FURTHER READING
Christopher Heil
School of Mathematics, Georgia Tech

This is a sampling of some texts in subjects related to the courses that I usually teach, limited to books that I happen to know and/or like.

1. LINEAR ALGEBRA


2. UNDERGRADUATE REAL ANALYSIS

(1) W. Rudin, Principles of Mathematical Analysis, McGraw–Hill, 1964. Affectionately referred to as “baby Rudin” (to distinguish it from “big Rudin,” listed in the next section). This is a little old, but it is the book you should be familiar with.


3. GRADUATE REAL ANALYSIS

(1) R. Wheeden and A. Zygmund, Measure and Integral, Marcel Dekker, 1977. This is the book I learned real analysis from, so of course I like it. Lebesgue measure is presented first, and abstract measure theory later.

(2) E. M. Stein and R. Shakarchi, Real Analysis, Princeton University Press, 2005. This is a recent text. Like Wheeden and Zygmund, it focuses on Lebesgue measure. Well-written, a good choice for a first text.

(3) G. Folland, Real Analysis, Second Edition, Wiley, 1999. This is the book that you need to read and understand. However, it is not the easiest book to learn the subject from. After you have read another book, read this in detail.

(4) W. Rudin, Real and Complex Analysis, 3rd edition, McGraw–Hill, 1987. This is the alternative to Folland. This book, or Folland, should be the second text on Real Analysis that you read, and you should read it in detail.

4. HILBERT SPACE THEORY

5. Functional Analysis

Functional analysis is an outgrowth/combination/extension of Hilbert space and real analysis. So the texts are generally more difficult than those listed in the Hilbert space section.


6. Harmonic Analysis

Harmonic analysis and wavelet theory are my own research areas.


(4) H. Dym and H. P. McKean, *Fourier Series and Integrals*, Academic Press, New York, 1972. This is a charming book, which contains a number of applications as well as the basic theory of Fourier series and the Fourier transform.

(5) K. Gröchenig, *Foundations of Time-Frequency Analysis*, Birkhäuser, 2001. Written by one of my coauthors, it is beautiful introduction to the field of time-frequency analysis, which could also be called “local Fourier analysis.”

7. Wavelets

(1) I. Daubechies, *Ten Lectures on Wavelets*, SIAM, 1992. If you’ve got some background in real analysis, then this is a terrific book. It doesn’t do applications, but it does gives you a sense of connections to other fields.
