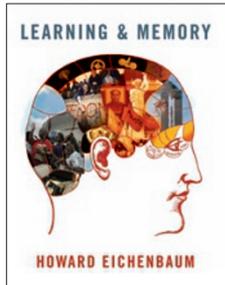


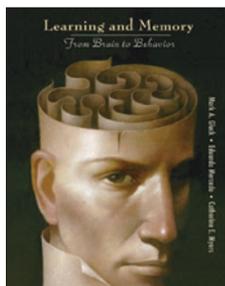
## New aids for learning and memory



### Learning & Memory

by Howard Eichenbaum

W. W. Norton, 2008  
438 pp, hardcover, \$93.75  
ISBN 0393924475



### Learning and Memory: From Brain to Behavior

by Mark A Gluck, Eduardo Mercado &  
Catherine E Myers

Worth Publishers, 2007  
554 pp, hardcover, \$95  
ISBN 0716786540

Reviewed by Ingrid Ehrlich &  
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Unraveling the underpinnings of learning and memory has fascinated philosophers, physicians and scientists for centuries and remains an important area of neuroscience research. In the last decade, modern methods in psychology, cognitive and behavioral sciences, and neurobiology have produced a wide body of interdisciplinary knowledge that has begun to converge and deepen our understanding of how behavioral changes are linked to brain processes. Meanwhile, courses on learning and memory have become staples in psychology and biology undergraduate and graduate curricula. Several authors have taken up the challenge to cater to this market. Here we review two recently published textbooks. According to their mission statements, both books aim to integrate findings from human and animal studies and from multiple levels of investigation. Do they succeed in this very timely approach?

*Learning & Memory* comes in an unpretentious, classical layout with black and white illustrations. Eichenbaum's book covers a broad literature and is organized around the concept of multiple forms of memory. The book begins by discussing simple, unconscious forms and then advances to complex, conscious forms of learning and memory. Special emphasis is given to the related, but contrasting, topics of episodic and semantic memory, each of which receives a dedicated chapter, as well as to the processes of memory consolidation. Eichenbaum engages the reader by opening each chapter with a personal account or story that captures the

essence of the following topic. In asides entitled "Learning & Memory in Action", he emphasizes how research in the field applies to various aspects of our everyday life. Clear and concise interim and chapter summaries round out each chapter. Concepts are introduced from a historical perspective and extended to more recent findings. Typically, human neuropsychological studies are used as an entry point, often supported by clinical accounts. Subsequently, concepts and questions emerging from human studies are convincingly linked to findings from animal research that, through more manipulative approaches, provide further insight into the behavioral and brain processes underlying distinct forms of memory. Less convincing is one of the first chapters dedicated to the neurobiological foundations of learning and memory and the cellular and synaptic basis of neuronal plasticity. Overall, Eichenbaum's book provides fascinating insights into the neuropsychological and behavioral processes of learning and memory.

*Learning and Memory: From Brain to Behavior* by Gluck and colleagues is more flashy, equipped with colored subheadings, text boxes and illustrations. These features help break down information, and color illustrations are in many cases superior to black and white. The entertaining stories found in the "Unsolved Mysteries" and "Learning and Memory in Every Day Life" text boxes should do their part to keep students on the ball. Starting from a historical account of the psychology of learning and memory, the book moves on to give a quick tour of the neuroscience of memory. Here, the focus is on how human brain function and activity can be studied, with a limited coverage of cellular concepts, including synaptic plasticity. The book covers much of the same ground as *Learning & Memory*, but is structured differently. It does not build from simple to complex forms of memory, but dives into the middle by discussing episodic and semantic memory in a single chapter. A positive aspect is that each chapter is nicely constructed with three major subheadings, behavioral processes, brain substrates and clinical perspectives, making it very easy to follow. Topics that receive separate attention include developmental aspects of memory and language learning and communication. In general, results from human and animal studies are well synthesized; in many cases, comparative approaches are also presented. Compared with Eichenbaum's book, more emphasis is placed on theoretical approaches. The chapter on classical conditioning, for example, provides an excellent introduction into the basics of formal learning theory. Together with an adequate introduction into important methods and techniques used in learning and memory research, such aspects make this book an invaluable resource for any instructor teaching this subject.

Overall, both textbooks are written for the undergraduate market, requiring little or no previous background of the field. Both implement our current knowledge about learning and memory and employ didactical elements such as stories, links to daily life, well-written interim and chapter summaries, and concept checks. As a shortcoming, both, and in particular Eichenbaum's book, stay rather focused on neuropsychological and behavioral aspects. More weight could be given to relevant molecular, neuronal and circuit processes and to contributions from invertebrates and genetics studies. Both books, however, succeed in filling an important gap by providing a comprehensive synthesis of the basic principles of learning and memory emerging from human and animal studies. ■

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