

Steven C. Chapra

**Applied Numerical Methods**  
with **MATLAB®**

*for Engineers and Scientists*

**Third Edition**

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# Applied Numerical Methods

*with MATLAB<sup>®</sup> for Engineers and Scientists*

Third Edition

**Steven C. Chapra**

**Berger Chair in Computing and Engineering  
Tufts University**



*To*

My brothers,  
John and Bob Chapra

# ABOUT THE AUTHOR

**Steve Chapra** teaches in the Civil and Environmental Engineering Department at Tufts University, where he holds the Louis Berger Chair in Computing and Engineering. His other books include *Numerical Methods for Engineers* and *Surface Water-Quality Modeling*.

Steve received engineering degrees from Manhattan College and the University of Michigan. Before joining the faculty at Tufts, he worked for the Environmental Protection Agency and the National Oceanic and Atmospheric Administration, and taught at Texas A&M University and the University of Colorado. His general research interests focus on surface water-quality modeling and advanced computer applications in environmental engineering.

He has received a number of awards for his scholarly contributions, including the Rudolph Hering Medal, the Meriam/Wiley Distinguished Author Award, and the Chandler-Misener Award. He has also been recognized as the outstanding teacher among the engineering faculties at both Texas A&M University (1986 Tenneco Award) and the University of Colorado (1992 Hutchinson Award).

Steve was originally drawn to environmental engineering and science because of his love of the outdoors. He is an avid fly fisherman and hiker. An unapologetic nerd, his love affair with computing began when he was first introduced to Fortran programming as an undergraduate in 1966. Today, he feels truly blessed to be able to meld his love of mathematics, science, and computing with his passion for the natural environment. In addition, he gets the bonus of sharing it with others through his teaching and writing!

Beyond his professional interests, he enjoys art, music (especially classical music, jazz, and bluegrass), and reading history. Despite unfounded rumors to the contrary, he never has, and never will, voluntarily bungee jump or sky dive.

If you would like to contact Steve, or learn more about him, visit his home page at <http://engineering.tufts.edu/cee/people/chapra/> or e-mail him at [steven.chapra@tufts.edu](mailto:steven.chapra@tufts.edu).

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