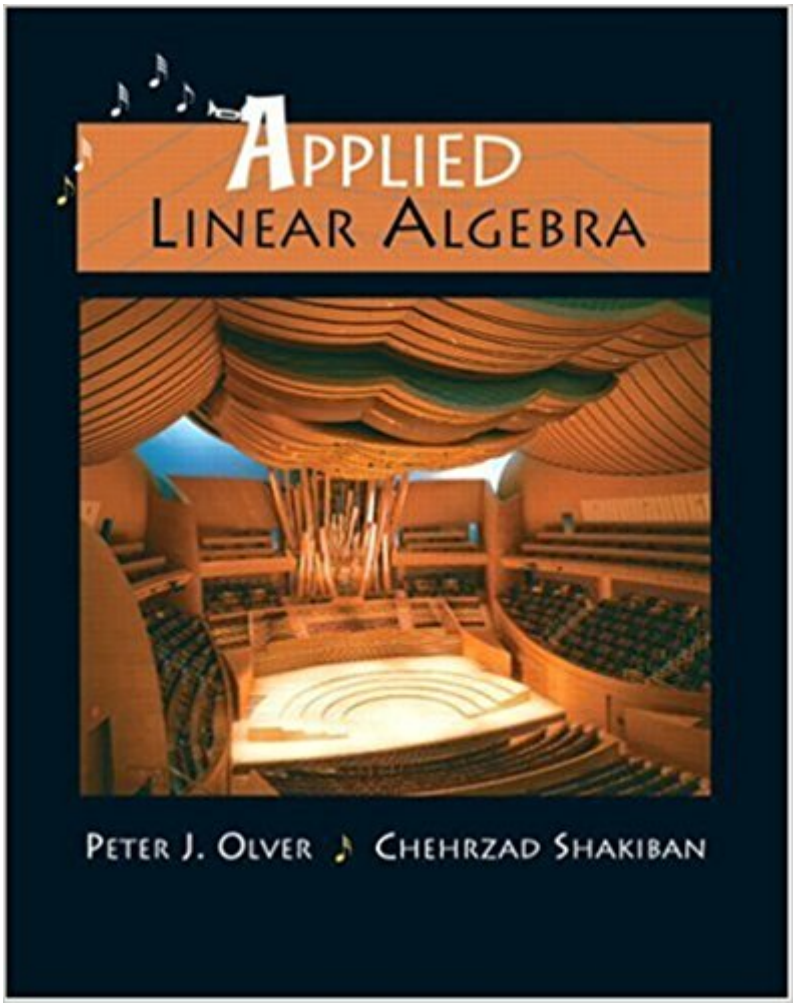
Applied Linear Algebra



Synopsis

This book describes basic methods and algorithms used in modern, real problems likely to be encountered by engineers and scientists - and fosters an understanding of why mathematical techniques work and how they can be derived from first principles. Assumes no previous exposure to linear algebra. Presents applications hand in hand with theory, leading readers through the reasoning that leads to the important results. Provides theorems and proofs where needed. Features abundant exercises after almost every subsection, in a wide range of difficulty. A thorough reference for engineers and scientists.

Book Information

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Customer Reviews

Some Quotes from Reviewers Ã¢â ¬Å“The material on the concept of a general vector space, linear independence, basis, etc. is always difficult for students in this course. This book handles it very well. It gives full, clear explanations. The style is very good, clear, and thorough. It should appeal to my students. I like the book very much. It subscribes to the same philosophy of linear algebra as pioneered by Strang some 30 years ago (acknowledged in the introduction) and builds on the Strang books, making things even clearer and adding more topics. I would certainly like to use this book and would recommend it to my colleagues.Ã¢â ¬Â•
Ã Â Ã Â Ã Â Ã Â Ã Â Ã Â Ã Â Ã Â Ã Â Ã Â Ã Â Ã Â -Bruno Harris, Brown University Ã Â Ã¢â ¬Å“I like the book very much. We will consider it for our linear algebra courses. This is the best new book to appear since the text by Gilbert Strang. It is really modern book, combining, in a masterful, core and applied aspects of linear algebra. This is a very good book written by a very

good mathematician and a very good teacher.Ã¢â ¬Â• -Juan J. Manfredi, University of Pittsburgh Ã Â Ã¢â ¬Å“In many, if not most, beginning texts of linear algebra, the applications may be collected together in a chapter at the end of the book or in an appendix, leaving any inclusion of this material to the discretion of the instructor. However, Applied Linear Algebra by Olver and Shakiban completely reverses this procedure with a total integration of the application with the abstract theory. The effect on the reader is quite amazing. The reader slowly begins to realize two main points: (1) how applications generally drive the abstract theory, and (2) how the abstract theory can illuminate the applications, and resolve solutions in very striking ways. Ã Â This text is easily the best beginning linear algebra text dealing with the applications in an integrated way that I have seen. There is no doubt that this text will be the standard to which all beginning linear algebra texts will be compared. Simply put, this is an absolutely wonderful text!Ã¢â ¬Â• -Norman Johnson, University of Iowa Ã Â Ã¢â ¬Å“I lover the style of this book, especially the fact that you could feel the authorsÃ¢â ¬â„¢ enthusiasm about the nice mathematics involved in the theory. The examples were very clear and interesting, and they always tried to approach the same problems over and over again as soon sas they had more weapons at their disposal to attack them. I thought this was great, this text introduces the notion of an abstract space very early (still, after Gaussian Elimination) and in a very natural way, then emphasizes along the way over and over again that tremendously. I would absolutely consider this text. I was really taken by the applications and the organization of the materials. I also loved the abundance of exercises and problems.Ã¢â ¬Â• -Tamas Wiandt, Rochester Institute of Technology Ã Â Ã¢â ¬Å“This text is very well-written, has lots of examples, and is easy to read and learn from. IÃ¢â ¬â„¢d use it in my Matrix Methods class. There is a good mixture of routine and more advanced examples.Ã¢â ¬Â• -James Curry, University of Colorado-Boulder Ã Â Ã¢â ¬Å“I believe the writing style would appeal to my students because of the clarity and the examples, as well as the tone. I am going to consider its use, once I see its final form.Ã¢â ¬Â• -Fabio Augusto Miner, Purdue University

Absolutely the worst textbook I have had to use so far. I can guarantee the positive reviews saying that things are written clearly and easy to understand are fake reviews. Everyone in my class that I have spoken to said that they have to resort to using online resources to learn the material. There are simply not enough (or any) examples for almost every concept and topic we've covered so far in chapters 1-7. There are numerous errors in the answer key and homework problems, and many of these questions cannot be searched for online because of the way they are set up. Everything seems to be only partially explained before they throw you into problems that weren't covered at

all.If you are a professor or teacher, I beg you to not use this textbook. If you must, it is absolutely vital that you use it as supplementary material and not as a main resource for your students.

Well, it’s a pretty horrible book, replete with errors. Even included on the author’s website are three different sets of errata. The explanations are so sparse that I am always left on my own to solve the exercise problems.Chapter 1.7.1-8 is a prime example of that and is completely useless because I have no frigging idea what to do.Proofs? Forget it. Either I know them or not. And most likely not.So, what part of the word "applied" do the authors not understand? What I have seen thus far has been theoretical.All in all, Olver and Shakiban’s "Applied" Linear Algebra is by far one of the worst written and the least pedagogically sound textbooks I’ve worked with.

Terrible examples and unnecessarily dense descriptions. My guess is that most of the people who rate this book highly knew a large share of the material before using it, or used other resources heavily throughout. I see nothing desirable about this book. The best I can say about it is that I’ve seen worse. If it is required for a class, well, you do what you have to do, if you are looking for self learning, I would highly recommend looking elsewhere.

Clearly written with all the basics even for those who have not had a course on linear algebra.

this is an awesome text book about one of my favirote subjects, it explains it in an understandable and interesting manner

Reasons why this books is awful:1. Sparse explanationsThe book never explains concepts thoroughly enough so that you can independently solve the exercises by yourself. There’s only about 1 to 2 pages of explanations per section, and the exercises draw on many concepts never covered by the text. The chapters about linear and dynamical systems are so sparse; you are better off looking for youtube videos than using the explanations in the book.2. Not intuitiveThe book relies on extremely esoteric formalisms to explain concepts and never explains the underlying intuition behind ideas. The most flagrant example of this is the chapter dealing with least squares and Graham Schmidt. The simplest way to explain this is to first introduce the concept of vector projections and then go into those topics from the context of vector projections, but this was never even mentioned. They just skip to convoluted proofs of each which is impossible to understand if you don’t already have an idea of what’s going on. Graham Schmidt is also a simple concept but

there were so many people in my class who were confused because of how poor the explanation was.3. Bad explanations of fundamental conceptsI found it funny how a reviewer said they had a good explanation of vector spaces. That is just not true. Here is what they do: They list out each requirement of what a vector space, and they give two paragraphs about 2 common vector spaces you will see. Then you're on your own. I have no idea how the author expects students to solve exercise problems with this knowledge. The exercises include so many complexities and nuances that were never explained in the prior section.4. Terrible organizationThis book is extremely lazily organized. There are so many sections in the book which refer to figures and examples in previous parts of the text. Also, the book's exercises often test for concepts that haven't been reached or will never be reached. You'll often be scratching your head wondering how to solve a problem when you realize that it's not your own fault you don't understand; you just never learned it. I would say the sections involving the dynamical systems is the absolute worst offender. There is a section which deals with mass and spring problems in which the exercises setup these complex configuration of springs that are connected to each other in various ways, but the section in the text NEVER explains how to take into account the various nuances in the setups.I am really so sad my professor chose to use this book. Advice for future students: do not buy this book; you're better off learning from videos off the internet.....

Not a good book. As a teacher, please do not use this book for your class!Explanations of concepts are usually half explained.There is a cryptic code the book uses to reference past examples -- For example: An example may reference another example 9.4 which is not chapter 9, section 4, but instead "example 9.4" that is listed on some random page that you need to flip through for a couple minutes to find. Also, there are two sets of numbers... one on the left of the page, and one on the right of the page, so you may find 9.4 listed twice in the book.The index is useless.Half of the concepts are revealed homework problems with no examples of how to complete the homework.Most of the problems are proofs that require some serious "outside of the box" thinking -- which is not a terrible thing, but there is no way to check your answers on most problems.Overall, this book sucks.

By far the worst textbook I have encountered as an undergraduate. Olver's approach is to merely write out definitions and proofs, and his textbook is completely lacking in any explanations or examples, making it incomprehensible as a tool for learning the subject. Furthermore, the textbook's name is deceiving as no applications are explored in any chapter, outside of further development of

linear algebra theory.

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