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This book teaches biochemists and molecular biologists in a hands-on fashion the use of modern computational methods for the analysis of complex biomedical systems; a modest mathemati-cal background will suffice. The book begins with representations of biochemical systems, provides guidelines for setting up models, discusses in detail mathematical and computational methods of pa-rameter estimation and model analysis, and ultimately connects to the modern literature with four detailed case studies. Every step is illustrated with examples and exercises, and is explored with the ac-companying software, PLAS. A dedicated Web site featuring color illustrations, further exercises, research news, as well as resources and links also accompanies this book.

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