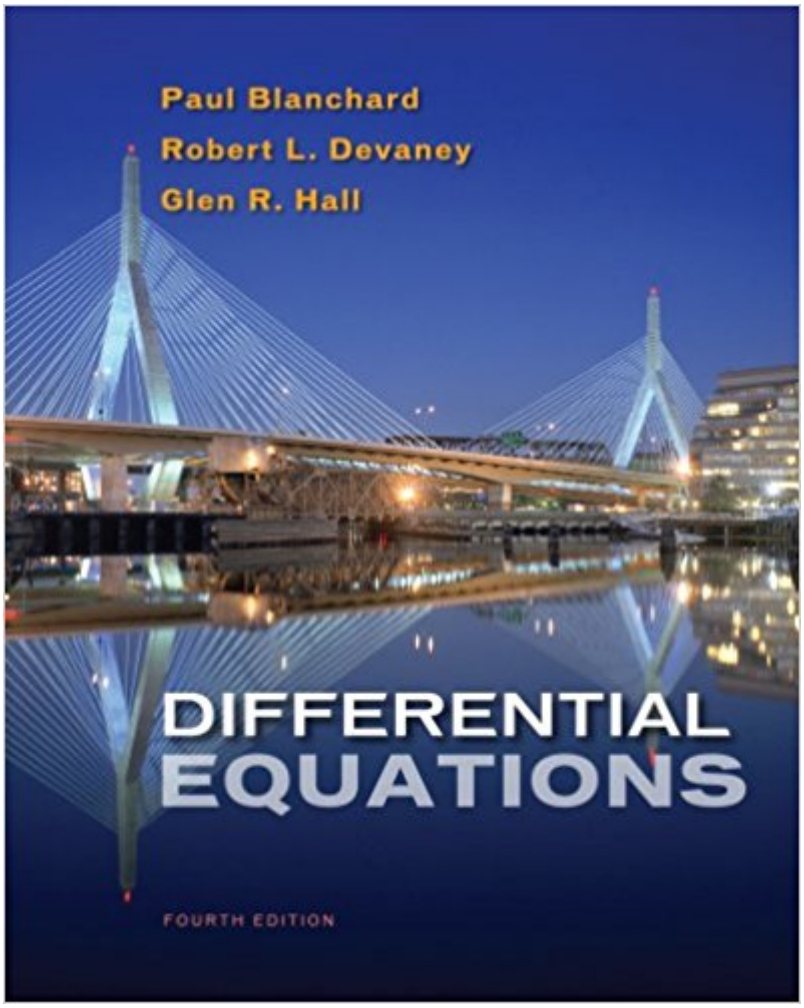
Differential Equations (with DE Tools Printed Access Card)



Synopsis

Incorporating an innovative modeling approach, this book for a one-semester differential equations course emphasizes conceptual understanding to help users relate information taught in the classroom to real-world experiences. Certain models reappear throughout the book as running themes to synthesize different concepts from multiple angles, and a dynamical systems focus emphasizes predicting the long-term behavior of these recurring models. Users will discover how to identify and harness the mathematics they will use in their careers, and apply it effectively outside the classroom.

Book Information

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Customer Reviews

Paul Blanchard is Associate Professor of Mathematics at Boston University. Paul grew up in Sutton, Massachusetts, spent his undergraduate years at Brown University, and received his Ph.D. from Yale University. He has taught college mathematics for twenty-five years, mostly at Boston University. In 2001, he won the Northeast Section of the Mathematical Association of America's Award for Distinguished Teaching in Mathematics. He has coauthored or contributed chapters to four different textbooks. His main area of mathematical research is complex analytic dynamical systems and the related point sets, Julia sets and the Mandelbrot set. Most recently his efforts have focused on reforming the traditional differential equations course, and he is currently heading the Boston University Differential Equations Project and leading workshops in this innovative approach to teaching differential equations. When he becomes exhausted fixing the errors made by his two coauthors, he usually closes up his CD store and heads to the golf course with his caddy, Glen

Hall.Robert L. Devaney is Professor of Mathematics at Boston University. Robert was raised in Methuen, Massachusetts. He received his undergraduate degree from Holy Cross College and his Ph.D. from the University of California, Berkeley. He has taught at Boston University since 1980. His main area of research is complex dynamical systems, and he has lectured extensively throughout the world on this topic. In 1996 he received the National Excellence in Teaching Award from the Mathematical Association of America. When he gets sick of arguing with his coauthors over which topics to include in the differential equations course, he either turns up the volume of his opera CDs, or heads for waters off New England for a long distance sail.Glen R. Hall is Associate Professor of Mathematics at Boston University. Glen spent most of his youth in Denver, Colorado. His undergraduate degree comes from Carleton College and his Ph.D. comes from the University of Minnesota. His research interests are mainly in low-dimensional dynamics and celestial mechanics. He has published numerous articles on the dynamics of circle and annulus maps. For his research he has been awarded both NSF Postdoctoral and Sloan Foundation Fellowships. He has no plans to open a CD store since he is busy raising his two young sons. He is an untalented, but earnest, trumpet player and golfer. He once bicycled 148 miles in a single day.

Honestly a very badly written textbook. I’ve taken a large variety of higher level mathematics courses and this has got to be the worst textbook I have had to work with. If you are looking for a good textbook to teach a solid understanding of ODEs, this is not the book for you. Explanations are long winded and confusing, use confusing language which is not clearly explained, and contain no clear examples which will aid in solving the practice problems at the end of every section. This book is not worth the money, save it and get something else.

I used this text to teach differential equations to advanced high school seniors and it worked extremely well. After considering several other texts, I was sold on this book for three reasons:1. Rather than older-style differential equations books that focus on analytic methods, this book has a consistent approach of using a combination of analytic, qualitative, and numerical methods. As an industrial mathematician, most differential equations that I worked with could not be solved analytically and thus numerical and qualitative techniques became key tools.2. The friendly expository style of the authors motivates the material and is easier for students to understand than more formal textbooks. New material is always introduced by concrete examples before getting into theory.3. The book is written from a dynamical systems point of view and the authors tap into many interesting results from the past 40-50 years, e.g., the Lorenz equations, modeling epidemics,

adaptive shock absorbers, etc.Perhaps my most pleasant surprise teaching the course was how much the students liked and learned from DETools, the differential equation software that comes with the textbook. We regularly used DETools in class (there's essentially no learning curve) and its use energized the students and made much more clear to them the nature of solutions.I also found the exploratory projects at the end of each chapter very valuable. My students liked the challenge of these more general and open-ended problems, and the projects solidified their understanding.As far as the nuts and bolts of teaching the course, I typically covered one section per day, and we did most of the sections in Chapters 1-6. Regrettably we didn't get to the last two chapters of the book, but they are quite good. Chapter 7 gets into the nitty gritty of numerical methods (e.g., effects of finite arithmetic) and Chapter 8 is a nice introduction to discrete dynamical methods. (A one-semester course in differential equations can only cover so much, so the text leaves to a later course many special techniques for analytically solving ODEs and it does not cover boundary value problems or the Fourier method.)In summary, I am in very much in agreement with August 7, 2013 review by "G Cantor" that "it would be difficult to find a better introductory text for ordinary differential equations." This text is a great intro that makes the subject come alive and does an excellent job preparing students to work with differential equations both in later college colleges and in the real world.

Needed it for class and the content was pretty interesting in my opinion.

Just an utterly terrible book. Writing is verbose and unhelpful - NOT ENOUGH MATH!!! WTF?!?They spend over a hundred pages slowly developing simple concepts, with so much repetition it is honestly exhausting. Then they spend over a hundred pages in the next chapter doing the same thing all over again.AVOID!!!

I used this textbook for a Differential Equations college course. The book itself is relatively easy to read\entertaining at times, but does a poor job of presenting the needed formulas. If you are required to purchase this book for a class, I highly recommend investing in something which simply gives you the formulas.

Binding was in bad shape when I recived it.

This is certainly not the worst math book I have come across, but it is not great by any means. The

authors did not put in a lot of boxed formulas and equations, and at times want it to almost read like a novel, with the recurring story line of two math professors opening competing shops that goes throughout the book. This can, at times, make it hard to figure out just what you are supposed to be focusing on. It also uses some linear algebra concepts when it gets into solving systems of differential equations. It does try to teach you the linear algebra material you need to know, but it was not always as clear as the explanation you would get in a linear algebra book.My professor did not really follow the book's format, and kind of taught the material in his own way. Thankfully that was more clear than the book, but did however make doing homework problems from the book difficult sometimes. Obviously if you have to buy this for class you do not have a choice, but you may want to look at some of the differential equations and linear algebra supplements out there if you do need to use this one.

Yes it did meet my expectations. However, my teacher upgraded the book, that is why I returned it. But it's was a amazing book.

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