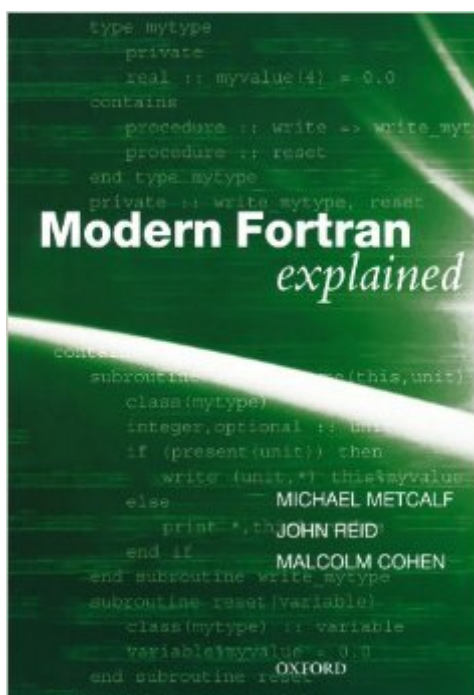


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# Modern Fortran Explained (Numerical Mathematics And Scientific Computation)



## Synopsis

Fortran remains one of the principal programming languages used in high-performance scientific, numerical, and engineering computing. A series of significant revisions to the standard versions of the language have progressively enhanced its capabilities and the latest standard, Fortran 2008, includes many modern features, such as object orientation, coarrays for parallel programming, interoperability with C and various other enhancements. *Modern Fortran Explained* expands on its predecessor, *Fortran 95/2003 Explained*. The opening chapters contain a complete description of Fortran 95, extended by Fortran 2003 allocatable array features. Coverage of the other additional features of Fortran 2003 follows, before new chapters on coarrays and the many other enhancements of Fortran 2008. The distinction between the three language levels is maintained throughout, allowing readers to understand and amend legacy code as well as the new features. Authored by three experts in the field, two of whom have actively contributed to Fortran 2008, this is a complete and authoritative description of Fortran in its modern form. It is intended for new and existing users of the language and for all those involved in scientific and numerical computing. It is suitable as a textbook for teaching and, with its extensive Appendices and an Index, as a handy reference for practitioners.

## Book Information

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## Customer Reviews

I could never get why this book receives so positive reviews. Various features of the language

appear before they are properly introduced in the later chapters, which is confusing. Also, the implementation examples are hardly sufficient, most of which are either a pseudocode or a partially completed code. Considering that this book is supposed to teach you how to use Fortran 2008, this lack of helpful examples is frustrating. These two features makes this book unusable for self-study.

Pretty tough read about the things you don't already know something about. I would love more examples of complete code. They have a lot of little snippets without an explanation of what else is needed to make them work. Also, there are some forward references - things that don't make sense until you have read the rest of the book. It would be quite hard to read this if you didn't already know a lot of Fortran, have some knowledge of Fortran standards since 1990, and know something about object oriented programming. That kind of knowledge is pretty much assumed. I would guess that a really good C++ expert could read it without too much prior knowledge of Fortran. The odd thing is that the first few chapters are pretty easy to read... The book is a lot easier to read than the Fortran standard itself. And it is a very comprehensive book.

This book provides an excellent reference for someone like myself who programs scientific models in modern Fortran. I really appreciated the Fortran 2003 (information also available elsewhere) and Fortran 2008 (which this book is my primary reference). However, the spine of the paperback book separated as I keep it open on my desk and refer to often. If you want to use modern Fortran, this book will be a valuable addition to your bookshelf (or in my case, desktop).

I needed an update on my handy Metcalf, Reid & Cohen that covers Fortran 90/95 and recently bought this 2011 edition that covers Fortran 2008 features. It fully meets my expectations as being easy to use as a reference, and it explains the myriad of syntax, features and intrinsic procedures of Fortran 95/2003/2008, and clearly notes differences, such as the optional "kind" argument for some intrinsic procedures that is not present in the Fortran 95 standard but appeared in the 2003 or 2008 standards. Anyone that uses Fortran 95/2003/2008 should have a copy of this definitive book within reach.

I'm an experienced Fortran 90 programmer and loved this book as a go to reference for when I'm suffering brain fade. Its also a great expansion to explain the additional new features of F95, 2000, 2003 and 2008.

I came to this book already having an understanding of Fortran 90 and having already written several large codes with it, but needing much guidance in the modern features made available in the 95, 03 and 08 standards details and wanting examples of how to implement these. This is one of the rare programming books that will always stay within reach at my desk. I agree with other reviewers that the book is very difficult to just read from beginning to end; it does jump around quite a bit, and it is meant much more to be a reference book for one looking for certain key features and maybe already having an understanding of other features. I am undecided whether it would be a good introduction, as I already had an understanding of the language fundamentals before reading, but I do like the repeated use of clear examples littering the text.

I am still looking for a good book on modern Fortran, something like Herbert Schildt on C/C++. At times Metcalf, et al, seem to be talking to a novice programmer, but then they launch off into abstract programming concepts suitable for a language standard. Many of the snippets are just expressions without assignments. In fact, they don't even get into simple scalar assignments until two thirds into chapter 3 -- after explaining arrays and structures. Program units and procedures are not touched on until chapter 5. An introductory "Hello, World!" would have been nice. They really seem to have trouble figuring out who their audience is. It's like they are paraphrasing the 90/95/2003/2008 standards to a novice programmer. And sin of all sins, they say GOTO is still OK! Come on. Users of this book will not learn how to write good Fortran with it. And we have enough lousy Fortran already. It really is possible to write readable, maintainable, even object oriented Fortran. I've even written readable FORTRAN 77. With no GOTOs! I am an experienced engineering programmer (16+ years) in FORTRAN 77, Ada, C/C++, Java, Matlab and Python, but I am finding it very difficult to get through this book without becoming very frustrated. Modern Fortran looks to be a fantastic language for Scientists and Engineers solving applied math and physics problems. It is very math oriented, unlike C/C++ which is geared more for non applied math algorithms. But, it is a slow slog to get into without a good reference. I'm going to try the Jeanne Adams, et al, Fortran 2003 Handbook. I'm not sure it will be much better.

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