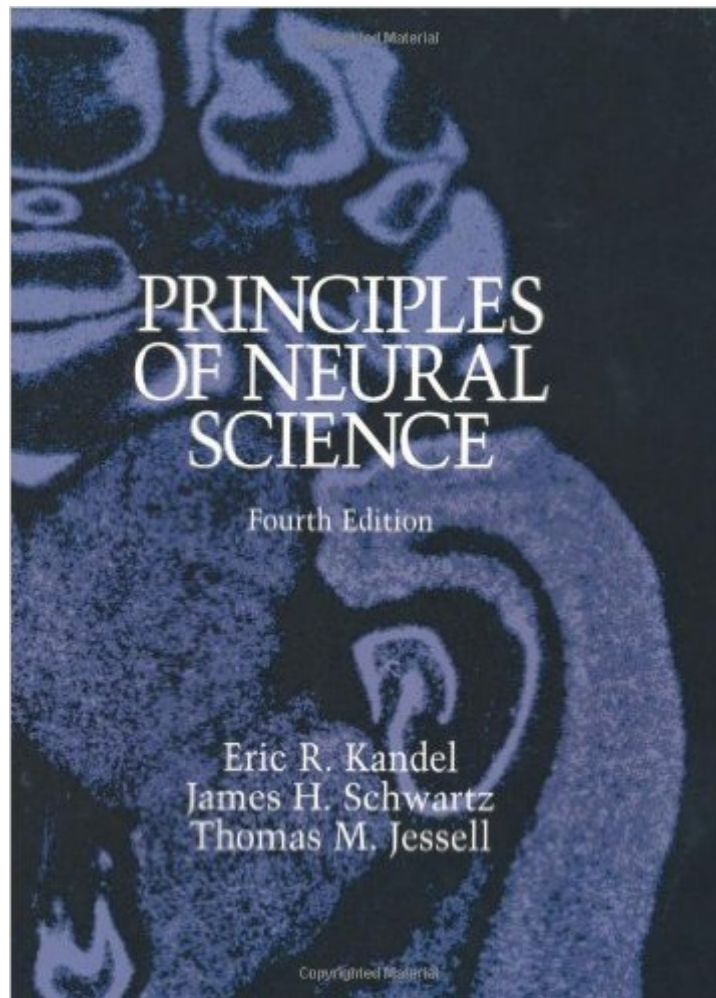


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# Principles Of Neural Science



## Synopsis

A Doody's Core Title for 2011! 5 STAR DOODY'S REVIEW! "This is a simply wonderful book that makes accessible in one place all the details of how the neuron and brain work. The writing is clear. The drawings are elegant and educational. The book is a feast for both the eye and mind. The richness, the beauty, and the complexity of neuroscience is all captured in this superb book."--Doody's Review Service Now in resplendent color, the new edition continues to define the latest in the scientific understanding of the brain, the nervous system, and human behavior. Each chapter is thoroughly revised and includes the impact of molecular biology in the mechanisms underlying developmental processes and in the pathogenesis of disease. Important features to this edition include a new chapter - Genes and Behavior; a complete updating of development of the nervous system; the genetic basis of neurological and psychiatric disease; cognitive neuroscience of perception, planning, action, motivation and memory; ion channel mechanisms; and much more.

## Book Information

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## Customer Reviews

I read this book in medical school. Although I would agree that it is probably too basic science oriented for a medical school neuroscience course, it was enjoyable, thorough, and inspirational. There are few books in my life that took as complex a topic as how the brain works and made it comprehensible. It is not a crib sheet for passing medical school exams. It is the first book I would recommend for anyone seriously interested in an understanding of the brain, sensory processes,

etc... For anyone for whom a fundamental grounding in neuroscience is important this is the book.

While this book (in this and previous incarnations) has been hailed as the "bible" of neuroscience, there are some flaws the potential reader should be made aware of. The first batch of chapters dealing with the machinery of the cell are repetitive in terms of their respective contents. Some judicious editing would have been nice in this section. Although the writing style improves in subsequent chapters, those dealing with the molecular biology of the neuron could be a little clearer. Levitan and Kaczmarek's "The Neuron" could be used to either introduce or supplement these chapters. The illustrations throughout are a major improvement over the last edition's over-use of black and white stick figures. While it is a very good teaching text for the money, check your university bookstore or library for other neuroscience texts which might give a clearer functional overview. In the long gap between this edition and the last a number of good graduate level texts have arisen to fill the need.

I used this in medical school, then graduate school, finding the length and quality improve with succeeding editions of the volume. Very well known chapter editors create a 'Scientific American-like' view of the Basic Neurosciences. This book is grossly inadequate if you want to pass medical and graduate school exams. It's like a "candy-coated" atlas of neuroscience. There are not many rigorous equations to learn in the book. For that you will need *From Neuron to Brain* or even a higher book such as *Theoretical Neuroscience*. The strength of this book is the beautiful color illustrations. Its weakness is that it does not cover "hard-core" electrophysiology. Ohm's Law and the cable theory of the squid giant axon are covered, but where is Heisenberg-James' Theory of the quantum vesicle exocytosis, 'HJ' Theory of the Mind, and Boolean algebra. No mention of these ideas. You would have to go to Sir John Eccles' *The Self & Control of its Brain*, as well as Henry Stapp's *Mind, Brain, & Quantum Mechanics* for further expansion on such theories. Also, where is Bayes Theorem and a discussion of probabilistic Populations of Neurons. Entropy is not discussed. A useful reference is *Information Theory & the Brain* by Baddeley for this. Ballistic, and Biofeedback are not discussed. Refer to Roger Carpenter's *Movements of the Eyes & Neurophysiology* 4th ed. Magnetic Stimulation and fMRI are alluded to but not incorporated as valid tools in the study of the Nervous System. Alan Kingstone with UBC, Vancouver, Canada has written a good reference on this. I have not really used this book since graduate school. This text is a very good overview of Neuroscience ranging from cell biology of neurons, ion channel physiology, to Movement Control, to Cognition & Memory. Phenomena like LTP & LTD have their own individual chapters. I still own this

book and will keep it as a nice reference even though I do not refer much to it in my daily work.

This text (or perhaps an earlier edition) was a lifeline for me for many years as a undergraduate and postgraduate student of psychology (with semester units in neurophysiology and neuroanatomy). It was completely perfect in that it covers the fundamentals of neuroscience in slightly more detail than one needs (unlike most textbooks which always seem to do everything in slightly less detail). Just like you always feel that you have to be clutching a calculator when you're studying physics, so you need this for any kind of neural science studying. It has clear, lavish pictures and everything is thorough and easy to understand. And, oh boy, what a Book! You really feel that you've got something for your money. It's hefty, it's intellectual, and it looks damned good on the bookshelves. The paper is glossy, everything's set out well, and you feel good every time you refer to it. When I was a student, my general principle was to BUY NO TEXTBOOKS, and this one was very expensive for me at the time, but it was worth it. Probably the most valuable book I had in all my 8 years of formal studying. It contained everything I needed in terms of information on this topic, and on the rare occasions when I had to go further into something, there were very useful references at the end of every chapter. I strongly recommend it. You'll use it for years, and when it's time to move on, it'll be easy to sell.

The University of Pittsburgh Neuroscience department uses this book as one of it's main textbooks. It is an interesting book, and one that I've used for years. This edition is in keeping with the other editions of the book, meaning, it is just as disorganized by chapters and topics as it always was. Even though many of the individual chapters are well-written and interesting, I get the feeling the whole thing was thrown together as fast as they could get it out. Many times when I am looking up information, I can't even go to a specific chapter and be sure I'll find it there...I have to use the index in the back of the book. That is okay, but it is time-consuming and I think that students and educators would be better served if the book were more carefully organized. It should be remembered that writing a book for Neuroscience is difficult at best, because the information changes at least every three months...so by the time a textbook gets to print, some of what they have said is already out of date. Karen Sadler, Science Education, University of Pittsburgh, klsst23@pitt.edu

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