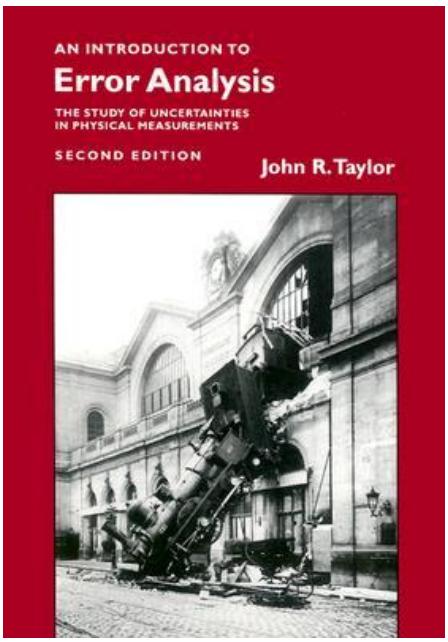

Introduction to Error Analysis, Second Edition: The Study of Uncertainties in Physical Measurements (Revised)

John R. Taylor

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This text introduces error analysis through simple and familiar examples from carpentry and well-known historic experiments where an understanding of errors was crucial to the success of the experiment. It is designed as a reference for students in the physical sciences and engineering.

Introduction to Error Analysis, Second Edition: The Study of Uncertainties in Physical Measurements (Revised) Details

Date	:	Published July 14th 1997 by University Science Books (first published January 1st 1982)
ISBN	:	9780935702750
Author	:	John R. Taylor
Format	:	Paperback 327 pages
Genre	:	Science, Physics, Mathematics, Textbooks, Nonfiction, Reference

From Reader Review Introduction to Error Analysis, Second Edition: The Study of Uncertainties in Physical Measurements (Revised) for online ebook

Landon Prisbrey says

This book was awesome! I've seen Taylor has a classical mechanics book out now. I'd bet it's very good. A classical mechanics version of Griffiths maybe.

Jerry Smith says

This book covers pretty much everything you will ever need in error analysis. It both reads and explains things very well, taking the time to actually explain steps and not just doing them and boxing the final answer (though it does box things conveniently when you're using it as reference), saying *Wallah!*

It won't give you everything if you're working in multiple dimensions sometimes however, but I could use the basic outline Taylor presents to derive the analogous equation that I needed myself.

This will cover everything from uncertainties to the chi-squared test, which you will need if your going to write up a good lab report. You'll also get useful Poisson and Gaussian distribution charts and equations so you can model your data in excel or just get a rough ball park of your error and standard deviation just by looking at your data and errors, which is pretty cool.

You should understand partial derivatives, exponential equations, and Reimann sums when using this book.

Sergey says

At first the book seemed to be a little too school-ish and simple. Yet it contains all the necessary basis information to start understanding uncertainties. Just what I needed.

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dead letter office says

Good (very) basic introduction to the analysis of uncertainty. Written with undergraduate physicists in mind, and he does a good job communicating the intuition involved in handling uncertainty. Good for anyone who wants the motivation but doesn't need the mathematics behind the machinery. And it's definitely got one of the top 10 textbook covers of all time.

Simona says

very good intro to error analysis, good reasoning & explanations, well organized

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Grace says

I read an earlier edition of this book. But it deserves its classic status.

Louay Hassan says

In my long search for a book that explains error analysis stripping doing to the very basics, I have found reading this book quite rewarding.

Part I of this book starts right from the very basics of error analysis with a very clear theoretical approach to the "uncertainty" and "Error Propagation" concepts. If you are baffled by the "uncertainty" concept chapter 3 and 4 is bound to clear out the confusion or plug in a few missing gaps.

With a good introduction of the basic statistical concepts in part I, you can dive in part II of the book for more statistical analysis techniques that should be useful and familiar to all everyone dealing with results analysis and recording.

The book assumes no previous knowledge on the topic however you will need to have a good knowledge of calculus if the derivations are of importance to you, as the book doesn't offer detailed explanations for this.

A classic reference textbook with one of the best book covers that you may come across.

Daniel Cunningham says

Clear introduction to "statistics" for physical scientists. Used for a one quarter class.

Caveat on my rating: we did not use the problems from the book except in very rare cases, so my rating does not include any experience with those.

Stuart Woolf says

I read this book mostly to review material I already knew - which is to say, I read Part I somewhat casually and skimmed Part II. That being said, this is definitely a book I wish I had read earlier - like, while I was learning this stuff in college. (Not sure how it is at other universities, but physics students at mine were never formally taught error analysis; we were simply expected to "pick it up" on the go. This is largely the way it was with statistical mechanics as well; as far as I know, none of us had taken a formal statistics course beforehand.)

Taylor wrote what was probably the most popular undergraduate textbook in the physics department (on classical mechanics.) The purposes of this book are different, but I find it equally as good. His pedagogical approach is to introduce the material as it is used in experiments and then justify the methods theoretically. (Most physics texts do the opposite: in some sense it is "purer" to do it this way, but it also requires the reader to connect the dots between first principles and results, results they may not be familiar with.) Certainly, there is some risk in delaying proofs (the reader may have a poorer grasp of what he or she is doing) but, personally, I preferred Taylor's approach. Educating his readers is clearly his first priority.

The book is also short - a good thing for this subject.
