An Introduction to Fortran 90 for Scientific Computing

By James M. Ortega

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Fortran was one of the earliest programming languages and is still the most important language for scientific and engineering computation. It has evolved considerably over the last 35 years and this book provides an introduction to its latest standard: Fortran 90. The general organization of this text is based on a companion volume, *An Introduction to FORTRAN for Scientific Computing*, which covered Fortran 77 with some discussion of Fortran 90 features. Ortega begins with a general introduction to computing, then introduces the basic constructs of the Fortran language: variables, assignment statements, the IF statement, repetition by DO loops, arrays, functions and subroutines, and formatted input/output. Only the simplest forms of these constructs are introduced, but even these are enough for students to begin writing fairly sophisticated programs. To develop good programming habits early on, Ortega discusses programming techniques--such as top-down step-wise refinement, and the important question of detecting errors--alongside the factual material right from the beginning. By the end of Chapter 3, students will have covered most of Fortran 77 and many of the simpler added features of Fortran 90. In Chapter 4, Ortega addresses the more advanced features of Fortran 90: derived types, modules, interface blocks, overloading, and pointers, and concludes with a summary of how Fortran 77 differs from Fortran 90. Development of this text took place in many forms as a first-year programming course taught at the University of Virginia.

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Review

"Very good organization, proceeding from basic concepts to advanced topics. I also like the sections capsulizing the differences between F77 and F90."--James Marr, *US Air Force Academy*

About the Author
James M. Ortega is at University of Virginia.

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