses in differential equations and calculus of variations at universities and technical institutes. It is designed for non-mathematics students and also for scientists and practicing engineers who feel a need to refresh their knowledge. The book contains more than 260 examples and about 1400 problems to be solved by the students — much of which have been composed by the authors themselves. Numerous references are given at the end of the book to furnish sources for detailed theoretical approaches, and expanded treatment of applications. Contents:First Order Differential EquationsN-th Order Differential EquationsLinear Second Order EquationsSystems of Differential EquationsPartial Equations of the First OrderNonlinear Equations and StabilityCalculus of VariationsAnswers to Problems Readership: Mathematicians and engineers. keywords:Examples;Differential Equations;Calculus of Variations “... the book can be successfully used both by students and practising engineers.” Mathematics Abstracts
Optimal Control Theory with Applications in Economics Springer Science & Business Media
Skillfully organized introductory text examines origin of differential equations, then defines basic terms and outlines the general solution of a differential equation. Subsequent sections deal with integrating factors; dilution and accretion problems; linearization of first order systems; Laplace Transforms; Newton's Interpolation Formulas, more.
Ordinary Differential Equations with Applications Courier Corporation
The first edition (94301-3) was published in 1995 in TIMS and had 2264 regular US sales, 928 IC, and 679 bulk. This new edition updates the text to Mathematica 5.0 and offers a more extensive treatment of linear algebra. It has been thoroughly revised and corrected throughout.
Differential Equations with Applications Elsevier
A thorough development of the main topics in linear differential equations with applications, examples, and exercises illustrating each topic.
Ordinary Differential Equations MIT Press
Since the first edition of this book, geometrical methods in the theory of ordinary differential equations have become very popular and some progress has been made partly with the help of computers. Much of this progress is represented in this revised, expanded edition, including such topics as the Feigenbaum universality of period doubling, the Zoladec solution, the Iljashenko proof, the Ecalle and Voronin theory, the Varchenko and Hovanski theorems, and the Neistadt theory. In the selection of material for this book, the author explains basic ideas and methods applicable to the study of differential equations. Special efforts were made to keep the basic ideas free from excessive technicalities. Thus the most fundamental questions are considered in great detail, while of the more special and difficult parts of the theory have the character of a survey. Consequently, the reader needs only a general mathematical knowledge to easily follow this text. It is directed to mathematicians, as well as all users of the theory of differential equations.

Ordinary Differential Equations Springer Science & Business Media
Introductory treatment explores existence theorems for first-order scalar and vector equations, basic properties of linear vector equations, and two-dimensional nonlinear autonomous systems. "A rigorous and lively introduction." — The American Mathematical Monthly. 1958 edition.
Linear Ordinary Differential Equations Springer Science & Business Media
The author, Professor Kurzweil, is one of the world's top experts in the area of ordinary differential equations - a fact fully reflected in this book. Unlike many classical texts which concentrate primarily on methods of integration of differential equations, this book pursues a modern approach: the topic is discussed in full generality which, at the same time, permits us to gain a deep insight into the theory and to develop a fruitful intuition. The basic framework of the theory is expanded by considering further important topics like stability, dependence of a solution on a parameter, Carathéodory's theory and differential relations. The book is very well written, and the prerequisites needed are minimal - some basics of analysis and linear algebra. As such, it is accessible to a wide circle of readers, in particular to non-mathematicians.
Ordinary Differential Equations Wellesley-Cambridge Press
Newton's fundamental discovery, the one which he considered necessary to keep secret and published only in the form of an anagram, consists of the following: Data aequatione quotcunque jluentes quantitae involvente jluxiones invenire et vice versa. In contemporary mathematical language, this means: "It is useful to solve differential equations". At present, the theory of differential equations represents a vast con glomerate of a great many ideas and methods of different nature, very useful for many applications and constantly stimulating theoretical in vestigations in all areas of mathematics. Many of the routes connecting abstract mathematical theories to appli cations in the natural sciences lead through differential equations. Many topics of the theory of differential equations grew so much that they became disciplines in themselves; problems from the theory of differential equations had great significance in the origins of such disciplines as linear algebra, the theory of Lie groups, functional analysis, quantum mechanics, etc. Consequently, differential equations lie at the basis of scientific mathematical philosophy (Weltanschauung). In the selection of material for this book, the author intended to expound basic ideas and methods applicable to the study of differential equations. Special efforts were made to keep the basic ideas (which are, as a rule, simple and intuitive) free from technical details. The most fundamental and simple questions are considered in the greatest detail, whereas the exposition of the more special and difficult parts of the theory has been given the character of a survey.
Ordinary Differential Equations Springer Science & Business Media
Ordinary differential equations is a standard course in the undergraduate mathematics curriculum that usually comes after the first university calculus and linear algebra courses taken by a mathematics major. Such courses may also typically be attended by undergraduates from other areas of physical and social sciences, and engineering. The content of such a course has remained fairly static over time, despite the expansion of the topic into other disciplines as a result of the dynamical systems point of view.This core undergraduate course updated from the dynamical systems perspective can easily be covered in one semester, with room for projects or more advanced topics tailored to the interests of the students.
Ordinary Differential Equations Springer
For the instructor or student confronting an introductory course in ordinary differential equations there is a need for a brief guide to the key concepts in the subject. Important topics like stability, resonance, existence of periodic solutions, and the essential role of continuation of solutions are often engulfed in a sea of exercises in integration, linear algebra theory, computer programming and an overdose of series expansions. This book is intended as that guide. It is more conceptual than definitive and more light-hearted than pedagogic. It covers key topics and theoretical underpinnings that are necessary for the study of rich topics like nonlinear equations or stability theory. The [Author]; has included a great many illuminating examples and discussions that uncover the conceptual heart of the matter.
Nonlinear Ordinary Differential Equations Springer Science & Business Media
Based on a one-year course taught by the author to graduates at the University of Missouri, this book provides a student-friendly account of some of the standard topics encountered in an introductory course of ordinary differential equations. In a second semester, these ideas can be expanded by introducing more advanced concepts and applications. A central theme in the book is the use of Implicit Function Theorem, while the latter sections of the book introduce the basic ideas of perturbation theory as applications of this Theorem. The book also contains material differing from standard treatments, for example, the Fiber Contraction Principle is used to prove the smoothness of functions that are obtained as fixed points of contractions. The ideas introduced in this section can be extended to infinite dimensions.
Lectures on Ordinary Differential Equations Springer
This book compiles the most widely applicable methods for solving and approximating differential equations. as well as numerous examples showing the methods use. Topics include ordinary differential equations, symplectic integration of differential equations, and the use of wavelets when numerically solving differential equations. For nearly every technique, the book provides: The types of equations to which the method is applicable The idea behind the method The procedure for carrying out the method At least one simple example of the method Any cautions that should be exercised Notes for more advanced users References to the literature for more discussion or more examples, including pointers to electronic resources, such as URLs
Geometrical Methods in the Theory of Ordinary Differential Equations World Scientific
The dynamics of physical, chemical, biological or fluid systems generally must be described by nonlinear models, whose detailed mathematical solutions are not obtainable. To understand some aspects of such dynamics, various complementary methods and viewpoints are of crucial importance. The presentation and style is intended to stimulate the reader's imagination to apply these methods to a host of problems and situations.
Differential Equations and Linear Algebra World Scientific
These twenty lectures have been developed and refined by Professor Siebert during the more than two decades he has been teaching introductory Signals and Systems courses at MIT. The lectures are designed to pursue a variety of goals in parallel: to familiarize students with the properties of a fundamental set of analytical tools; to show how these tools can be applied to help understand many important concepts and devices in modern communication and control engineering practice; to explore some of the mathematical issues behind the powers and limitations of these tools; and to begin the development of the vocabulary and grammar, common images and metaphors, of a general language of signal and system theory. Although broadly organized as a series of lectures, many more topics and examples (as well as a large set of unusual problems and laboratory exercises) are included in the book than would be presented orally. Extensive use is made throughout of knowledge acquired in early courses in elementary electrical and electronic circuits and differential equations. Contents:Review of the "classical" formulation and solution of dynamic equations for simple electrical circuits; The unilateral Laplace transform and its applications; System functions; Poles and zeros; Interconnected systems and feedback; The dynamics of feedback systems; Discrete-time signals and linear difference equations; The unilateral Z-transform and its applications; The unit-sample response and discrete-time convolution; Convolutional representations of continuous-time systems; Impulses and the superposition integral; Frequency-domain methods for general LTI systems; Fourier series; Fourier transforms and Fourier's theorem; Sampling in time and frequency; Filters, real and ideal; Duration, rise-time and bandwidth relationships: The uncertainty principle; Bandpass operations and analog communication systems; Fourier transforms in discrete-time systems; Random Signals; Modern communication systems. William Siebert is Ford Professor of Engineering at MIT. Circuits, Signals, and Systemsis included in The MIT Press Series in Electrical Engineering and Computer Science, copublished with McGraw-Hill.
Ordinary Differential Equations University of Michigan Press
An accessible introduction to the analytical foundation of economics
Differential Equations CRC Press
Coherent, balanced introductory text focuses on initial- and boundary-value problems, general properties of linear equations, and the differences between linear and nonlinear systems. Includes large number of illustrative examples worked out in detail and extensive sets of problems. Answers or hints to most problems appear at end.
Lectures on Ordinary Differential Equations Springer Science & Business Media
Arnold, V.I.; Ordinary Differential Equations, 3rd edition by Valdimir I. Arnold
ORDINARY DIFFERENTIAL EQUATIONS Courier Corporation
Few books on Ordinary Differential Equations (ODEs) have the elegant geometric insight of this one, which puts emphasis on the qualitative and geometric properties of ODEs and their solutions, rather than on routine presentation of algorithms. From the reviews: "Professor Arnold has expanded his classic book to include new material on exponential growth, predator-prey, the pendulum, impulse response, symmetry groups and group actions, perturbation and bifurcation." --SIAM REVIEW
Ordinary Differential Equations Springer
Ordinary Differential EquationsOrdinary Differential EquationsNational Geographic Books
Partial Differential Equations in Mechanics 2 American Mathematical Soc.
Few books on Ordinary Differential Equations (ODEs) have the elegant geometric insight of this one, which puts emphasis on the qualitative and geometric properties of ODEs and their solutions, rather than on routine presentation of algorithms. From the reviews: "Professor Arnold has expanded his classic book to include new material on exponential growth, predator-prey, the pendulum, impulse response, symmetry groups and group actions, perturbation and bifurcation." --SIAM REVIEW