

## General Topology Problem Solution Engelking

This book is a systematic presentation of the methods that have been developed for the interpretation of molecular modeling to the design of new chemicals. The main feature of the book is the coordination of the various scientific disciplines required for the generation of new compounds. The five chapters deal with such areas as structure and properties of organic compounds, the relationship between structure and properties, and models for structure generation. The subject is covered in sufficient depth to provide readers with the necessary background to understand the book. The book will be of value to chemists in industries involved in the manufacture of organic chemicals such as solvents, refrigerants, blood substitutes, etc. It also serves as a reference for academics, consultants, and students interested in molecular design.

Compactness is related to a number of fundamental concepts of mathematics. Particularly important are compact Hausdorff spaces or compacta. Compactness appeared in mathematics as one of the main topological properties of an interval, a square, a sphere and any closed, bounded subset of a finite dimensional Euclidean space. Once it was realized that compactness is responsible for a series of fundamental facts related to those sets such as boundedness and uniform continuity of continuous functions defined on them, compactness was given a general language of general topology reaching far beyond the class of metric spaces. This immensely extended the realm of application of this concept (including in particular, function spaces and the theory of compactness). The fact, that general topology provided an adequate language for a description of the concept of compactness and secured a natural medium for its harmonious development in this area of mathematics. The final formulation of a general definition of compactness and the creation of the foundations of the theory of compact topological spaces are due to L. Urysohn (see Aleksandrov and Urysohn (1971)).

General Topology Recent Progress in General Topology II Elsevier

This book is devoted to the topological fixed point theory of multivalued mappings including applications to differential inclusions and mathematical economy. It is the first monograph on the fixed point theory of multivalued mappings in metric ANR spaces. Although the theoretical material was tentatively selected with respect to applications, the text is self-contained and presented.

General Topology

Recent Progress in General Topology II

Problems and Exercises

Topology

Topological Structure of the Solution Set for Evolution Inclusions

Annual Boise Extravaganza in Set Theory, Boise, Idaho, 1995-2010

*This concise, self-contained textbook gives an in-depth look at problem-solving from a mathematician's point-of-view. Each chapter builds off the previous one, while introducing a variety of methods that could be used when approaching any given problem. Creative thinking is the key to solving mathematical problems, and this book outlines the tools necessary to improve the reader's technique. The text is divided into twelve chapters, each providing corresponding hints, explanations, and finalization of solutions for the problems in the given chapter. For the reader's convenience, each exercise is marked with the required background level. This book implements a variety of strategies that can be used to solve mathematical problems in fields such as analysis, calculus, linear and multilinear algebra and combinatorics. It includes applications to mathematical physics, geometry, and other branches of mathematics. Also provided within the text are real-life problems in engineering and technology. Thinking in Problems is intended for advanced undergraduate and graduate students in the classroom or as a self-study guide. Prerequisites include linear algebra and analysis.*

*Algebra and topology, the two fundamental domains of mathematics, play complementary roles. Topology studies continuity and convergence and provides a general framework to study the concept of a limit. Much of topology is devoted to handling infinite sets and infinity itself; the methods developed are qualitative and, in a certain sense, irrational. Algebra studies all kinds of operations and provides a basis for algorithms and calculations. Very often, the methods here are quantitative in nature. Because of this difference in nature, algebra and topology have a strong tendency to develop independently, not in direct contact with each other. However, in applications, in higher level domains of mathematics, such as functional analysis, dynamical systems, representation theory, and others, topology and algebra come in contact most naturally. Many of the most important objects of mathematics represent a blend of algebraic and of topological structures. Topological function spaces and linear topological spaces in general, topological groups and topological fields, transformation groups, topological lattices are objects of this kind. Very often an algebraic structure and a topology come naturally together; this is the case when they are both determined by the nature of the elements of the set considered (a group of transformations is a typical example). The rules that describe the relationship between a topology and an algebraic operation are almost always transparent and natural—the operation has to be continuous, jointly or separately.*

*Comprehensive text for beginning graduate-level students and professionals. "The clarity of the author's thought and the carefulness of his exposition*

make reading this book a pleasure." — *Bulletin of the American Mathematical Society*. 1955 edition.

This book consists of several survey and research papers covering a wide range of topics in active areas of set theory and set theoretic topology. Some of the articles present, for the first time in print, knowledge that has been around for several years and known intimately to only a few experts. The surveys bring the reader up to date on the latest information in several areas that have been surveyed a decade or more ago. Topics covered in the volume include combinatorial and descriptive set theory, determinacy, iterated forcing, Ramsey theory, selection principles, set-theoretic topology, and universality, among others. Graduate students and researchers in logic, especially set theory, descriptive set theory, and set-theoretic topology, will find this book to be a very valuable reference.

*General Topology III*

*Handbook of Measure Theory*

*Open Problems in Topology II*

*Topological Fixed Point Theory of Multivalued Mappings*

*Recent Progress in General Topology III*

*Set Theory and Its Applications*

*This book builds on decades of research and provides contemporary theoretical foundations for practical applications to intelligent technologies and advances in artificial intelligence (AI). Reflecting the growing realization that computational models of human reasoning and interactions can be improved by integrating heterogeneous information resources and AI techniques, its ultimate goal is to promote integrated computational approaches to intelligent computerized systems. The book covers a range of interrelated topics, in particular, computational reasoning, language, syntax, semantics, memory, and context information. The respective chapters use and develop logically oriented methods and techniques, and the topics selected are from those areas of logic that contribute to AI and provide its mathematical foundations. The intended readership includes researchers working in the areas of traditional logical foundations, and on new approaches to intelligent computational systems.*

*The book presents surveys describing recent developments in most of the primary subfields of General Topology, and its applications to Algebra and Analysis during the last decade, following the previous editions (North Holland, 1992 and 2002). The book was prepared in connection with the Prague Topological Symposium, held in 2011. During the last 10 years the focus in General Topology changed and therefore the selection of topics differs from that chosen in 2002. The following areas experienced significant developments: Fractals, Coarse Geometry/Topology, Dimension Theory, Set Theoretic Topology and Dynamical Systems.*

*The theory of function spaces endowed with the topology of point wise convergence, or Cp-theory, exists at the intersection of three important areas of mathematics: topological algebra, functional analysis, and general topology. Cp-theory has an important role in the classification and unification of heterogeneous results from each of these areas of research. Through over 500 carefully selected problems and exercises, this volume provides a self-contained introduction to Cp-theory and general topology. By systematically introducing each of the major topics in Cp-theory, this volume is designed to bring a dedicated reader from basic topological principles to the frontiers of modern research. Key features include: - A unique problem-based introduction to the theory of function spaces. - Detailed solutions to each of the presented problems and exercises. - A comprehensive bibliography reflecting the state-of-the-art in modern Cp-theory. - Numerous open problems and directions for further research. This volume can be used as a textbook for courses in both Cp-theory and general topology as well as a reference guide for specialists studying Cp-theory and related topics. This book also provides numerous topics for PhD specialization as well as a large variety of material suitable for graduate research.*

*The Encyclopaedia of Mathematics is the most up-to-date, authoritative and comprehensive English-language work of reference in mathematics which exists today. With over 7,000 articles from 'A-integral' to 'Zygmund Class of Functions', supplemented with a wealth of complementary information, and an index volume providing thorough cross-referencing of entries of related interest, the Encyclopaedia of Mathematics offers an immediate source of reference to mathematical definitions, concepts, explanations, surveys, examples, terminology and methods. The depth and breadth of content and the straightforward, careful presentation of the information, with the emphasis on accessibility, makes the Encyclopaedia of Mathematics an immensely useful tool for all mathematicians and other scientists who use, or are confronted by, mathematics in their work. The Encyclopaedia of Mathematics provides, without doubt, a reference source of mathematical knowledge which is unsurpassed in value and usefulness. It can be highly recommended for use in libraries of universities, research institutes, colleges and even schools.*

*Paracompactness, Function Spaces, Descriptive Theory*

*Topological Groups*

*The Lvov-Warsaw School. Past and Present*

*Handbook of Set-Theoretic Topology*

*Topologies on Closed and Closed Convex Sets*

*Encyclopaedia of Mathematics*

*Introduces applied mathematicians and graduate students to an original relaxation method based on a continuous extension of various optimization problems relating to convex compactification; it can be applied to problems in optimal control theory, the calculus of variations, and non-cooperative game theory. Reviews the background and summarizes the general theory of convex compactifications, then uses it to obtain convex, locally compact envelopes of the Lebesgue and Sobolev spaces involved in concrete problems. The nontrivial envelopes cover the classical Young measures as well as various generalizations of them, which can record the*

*limit behavior of fast oscillation and concentration effects. Annotation copyrighted by Book News, Inc., Portland, OR*

*This book is designed for graduate students to acquire knowledge of dimension theory, ANR theory (theory of retracts), and related topics. These two theories are connected with various fields in geometric topology and in general topology as well. Hence, for students who wish to research subjects in general and geometric topology, understanding these theories will be valuable. Many proofs are illustrated by figures or diagrams, making it easier to understand the ideas of those proofs. Although exercises as such are not included, some results are given with only a sketch of their proofs. Completing the proofs in detail provides good exercise and training for graduate students and will be useful in graduate classes or seminars. Researchers should also find this book very helpful, because it contains many subjects that are not presented in usual textbooks, e.g.,  $\dim X \times I = \dim X + 1$  for a metrizable space  $X$ ; the difference between the small and large inductive dimensions; a hereditarily infinite-dimensional space; the ANR-ness of locally contractible countable-dimensional metrizable spaces; an infinite-dimensional space with finite cohomological dimension; a dimension raising cell-like map; and a non-AR metric linear space. The final chapter enables students to understand how deeply related the two theories are. Simplicial complexes are very useful in topology and are indispensable for studying the theories of both dimension and ANRs. There are many textbooks from which some knowledge of these subjects can be obtained, but no textbook discusses non-locally finite simplicial complexes in detail. So, when we encounter them, we have to refer to the original papers. For instance, J.H.C. Whitehead's theorem on small subdivisions is very important, but its proof cannot be found in any textbook. The homotopy type of simplicial complexes is discussed in textbooks on algebraic topology using CW complexes, but geometrical arguments using simplicial complexes are rather easy.*

*The main goal of this Handbook is to survey measure theory with its many different branches and its relations with other areas of mathematics. Mostly aggregating many classical branches of measure theory the aim of the Handbook is also to cover new fields, approaches and applications which support the idea of "measure" in a wider sense, e.g. the ninth part of the Handbook. Although chapters are written of surveys in the various areas they contain many special topics and challenging problems valuable for experts and rich sources of inspiration. Mathematicians from other areas as well as physicists, computer scientists, engineers and econometrists will find useful results and powerful methods for their research. The reader may find in the Handbook many close relations to other mathematical areas: real analysis, probability theory, statistics, ergodic theory, functional analysis, potential theory, topology, set theory, geometry, differential equations, optimization, variational analysis, decision making and others. The Handbook is a rich source of relevant references to articles, books and lecture notes and it contains for the reader's convenience an extensive subject and author index.*

*This book is designed for the reader who wants to get a general view of the terminology of General Topology with minimal time and effort. The reader, whom we assume to have only a rudimentary knowledge of set theory, algebra and analysis, will be able to find what they want if they will properly use the index. However, this book contains very few proofs and the reader who wants to study more systematically will find sufficiently many references in the book. Key features:*

- More terms from General Topology than any other book ever published*
- Short and informative articles*
- Authors include the majority of top researchers in the field*
- Extensive indexing of terms*

*Asymptotic Attainability*

*Molecular Design*

*Coproduct — Hausdorff—Young Inequalities*

*Topological and Function Spaces*

*Compactness, Homologies of General Spaces*

**This Handbook is an introduction to set-theoretic topology for students in the field and for researchers in other areas for whom results in set-theoretic topology may be relevant. The aim of the editors has been to make it as self-contained as possible without repeating material which can easily be found in standard texts. The Handbook contains detailed proofs of core results, and references to the literature for peripheral results where space was insufficient. Included are many open problems of current interest. In general, the articles may be read in any order. In a few cases they occur in pairs, with the first one giving an elementary treatment of a subject and the second one more advanced results. These pairs are: Hodel and Juhász on cardinal functions; Roitman and Abraham—Todorčević on S- and L-spaces; Weiss and Baumgartner on versions of Martin's axiom; and Vaughan and Stephenson on compactness properties.**

**The book is devoted to the topological fixed point theory both for single-valued and multivalued mappings in locally convex spaces, including its application to boundary value problems for ordinary differential equations (inclusions) and to (multivalued) dynamical systems. It is the first monograph dealing with the topological fixed point theory in non-metric spaces. Although the theoretical material was tendentiously selected with respect to applications, the text is self-contained. Therefore, three appendices concerning almost-periodic and derivo-periodic single-valued (multivalued) functions and (multivalued) fractals are**

supplied to the main three chapters.

This handbook is the third volume in a series of volumes devoted to self contained and up-to-date surveys in the theory of ordinary differential equations, written by leading researchers in the area. All contributors have made an additional effort to achieve readability for mathematicians and scientists from other related fields so that the chapters have been made accessible to a wide audience. These ideas faithfully reflect the spirit of this multi-volume and hopefully it becomes a very useful tool for research, learning and teaching. This volume consists of seven chapters covering a variety of problems in ordinary differential equations. Both pure mathematical research and real world applications are reflected by the contributions to this volume. Covers a variety of problems in ordinary differential equations Pure mathematical and real world applications Written for mathematicians and scientists of many related fields

This reference work deals with important topics in general topology and their role in functional analysis and axiomatic set theory, for graduate students and researchers working in topology, functional analysis, set theory and probability theory. It provides a guide to recent research findings, with three contributions by Arhangel'skii and Choban.

Abstracts of Papers Presented to the American Mathematical Society

Advances, Surveys, and Open Questions

Proceedings of the International Conference "Stability, Control, Differential Games" (SCDG2019)

How Mathematicians Find Creative Solutions

Fundamentals of General Topology

Foundation, Intuition and Applications in Business Decision Making

**This ENCYCLOPAEDIA OF MATHEMATICS aims to be a reference work for all parts of mathematics. It is a translation with updates and editorial comments of the Soviet Mathematical Encyclopaedia published by 'Soviet Encyclopaedia Publishing House' in five volumes in 1977-1985. The annotated translation consists of ten volumes including a special index volume. There are three kinds of articles in this ENCYCLOPAEDIA. First of all there are survey-type articles dealing with the various main directions in mathematics (where a rather fine subdivision has been used). The main requirement for these articles has been that they should give a reasonably complete up-to-date account of the current state of affairs in these areas and that they should be maximally accessible. On the whole, these articles should be understandable to mathematics students in their first specialization years, to graduates from other mathematical areas and, depending on the specific subject, to specialists in other domains of science, engineers and teachers of mathematics. These articles treat their material at a fairly general level and aim to give an idea of the kind of problems, techniques and concepts involved in the area in question. They also contain background and motivation rather than precise statements of precise theorems with detailed definitions and technical details on how to carry out proofs and constructions. The second kind of article, of medium length, contains more detailed concrete problems, results and techniques.**

**The International Conference on Hyperbolic Problems: Theory, Numerics and Applications, "HYP2008", was held at the University of Maryland from June 9-13, 2008. This was the twelfth meeting in the bi-annual international series of HYP conferences which originated in 1986 at Saint-Etienne, France, and over the last twenty years has become one of the highest quality and most successful conference series in Applied Mathematics. This book, the second in a two-part volume, contains more than sixty articles based on contributed talks given at the conference. The articles are written by leading researchers as well as promising young scientists and cover a diverse range of multi-disciplinary topics addressing theoretical, modeling and computational issues arising under the umbrella of "hyperbolic PDEs". This volume will bring readers to the forefront of research in this most active and important area in applied mathematics.**

**This is a collection of new investigations and discoveries on the history of a great tradition, the Lvov-Warsaw School of logic and mathematics, by the best specialists from all over the world. The papers range from historical considerations to new philosophical, logical and mathematical developments of this impressive School, including applications to Computer Science, Mathematics, Metalogic, Scientific and Analytic Philosophy, Theory of Models and Linguistics. This book demonstrates the theoretical value and practical significance of systems science and its logic of thinking by presenting a rigorously developed foundation—a tool for intuitive reasoning, which is supported by both theory and empirical evidence, as well as practical applications in business decision making. Following a foundation of general systems theory, the book presents an applied method to intuitively learn system-sciences fundamentals. The third and final part examines applications of the yoyo model and the theoretical results developed earlier within the context of problems facing business decision makers by organically combining methods of traditional science, the first dimension of science, with those of systems science, the second dimension, as argued by George Klir in the 1990s. This text would benefit graduate students, researchers, or practitioners in the areas of mathematics, systems science or engineering, economics, and business decision science.**

**In two volumes**

**Handbook of the History of General Topology**

**General Topology II**

**Geometric Aspects of General Topology**  
**Topological Groups and Related Structures, An Introduction to Topological Algebra.**  
**Canadian Mathematical Bulletin**

This volume is a collection of surveys of research problems in topology and its applications. The topics covered include general topology, set-theoretic topology, continuum theory, topological algebra, dynamical systems, computational topology and functional analysis. \* New surveys of research problems in topology \* New perspectives on classic problems \* Representative surveys of research groups from all around the world

This monograph provides an introduction to the theory of topologies defined on the closed subsets of a metric space, and on the closed convex subsets of a normed linear space as well. A unifying theme is the relationship between topology and set convergence on the one hand, and set functionals on the other. The text includes for the first time anywhere an exposition of three topologies that over the past ten years have become fundamental tools in optimization, one-sided analysis, convex analysis, and the theory of multifunctions: the Wijsman topology, the Attouch--Wets topology, and the slice topology. Particular attention is given to topologies on lower semicontinuous functions, especially lower semicontinuous convex functions, as associated with their epigraphs. The interplay between convex duality and topology is carefully considered and a chapter on set-valued functions is included. The book contains over 350 exercises and is suitable as a graduate text. This book is of interest to those working in general topology, set-valued analysis, geometric functional analysis, optimization, convex analysis and mathematical economics.

In this monograph, questions of extensions and relaxations are considered. These questions arise in many applied problems in connection with the operation of perturbations. In some cases, the operation of "small" perturbations generates "small" deviations of basis indexes; a corresponding stability takes place. In other cases, small perturbations generate spasmodic change of a result and of solutions defining this result. These cases correspond to unstable problems. The effect of an instability can arise in extremal problems or in other related problems. In this connection, we note the known problem of constructing the attainability domain in control theory. Of course, extremal problems and those of attainability (in abstract control theory) are connected. We exploit this connection here (see Chapter 5). However, basic attention is paid to the problem of the attainability of elements of a topological space under vanishing perturbations of restrictions. The stability property is frequently missing; the world of unstable problems is of interest for us. We construct regularizing procedures. However, in many cases, it is possible to establish a certain property similar to partial stability. We call this property asymptotic nonsensitivity or roughness under the perturbation of some restrictions. The given property means the following: in the corresponding problem, it is the same if constraints are weakened in some "directions" or not. On this basis, it is possible to construct a certain classification of constraints, selecting "directions of roughness" and "precision directions".

Among the best available reference introductions to general topology, this volume is appropriate for advanced undergraduate and beginning graduate students. Includes historical notes and over 340 detailed exercises. 1970 edition. Includes 27 figures.

Stochastic Approximation – Zygmund Class of Functions

AI Aspects in Reasoning, Languages, and Computation

Topological Fixed Point Principles for Boundary Value Problems

Stability, Control and Differential Games

Chemical Structure Generation from the Properties of Pure Organic Compounds

Encyclopedia of General Topology

***This book is the first one of a work in several volumes, treating the history of the development of topology. The work contains papers which can be classified into 4 main areas. Thus there are contributions dealing with the life and work of individual topologists, with specific schools of topology, with research in topology in various countries, and with the development of topology in different periods. The work is not restricted to topology in the strictest sense but also deals with applications and generalisations in a broad sense. Thus it also treats, e.g., categorical topology, interactions with functional analysis, convergence spaces, and uniform spaces. Written by specialists in the field, it contains a wealth of information which is not available anywhere else.***

***This book presents the proceedings of the International Conference “Stability, Control, Differential Games” (SCDG2019, September 16 – 20, 2019, Yekaterinburg, Russia), organized by the Krasovskii Institute of Mathematics and Mechanics of the Ural Branch of the Russian Academy of Sciences. Discussing the latest advances in the theory of optimal control, stability theory and differential games, it also demonstrates the application of new techniques and numerical algorithms to solve problems in robotics, mechatronics, power and energy systems, economics and ecology. Further, the book includes fundamental results in control theory, stability theory and differential games presented at the conference, as well as a number of chapters focusing on novel approaches in solving important applied problems in control and optimization. Lastly, it***

*evaluates recent major accomplishments, and forecasts developments in various up-and-coming areas, such as hybrid systems, model predictive control, Hamilton–Jacobi equations and advanced estimation algorithms.*

*This book systematically presents the topological structure of solution sets and attractability for nonlinear evolution inclusions, together with its relevant applications in control problems and partial differential equations. It provides readers the background material needed to delve deeper into the subject and explore the rich research literature. In addition, the book addresses many of the basic techniques and results recently developed in connection with this theory, including the structure of solution sets for evolution inclusions with  $m$ -dissipative operators; quasi-autonomous and non-autonomous evolution inclusions and control systems; evolution inclusions with the Hille-Yosida operator; functional evolution inclusions; impulsive evolution inclusions; and stochastic evolution inclusions. Several applications of evolution inclusions and control systems are also discussed in detail. Based on extensive research work conducted by the authors and other experts over the past four years, the information presented is cutting-edge and comprehensive. As such, the book fills an important gap in the body of literature on the structure of evolution inclusions and its applications.*

*Following the tremendous reception of our first volume on topological groups called "Topological Groups: Yesterday, Today, and Tomorrow", we now present our second volume. Like the first volume, this collection contains articles by some of the best scholars in the world on topological groups. A feature of the first volume was surveys, and we continue that tradition in this volume with three new surveys. These surveys are of interest not only to the expert but also to those who are less experienced. Particularly exciting to active researchers, especially young researchers, is the inclusion of over three dozen open questions. This volume consists of 11 papers containing many new and interesting results and examples across the spectrum of topological group theory and related topics. Well-known researchers who contributed to this volume include Taras Banakh, Michael Megrelishvili, Sidney A. Morris, Saharon Shelah, George A. Willis, O'iga V. Sipacheva, and Stephen Wagner.*

*Encyclopaedia of Mathematics (set)*

*Relaxation in Optimization Theory and Variational Calculus*

*A Geometric Approach*

*General Systems Theory*

*Thinking in Problems*

*Questions and Answers in General Topology*

The book presents surveys describing recent developments in most of the primary subfields of General Topology and its applications to Algebra and Analysis during the last decade. It follows freely the previous edition (North Holland, 1992), Open Problems in Topology (North Holland, 1990) and Handbook of Set-Theoretic Topology (North Holland, 1984). The book was prepared in connection with the Prague Topological Symposium, held in 2001. During the last 10 years the focus in General Topology changed and therefore the selection of topics differs slightly from those chosen in 1992. The following areas experienced significant developments: Topological Groups, Function Spaces, Dimension Theory, Hyperspaces, Selections, Geometric Topology (including Infinite-Dimensional Topology and the Geometry of Banach Spaces). Of course, not every important topic could be included in this book. Except surveys, the book contains several historical essays written by such eminent topologists as: R.D. Anderson, W.W. Comfort, M. Henriksen, S. Mardešić, J. Nagata, M.E. Rudin, J.M. Smirnov (several reminiscences of L. Vietoris are added). In addition to extensive author and subject indexes, a list of all problems and questions posed in this book are added. List of all authors of surveys: A. Arhangel'skii, J. Baker and K. Kunen, H. Bennett and D. Lutzer, J. Dijkstra and J. van Mill, A. Dow, E. Glasner, G. Godefroy, G. Gruenhage, N. Hindman and D. Strauss, L. Hola and J. Pelant, K. Kawamura, H.-P. Kuenzi, W. Marciszewski, K. Martin and M. Mislove and M. Reed, R. Pol and H. Toruńczyk, D. Repovš and P. Semenov, D. Shakhmatov, S. Solecki, M. Tkachenko.

These papers survey the developments in General Topology and the applications of it which have taken place since the mid 1980s. The book may be regarded as an update of some of the papers in the Handbook of Set-Theoretic Topology (eds. Kunen/Vaughan, North-Holland, 1984), which gives an almost complete picture of the state of the art of Set Theoretic Topology before 1984. In the present volume several important developments are surveyed that surfaced in the period 1984-1991. This volume may also be regarded as a partial update of Open Problems in Topology (eds. van Mill/Reed, North-Holland, 1990). Solutions to some of the original 1100 open problems are discussed and new problems are posed.

A Cp-Theory Problem Book

Recent Progress in General Topology

Hyperbolic Problems: Contributed talks

Handbook of Differential Equations: Ordinary Differential Equations