

Foreword

This excellent and highly acclaimed textbook by Hammond and co-authors, now in its third edition, remains faithful to its central philosophy that teaching science cannot simply rely on the presentation of facts, but must also include the intellectual journey that gives birth to key discoveries and results in the solution of long-standing puzzles. Science is in constant motion, and neuroscience, in particular, cannot be understood without appreciating how ground-breaking experiments were designed to test novel hypotheses using a combination of intuition, knowledge and experience. Readers will greatly appreciate this book for several reasons. Chief among them is that the text introduces them to the core scientific process, beyond simply presenting solutions to problems. A unique aspect of this textbook is that most figures are reproduced from the original papers that first demonstrated a given finding. This is an excellent didactic approach, because these original figures not only convey information concerning particular experimental arrangements and results, but they also introduce students to the history of neuroscience first hand. At the bottom of each figure legend, for example, readers will find the full reference

including the authors, title, and journal for the paper that reported the particular discovery. There is no better way to teach students integrity and self-confidence than to introduce them to the original papers.

Because the current edition contains many updated chapters and appendices, students will learn about experiments performed by pioneering authors whom they can actually meet in person at scientific conferences. This is where the true power of the book lies, as this approach enables students to familiarize themselves with the ever-changing, flesh-and-blood frontlines of cutting-edge research, while they are still in the process of studying the key concepts of molecular and cellular neuroscience. The topics range from elementary properties of excitable cells to detailed discussions of ion channels, receptors, and synaptic transmission, all the way to dendritic integration and various forms of neuronal plasticity. This book is a concise, yet in-depth, highly informative text that will continue to inspire present and future practitioners of neuroscience.

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