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The First Course

Book One of The Omegas Series, a SuperHarem Adventure

Charles Murphy's superpower is useless.

He can turn into a churro. In a world where 1% of the population has powers, he's quite below average; many would say he's completely useless. And they have. At length. For years. Despite his deep-seated desire to be a hero, his ability isn't glamorous and can't be used to fight crime, so he and a small cadre of similarly useless supers are relegated to Omega Team and told explicitly that all they will ever need to do is sit there and look pretty. And while waiting to be called up to the big leagues, they might as well get laid, right? Dangerous secrets will send the Omegas on an adventure none of them could have anticipated. Can they

step up to the plate and become the heroes they were meant to be? Warning: this book contains explicit content and ridiculous situations that are suitable only for adults. But not, like, adult-y adults. More like teenagers who have adult bodies. (It's lowbrow, it's what I'm saying.) Reader discretion strongly advised. 18+ only.

undergraduate mathematics majors and students from other disciplines who use real analysis. Since this book is aimed at students who do not have much prior experience with proofs, the pace is slower in earlier chapters than in later chapters. There are hundreds of exercises, and hints for some of them are included.

A First Course in Analysis *World Scientific*

This book is an introductory text on real analysis for undergraduate students. The prerequisite for this book is a solid background in freshman calculus in one variable. The intended audience of this book includes

First Course *Touchpoint Press*

When four life-altering catastrophes hit in just one day—including the loss of her parents in a tragic plane crash—twenty-four-year-old Janie Whitman retreats to her family's summer house in Cape Elizabeth, Maine. Here she tries to provide stability for her older sister Alyssa and two

young nieces by cooking them amazing food. Through a mix-up with the alumni office at her parents' alma mater, Janie meets a young high school guidance counselor named Rocky at a volunteer event, and their fast-tracked romance helps Janie to see possibilities beyond the life she had known just a few weeks prior. But with her ex-boyfriend (and former boss) making overtures beyond her wildest dreams, as well as Alyssa's estranged husband willing to do whatever it takes to win her back, the Whitman sisters are faced with big decisions. Despite the obstacles in their way, when Janie and Alyssa are tasked with establishing a lasting memorial for their

parents, they just might find the second acts they are seeking.

A First Course in Machine Learning *CRC Press*

"A First Course in Machine Learning by Simon Rogers and Mark Girolami is the best introductory book for ML currently available. It combines rigor and precision with accessibility, starts from a detailed explanation of the basic foundations of Bayesian analysis in the simplest of settings, and goes all the way to the frontiers of the subject such as infinite mixture models, GPs, and MCMC." —Devdatt Dubhashi, Professor, Department of Computer Science and Engineering, Chalmers University, Sweden

"This textbook manages to be easier to read than other comparable books in the subject while retaining all the rigorous treatment needed. The new chapters put it at the forefront of the field by covering topics that have become mainstream in machine learning over the last decade." —Daniel Ortiz-Arroyo, Associate Professor, Aalborg University Esbjerg, Denmark "I was impressed by how closely the material aligns with the needs of an introductory course on machine learning, which is its greatest strength...Overall, this is a pragmatic and helpful book, which is well-aligned to the needs of an introductory course and one that I will be looking at for my own students in coming months." —David Clifton, University of Oxford, UK "The first edition of this book was already an excellent introductory

text on machine learning for an advanced undergraduate or taught masters level course, or indeed for anybody who wants to learn about an interesting and important field of computer science. The additional chapters of advanced material on Gaussian process, MCMC and mixture modeling provide an ideal basis for practical projects, without disturbing the very clear and readable exposition of the basics contained in the first part of the book."

—Gavin Cawley, Senior Lecturer, School of Computing Sciences, University of East Anglia, UK "This book could be used for junior/senior undergraduate students or first-year

graduate students, as well as individuals who want to explore the field of machine learning...The book introduces not only the concepts but the underlying ideas on algorithm implementation from a critical thinking perspective."

—Guangzhi Qu, Oakland University, Rochester, Michigan, USA

A First Course in Functional Analysis

Courier Corporation

Designed for undergraduate mathematics majors, this self-contained exposition of Gelfand's proof of Wiener's theorem explores set theoretic preliminaries, normed linear spaces and algebras, functions on Banach spaces, homomorphisms on

normed linear spaces, and more. 1966 edition.

The Book of R

A First Course in Programming and Statistics *No Starch Press*

The Book of R is a comprehensive, beginner-friendly guide to R, the world's most popular programming language for statistical analysis. Even if you have no programming experience and little more than a grounding in the basics of mathematics, you'll find everything you need to begin using R effectively for statistical analysis. You'll start with the basics, like how to handle data and write simple programs, before moving on to more advanced topics,

like producing statistical summaries of your data and performing statistical tests and modeling. You'll even learn how to create impressive data visualizations with R's basic graphics tools and contributed packages, like ggplot2 and ggvis, as well as interactive 3D visualizations using the rgl package. Dozens of hands-on exercises (with downloadable solutions) take you from theory to practice, as you learn:

- The fundamentals of programming in R, including how to write data frames, create functions, and use variables, statements, and loops
- Statistical concepts like exploratory data analysis, probabilities, hypothesis tests, and regression modeling,

and how to execute them in R -How to access R's thousands of functions, libraries, and data sets -How to draw valid and useful conclusions from your data -How to create publication-quality graphics of your results Combining detailed explanations with real-world examples and exercises, this book will provide you with a solid understanding of both statistics and the depth of R's functionality. Make The Book of R your doorway into the growing world of data analysis.

A First Course in Geometry *Courier Corporation*

Suitable for college courses, this introductory text covers the language of mathematics,

geometric sets of points, separation and angles, triangles, parallel lines, similarity, polygons and area, circles, and space and coordinate geometry. 1974 edition.

A First Course in Mathematical Modeling *Cengage Learning*

Offering a solid introduction to the entire modeling process, A FIRST COURSE IN MATHEMATICAL MODELING, 5th Edition delivers an excellent balance of theory and practice, and gives you relevant, hands-on experience developing and sharpening your modeling skills. Throughout, the book emphasizes key facets of modeling, including creative and empirical

model construction, model analysis, and model research, and provides myriad opportunities for practice. The authors apply a proven six-step problem-solving process to enhance your problem-solving capabilities -- whatever your level. In addition, rather than simply emphasizing the calculation step, the authors first help you learn how to identify problems, construct or select models, and figure out what data needs to be collected. By involving you in the mathematical process as early as possible -- beginning with short projects -- this text facilitates your progressive development and confidence in mathematics and modeling. Important

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A First Course in Network Science
Cambridge University Press

A practical introduction to network science for students across business, cognitive science, neuroscience, sociology, biology, engineering and other disciplines.

A First Course in Mechanics OUP
Oxford

This textbook provides a simple introduction to mechanics for students coming to the subject for the first time. The text is based on courses given to first and second year undergraduates and

has been written with this audience in mind. Prerequisites are only a basic familiarity with vectors, matrices, and elementary calculus. The author's aim is to provide an understanding of Newtonian mechanics using the tools of modern algebra. The text is illustrated throughout with many worked examples, and numerous exercises (some with solutions) are provided.

Electronics

A First Course *Routledge*

Owen Bishop's First Course starts with the basics of electricity and component types, introducing students to practical work almost straight away. No prior knowledge of electronics is required.

The approach is student-centred with self-test features to check understanding, including numerous activities suitable for practicals, homework and other assignments. Multiple choice questions are incorporated throughout the text in order to aid student learning. Key facts, formulae and definitions are highlighted to aid revision, and theory is backed up by numerous examples within the book. Each chapter ends with a set of problems that includes exam-style questions, for which numerical answers are provided at the end of the book. This text is ideal for a wide range of introductory courses in electronics, technology, physics

and engineering. The coverage has been carefully matched to the latest UK syllabuses including GCSE Electronics, GCSE Design & Technology, Engineering GCSE and Edexcel's BTEC First in Engineering, resulting in a text that meets the needs of students on all Level 2 electronics units and courses. Owen Bishop's talent for introducing the world of electronics has long been a proven fact with his textbooks, professional introductions and popular circuit construction guides being chosen by thousands of students, lecturers and electronics enthusiasts.

A First Course in Graph Theory *Courier Corporation*

Written by two prominent figures in the field, this comprehensive text provides a remarkably student-friendly approach. Its sound yet accessible treatment emphasizes the history of graph theory and offers unique examples and lucid proofs. 2004 edition.

A First Course in Optimization *CRC Press*

Give Your Students the Proper Groundwork for Future Studies in Optimization A First Course in Optimization is designed for a one-semester course in optimization taken by advanced undergraduate and beginning graduate students in the mathematical sciences and engineering. It teaches students the

basics of continuous optimization and helps them better understand the mathematics from previous courses. The book focuses on general problems and the underlying theory. It introduces all the necessary

mathematical tools and results. The text covers the fundamental problems of constrained and unconstrained optimization as well as linear and convex programming. It also presents basic iterative solution algorithms (such as gradient methods and the Newton-Raphson algorithm and its variants) and more general iterative optimization methods. This text builds the foundation to understand continuous

optimization. It prepares students to study advanced topics found in the author's companion book, *Iterative Optimization in Inverse Problems*, including sequential unconstrained iterative optimization methods.

A First Course in Logic *CRC Press*

A First Course in Logic is an introduction to first-order logic suitable for first and second year mathematicians and computer scientists. There are three components to this course: propositional logic; Boolean algebras; and predicate/first-order, logic. Logic is the basis of proofs in mathematics — how do we know what we say is true? — and also of computer science —

how do I know this program will do what I think it will? Surprisingly little mathematics is needed to learn and understand logic (this course doesn't involve any calculus). The real mathematical prerequisite is an ability to manipulate symbols: in other words, basic algebra. Anyone who can write programs should have this ability.

A First Course in General Relativity
Cambridge University Press

Second edition of a widely-used textbook providing the first step into general relativity for undergraduate students with minimal mathematical background.

A First Course in

Probability

A First Course in Logic
Addison-Wesley Longman

Providing students with a more understandable introduction to logic without sacrificing rigor, *A First Course in Logic* presents topics and methods in a highly accessible and integrated manner. By integrating and comparing topics throughout and using the same examples in different chapters, the author shows the utility and limitations of each method of logic. Consistent pedagogical structure helps students learn and study better; the introduction now emphasizes strategies and tactics for applying memorization rules. One-of-a-kind LSAT-type exercises apply

logic to pre-professional exams. This Gold Edition of the text now uses more standard notation and has been thoroughly class-tested and revised for absolute accuracy of information.

A First Course in Analysis *Cambridge University Press*

This rigorous textbook is intended for a year-long analysis or advanced calculus course for advanced undergraduate or beginning graduate students. Starting with detailed, slow-paced proofs that allow students to acquire facility in reading and writing proofs, it clearly and concisely explains the basics of differentiation and integration of functions of one and several

variables, and covers the theorems of Green, Gauss, and Stokes. Minimal prerequisites are assumed, and relevant linear algebra topics are reviewed right before they are needed, making the material accessible to students from diverse backgrounds. Abstract topics are preceded by concrete examples to facilitate understanding, for example, before introducing differential forms, the text examines low-dimensional examples. The meaning and importance of results are thoroughly discussed, and numerous exercises of varying difficulty give students ample opportunity to test and improve their knowledge of this difficult yet vital

subject.

A Practical Guide to Laboratory Optics

Cambridge University Press

Learn the essential skills of laboratory optics and its underlying theoretical framework with seven key experiments.

A First Course in String Theory

Cambridge University Press

String theory made understandable. Barton Zwiebach is once again faithful to his goal of making string theory accessible to undergraduates. He presents the main concepts of string theory in a concrete and physical way to develop intuition before formalism, often through simplified and illustrative examples.

Complete and thorough in its coverage, this new edition now includes AdS/CFT

correspondence and introduces

superstrings. It is perfectly suited to introductory courses in string theory for students with a background in mathematics and physics. New sections cover strings on orbifolds, cosmic strings, moduli stabilization, and the string theory landscape. Now with almost 300 problems and exercises, with password-protected solutions for instructors at

www.cambridge.org/zwiebach.

A First Course in Computer Programming Using

C McGraw-Hill Book Company Limited

This text is a first course in the skills of computer programming, using as a vehicle C, which is gaining currency in both education and industry. It is carefully structured into three sections, introducing the language, explaining the principles of good program design and then proceeding from a statement of need through to a working program. Questions and solutions using a cheat system on the accompanying disk test the student's understanding at each stage. The emphasis throughout is on good design practice and coding style.

Time Series

A First Course with Bootstrap Starter
CRC Press

Time Series: A First Course with Bootstrap Starter provides an introductory course on time series analysis that satisfies the triptych of (i) mathematical completeness, (ii) computational illustration and implementation, and (iii) conciseness and accessibility to upper-level undergraduate and M.S. students. Basic theoretical results are presented in a mathematically convincing way, and the methods of data analysis are developed through examples and exercises parsed in R. A student with a basic course in mathematical statistics will learn both how to analyze time series and how to

interpret the results. The book provides the foundation of time series methods, including linear filters and a geometric approach to prediction. The important paradigm of ARMA models is studied in-depth, as well as frequency domain methods. Entropy and other information theoretic notions are introduced, with applications to time series modeling. The second half of the book focuses on statistical inference, the fitting of time series models, as well as computational facets of forecasting. Many time series of interest are nonlinear in which case classical inference methods can fail, but bootstrap methods may come to the rescue. Distinctive features of the book

are the emphasis on geometric notions and the frequency domain, the discussion of entropy maximization, and a thorough treatment of recent computer-intensive methods for time series such as subsampling and the bootstrap. There are more than 600 exercises, half of which involve R coding and/or data analysis. Supplements include a website with 12 key data sets and all R code for the book's examples, as well as the solutions to exercises.

A First Course in Topology

An Introduction to Mathematical Thinking *Courier Corporation*

Students must prove

all of the theorems in this undergraduate-level text, which features extensive outlines to assist in study and comprehension. Thorough and well-written, the treatment provides sufficient material for a one-year undergraduate course. The logical presentation anticipates students' questions, and complete definitions and expositions of topics relate new concepts to previously discussed subjects. Most of the material focuses on point-set topology with the exception of the last chapter. Topics include sets and functions, infinite sets and transfinite numbers, topological spaces and basic concepts, product spaces,

connectivity, and compactness. Additional subjects include separation axioms, complete spaces, and homotopy and the fundamental group. Numerous hints and figures illuminate the text. Dover (2014) republication of the edition originally published by The Williams & Wilkins Company, Baltimore, 1975. See every Dover book in print at www.doverpublications.com

A First Course in Quantitative Finance
Cambridge University Press

Using stereoscopic images and other novel pedagogical features, this book offers a comprehensive introduction to quantitative finance.

Calculus: A Rigorous First Course

Courier Dover Publications

Designed for undergraduate mathematics majors, this rigorous and rewarding treatment covers the usual topics of first-year calculus: limits, derivatives, integrals, and infinite series. Author Daniel J. Velleman focuses on calculus as a tool for problem solving rather than the subject's theoretical foundations. Stressing a fundamental understanding of the concepts of calculus instead of memorized procedures, this volume teaches problem solving by reasoning, not just calculation. The goal of the text is an understanding of

calculus that is deep enough to allow the student to not only find answers to problems, but also achieve certainty of the answers' correctness. No background in calculus is necessary. Prerequisites include proficiency in basic algebra and trigonometry, and a concise review of both areas provides sufficient background. Extensive problem material appears throughout the text and includes selected answers. Complete solutions are available to instructors.

A First Course in Statistical

Programming with R

Cambridge University Press

This is the only introduction you'll need to start programming

in R, the open-source language that is free to download, and lets you adapt the source code for your own requirements. Co-written by one of the R Core Development Team, and by an established R author, this book comes with real R code that complies with the standards of the language. Unlike other introductory books on the ground-breaking R system, this book emphasizes programming, including the principles that apply to most computing languages, and techniques used to develop more complex projects. Learning the language is made easier by the frequent exercises and end-of-chapter reviews that help you progress confidently through the

book. Solutions, datasets and any errata will be available from the book's web site. The many examples, all from real applications, make it particularly useful for anyone working in practical data analysis.

Linear Algebra

A First Course with Applications *CRC Press*

Linear Algebra: A First Course with Applications explores the fundamental ideas of linear algebra, including vector spaces, subspaces, basis, span, linear independence, linear transformation, eigenvalues, and eigenvectors, as well as a variety of applications, from inventories to graphics to Google's PageRank.

Unlike other texts on the subject, this classroom-tested book gives students enough time to absorb the material by focusing on vector spaces early on and using computational sections as numerical interludes. It offers introductions to MapleTM, MATLAB®, and TI-83 Plus for calculating matrix inverses, determinants, eigenvalues, and eigenvectors. Moving from the specific to the general, the author raises questions, provides motivation, and discusses strategy before presenting answers. Discussions of motivation and strategy include content and context to help students learn.

A First Course in the Calculus of

Variations

*American
Mathematical Society*

This book is intended for a first course in the calculus of variations, at the senior or beginning graduate level. The reader will learn methods for finding functions that maximize or minimize integrals. The text lays out important necessary and sufficient conditions for extrema in historical order, and it illustrates these conditions with numerous worked-out examples from mechanics, optics, geometry, and other fields. The exposition starts with simple integrals containing a single independent variable, a single dependent variable, and a single derivative, subject to weak

variations, but steadily moves on to more advanced topics, including multivariate problems, constrained extrema, homogeneous problems, problems with variable endpoints, broken extremals, strong variations, and sufficiency conditions. Numerous line drawings clarify the mathematics. Each chapter ends with recommended readings that introduce the student to the relevant scientific literature and with exercises that consolidate understanding.

A First Course in Sobolev Spaces: Second Edition

American Mathematical Soc.

This book is about differentiation of functions. It is divided into two parts, which can be used as different textbooks, one for an advanced undergraduate course in functions of one variable and one for a graduate course on Sobolev functions. The first part develops the theory of monotone, absolutely continuous, and bounded variation functions of one variable and their relationship with Lebesgue-Stieltjes measures and Sobolev functions. It also studies decreasing rearrangement and curves. The second edition includes a chapter on functions mapping time into Banach spaces. The second part of the book studies functions of several variables. It

begins with an overview of classical results such as Rademacher's and Stepanoff's differentiability theorems, Whitney's extension theorem, Brouwer's fixed point theorem, and the divergence theorem for Lipschitz domains. It then moves to distributions, Fourier transforms and tempered distributions. The remaining chapters are a treatise on Sobolev functions. The second edition focuses more on higher order derivatives and it includes the interpolation theorems of Gagliardo and Nirenberg. It studies embedding theorems, extension domains, chain rule, superposition, Poincaré's inequalities and traces. A major

change compared to the first edition is the chapter on Besov spaces, which are now treated using interpolation theory.

A First Course in Modular Forms
Springer Science & Business Media

This book introduces the theory of modular forms, from which all rational elliptic curves arise, with an eye toward the Modularity Theorem. Discussion covers elliptic curves as complex tori and as algebraic curves; modular curves as Riemann surfaces and as algebraic curves; Hecke operators and Atkin-Lehner theory; Hecke eigenforms and their arithmetic properties; the Jacobians of modular curves and the Abelian varieties associated to

Hecke eigenforms. As it presents these ideas, the book states the Modularity Theorem in various forms, relating them to each other and touching on their applications to number theory. The authors assume no background in algebraic number theory and algebraic geometry. Exercises are included.

A First Course in Dynamics

with a Panorama of Recent Developments

Cambridge University Press

The theory of dynamical systems is a major mathematical discipline closely intertwined with all main areas of mathematics. It has greatly stimulated research in many

sciences and given rise to the vast new area variously called applied dynamics, nonlinear science, or chaos theory. This introduction for senior undergraduate and beginning graduate students of mathematics, physics, and engineering combines mathematical rigor with copious examples of important applications. It covers the central topological and probabilistic notions in dynamics ranging from Newtonian mechanics to coding theory. Readers need not be familiar with manifolds or measure theory; the only prerequisite is a basic undergraduate analysis course. The authors begin by describing the wide array of scientific and

mathematical questions that dynamics can address. They then use a progression of examples to present the concepts and tools for describing asymptotic behavior in dynamical systems, gradually increasing the level of complexity. The final chapters introduce modern developments and applications of dynamics. Subjects include contractions, logistic maps, equidistribution, symbolic dynamics, mechanics, hyperbolic dynamics, strange attractors, twist maps, and KAM-theory.

First Course in Mathematical Logic

Courier Corporation

Rigorous introduction is simple enough in presentation and

context for wide range of students. Symbolizing sentences; logical inference; truth and validity; truth tables; terms, predicates, universal quantifiers; universal specification and laws of identity; more.

A First Course in Random Matrix Theory

for Physicists, Engineers and Data Scientists *Cambridge University Press*

An intuitive, up-to-date introduction to random matrix theory and free calculus, with real world illustrations and Big Data applications.

A First Course in Numerical Methods

SIAM

Offers students a practical knowledge of modern techniques in

scientific computing.

A First Course in Predictive Control

CRC Press

The book presents a significant expansion in depth and breadth of the previous edition. It includes substantially more numerical illustrations and copious supporting MATLAB code that the reader can use to replicate illustrations or build his or her own. The code is deliberately written to be as simple as possible and easy to edit. The book is an excellent starting point for any researcher to gain a solid grounding in MPC concepts and algorithms before moving into application or more advanced research topics. Sample problems for readers are embedded

throughout the chapters, and in-text questions are designed for readers to demonstrate an understanding of concepts through numerical simulation.

A First Course in Dimensional Analysis

Simplifying Complex Phenomena Using Physical Insight *MIT Press*

An introduction to dimensional analysis, a method of scientific analysis used to investigate and simplify complex physical phenomena, demonstrated through a series of engaging examples. This book offers an introduction to dimensional analysis, a powerful method of scientific analysis used to

investigate and simplify complex physical phenomena. The method enables bold approximations and the generation of testable hypotheses. The book explains these analyses through a series of entertaining applications; students will learn to analyze, for example, the limits of world-record weight lifters, the distance an electric submarine can travel, how an upside-down pendulum is similar to a running velociraptor, and the number of Olympic rowers required to double boat speed. The book introduces the approach through easy-to-follow, step-by-step methods that show how to identify the essential variables describing a complex problem; explore the dimensions of the problem and recast it to reduce complexity; leverage physical insights and experimental observations to further reduce complexity; form testable scientific hypotheses; combine experiments and analysis to solve a problem; and collapse and present experimental measurements in a compact form. Each chapter ends with a summary and problems for students to solve. Taken together, the analyses and examples demonstrate the value of dimensional analysis and provide guidance on how to combine and enhance dimensional analysis with physical insights. The book can be used by undergraduate students in physics,

engineering, chemistry, biology, sports science, and astronomy.

A First Course in Mathematical

Physics *John Wiley & Sons*

The book assumes next to no prior knowledge of the topic. The first part introduces the core mathematics, always in conjunction with the physical context. In the second part of the book, a series of examples showcases some of the more conceptually advanced areas of physics, the presentation of which draws on the developments in the first part. A large number of problems helps students to hone their skills in using the presented mathematical

methods. Solutions to the problems are available to instructors on an associated password-protected website for lecturers.

A First Course in Functional Analysis

CRC Press

Written as a textbook, *A First Course in Functional Analysis* is an introduction to basic functional analysis and operator theory, with an emphasis on Hilbert space methods. The aim of this book is to introduce the basic notions of functional analysis and operator theory without requiring the student to have taken a course in measure theory as a prerequisite. It is written and structured the way a course would be designed, with an emphasis on clarity and logical

development alongside real applications in analysis. The background required for a student taking this course is minimal; basic linear algebra, calculus up to Riemann integration, and some acquaintance with topological and metric spaces.

A First Course in Topology

Continuity and Dimension *American Mathematical Soc.*

How many dimensions does our universe require for a comprehensive physical description? In 1905, Poincaré argued philosophically about the necessity of the three familiar dimensions, while recent research is based on 11 dimensions or even 23

dimensions. The notion of dimension itself presented a basic problem to the pioneers of topology. Cantor asked if dimension was a topological feature of Euclidean space. To answer this question, some important topological ideas were introduced by Brouwer, giving shape to a subject whose development dominated the twentieth century. The basic notions in topology are varied and a comprehensive grounding in point-set topology, the definition and use of the fundamental group, and the beginnings of homology theory requires considerable time. The goal of this book is a focused introduction through these classical topics,

aiming throughout at the classical result of the Invariance of Dimension. This text is based on the author's course given at Vassar College and is intended for advanced undergraduate students. It is suitable for a semester-long course on topology for students who have studied real analysis

and linear algebra. It is also a good choice for a capstone course, senior seminar, or independent study.

**A First Course in
Fluid Dynamics**
*Cambridge University
Press*

This book introduces the subject of fluid dynamics from the first principles.