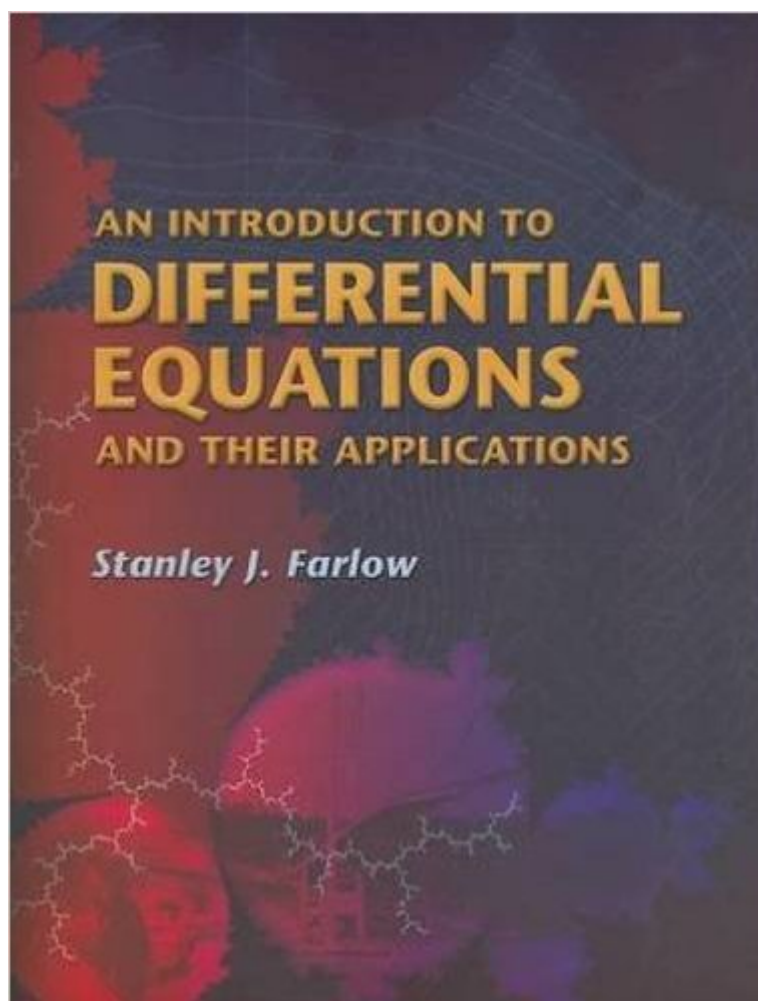


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# An Introduction To Differential Equations And Their Applications (Dover Books On Mathematics)



## Synopsis

Intended for use in a beginning one-semester course in differential equations, this text is designed for students of pure and applied mathematics with a working knowledge of algebra, trigonometry, and elementary calculus. Its mathematical rigor is balanced by complete but simple explanations that appeal to readers' physical and geometric intuition. Starting with an introduction to differential equations, the text proceeds to examinations of first- and second-order differential equations, series solutions, the Laplace transform, systems of differential equations, difference equations, nonlinear differential equations and chaos, and partial differential equations. Numerous figures, problems with solutions, and historical notes clarify the text.

## Book Information

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## Customer Reviews

This book covers the standard topics for a first course in ordinary differential equations as taught in colleges and universities in the US. One of the assets of the book is its rich selection of exercises that range from elementary drill problems to complex physics models whose analysis can turn into instructive mini-projects. In chapter 2 we have the classic submarine-destroyer chase on a spiral path; the pursuit path of a dog chasing a rabbit; and the motion of an object through a tunnel drilled through the center of the Earth. In chapter 3 we have the problem of the forced oscillations of a buoy; and even a brief treatment of the calculus of variations, including an exercise on Hamilton's principle of least action. Some topics that take up entire sections in other textbooks are rightfully relegated to the exercises. These include the treatment of first order homogeneous equations,

Bernoulli's equation, and other sundry items which are of more value as exercises than formally presented knowledge. This is the first, and the only, edition of this book. Unlike other textbooks that have gone through multiple editions and iterative improvements, this one suffers from quite a few errors, typographical and otherwise, that would have been corrected in a nonexistent future edition. A comprehensive list of errata is available on the web; search for farlow, errata. I don't mind the errors; they add a weird charm to the book and help keep the reader on their toes. Considering that this book costs a small fraction of the alternatives, putting up with the flaws is quite acceptable to me.

First off, this book is a bargain as far as textbooks go, hence the 2 stars. That said, you get what you pay for. Explanations are brief and supported by simple example problems. Additional topics that should receive attention within the chapter are relegated to end of chapter problems. If you are never assigned those problems, chances are you'll never learn those topics. If you are assigned those problems, good luck because the supporting chapter offers little help. Finally, this book is filled with errors (11 just in the first 100 pages). There are actually websites listing the errors. Whenever I have homework, I check the website before starting, otherwise I'd spend hours trying to correct a problem because my answer didn't match the one in the back of the book. The book is ©1994... who knows why they haven't fixed the errors.

I used this book in my differential equations class in the Fall 2015 semester. The textbook has so many typos in it that one of the math professors at my college has created an errata webpage (see hyperlink below) that receives new reports of typos almost every semester. These errors are not generally pedantic or trivial, either. Undergraduate students regularly find that the answers to problems in the back of the book are wrong. As an undergraduate, I was able to find three typos in the first six weeks of the course. They are now posted on the aforementioned errata page. So unless you are willing to tolerate multitudes of typos \*or\* this is a required textbook for your course, it is not recommended that you buy this book. <http://userpages.umbc.edu/~rostamia/farlow-errata.html>

The writing style is excellent--simple words, simple sentences. The margins are really wide--and that's an awesomely helpful thing to have, with your pencil in hand--though the examples are so detailed you might not need to add a lot. The examples even have little titles about what's going on--great for reference, when combing back through the book after a while, which I do as a physics

grad student. The theorems, definitions and PROCEDURES are boxed for easy reference--that helps a hell of a lot when you're coming back for a refresher. Good big, clear diagrams. The end-of-chapter problems are doable, answers in back to all. Someone said a lotta typos ... I didn't notice. Guess I knew I was right. First used this to back-up Boyce/DiPrima, which was assigned, and got an A ... lots in common, but the writing style and highlighted procedures here were way more comfortable to learn from. Only thing is he didn't use the tabular method of integration by parts, which I picked up from another DiffEq book, by Giordano/Weir--another good book with boxed algorithms.

This isn't the best differential eq textbook in any regards. Its really old (2006) so the ink is faded even in the brand new book. I can hardly see the graphs. It doesn't cover all the topics the books do for first year in diff eq. What I do like about this book is that it has very useful and few practice questions unlike other math textbooks who gives 200 problems for each chapter.

I took a Differential Equations class over the summer, it was interesting. This text has some good examples throughout, however my professor sometimes used different methods than what the author used. The homework problems for each section were do-able, although some were a little out there - at least the back contains all of the answers for the questions. You just need to make sure you follow the steps they outline and your answers should match up pretty well. For the price this textbook would get 10 stars...you can't find 30-40 dollar textbooks that are decent. A solid textbook content-wise, an excellent textbook for value.

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