What Is Ltp In Psychology

Memory: Organization and Locus of Change
Learning and Memory: A Comprehensive Reference
Mathematics for Neuroscientists
Science of Memory
The Senses: A Comprehensive Reference
Master Introductory Psychology
The Hippocampus Book
Toward a Theory of Neuroplasticity
The Hippocampus
Neural Plasticity and Memory
The Brain from Inside Out
Understanding the Brain: From Cells to Behavior to Cognition
Philosophy and Neuroscience
Neuroscience For Dummies
Origins of Neuroscience
Learning & Memory
Neuronal Mechanisms of Memory Formation

The Neuroscience of Adolescence
The Accidental Mind
Parallel Distributed Processing
Long-term Potentiation
Memory, Amnesia, and the Hippocampal System
Rewire Your Brain
Principles of Learning and Memory
Synaptic Function
Essence of Memory
Long-term Potentiation
Principles of Neural Science
Neural Network Models of Cognition
The Adaptable Mind
Mechanisms of Memory
50 Human Brain Ideas You Really Need to Know
History of Cognitive Neuroscience
How We Remember
Cognitive Enhancement in Schizophrenia and Related Disorders
Neurogenesis and Neural Plasticity
Your Brain, Explained

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Memory: Organization and Locus of Change Academic Press
This book brings together an internationally respected group of researchers for the purpose of examining neuroplasticity, a topic of immense current interest in psychology, neuroscience, neuropsychology, and clinical neurology. The chapters represent state-of-the-art work on neuroplasticity at all levels: behavioral, neural, and molecular. They describe recent work on memory ranging from cellular morphological studies in invertebrates to research on the human brain made possible by new advances in neuroimaging technology. The book begins with an introductory chapter that considers the psychology of memory at the global, structural level. The remainder of the volume is divided into three related parts. The first focuses on recent approaches, which are based in part on new technology, that aim to measure and describe activity in relatively large populations of neurons. The second focuses on memory at the level of brain systems. One major theme to emerge from work at this level is that memory is composed of multiple,

separable components that can be identified with specific anatomical structures and connections. The third part of the book focuses on molecular and cellular studies that show how individual neurons and their synapses behave in a history-dependent manner. This research concerns both brief changes in synaptic plasticity as well as more lasting changes in connectivity, which depend on altered gene expression and morphological growth and change. Altogether, the chapters provide a rich summary of the breadth and excitement of contemporary research on the biology of memory.

Learning and Memory: A Comprehensive Reference MIT Press Scientists currently study memory from many different perspectives: neurobiological, ethological, animal conditioning, cognitive, behavioral neuroscience, social, and cultural. The aim of this book is to help initiate a new science of memory by bringing these perspectives together to create a unified understanding of the topic. The book began with a conference where leading practitioners from all these major approaches met to analyze and discuss 16 concepts that are crucial to our understanding of memory. Each of these 16 concepts is addressed in a section of the book, and in the 66 succinct chapters that fill these sections, a leading researcher addresses the section's concept by clearly stating his or her position on it, elucidating how it is used, and discussing how it should be used in future research. For some

concepts, there is general agreement among practitioners from different fields and levels of analysis, but for others there is general disagreement and much controversy. A final chapter in each section, also written by a leading researcher, integrates the various viewpoints offered on the section's concept, then draws conclusions about the concept. This groundbreaking volume will be an indispensable reference for all the students and researchers who will build upon the foundation it provides for the new science of memory.

Mathematics for Neuroscientists Oxford University Press

A comprehensive, multidisciplinary review, Neural Plasticity and Memory: From Genes to Brain Imaging provides an in-depth, up-to-date analysis of the study of the neurobiology of memory. Leading specialists share their scientific experience in the field, covering a wide range of topics where molecular, genetic, behavioral, and brain imaging techniques have been used to investigate how cellular and brain circuits may be modified by experience. In each chapter, researchers present findings and explain their innovative methodologies. The book begins by introducing key issues and providing a historical overview of the field of memory consolidation. The following chapters review the putative genetic and molecular mechanisms of cell plasticity, elaborating on how experience could induce gene and protein expression and describing their role in synaptic plasticity

underlying memory formation. They explore how putative modifications of brain circuits and synaptic elements through experience can become relatively permanent and hence improve brain function. Interdisciplinary reviews focus on how nerve cell circuitry, molecular expression, neurotransmitter release, and electrical activity are modified during the acquisition and consolidation of long-term memory. The book also covers receptor activation/deactivation by different neurotransmitters that enable the intracellular activation of second messengers during memory formation. It concludes with a summary of current research on the modulation and regulation that different neurotransmitters and stress hormones have on formation and consolidation of memory.

Science of Memory CRC Press

Contains alphabetically arranged articles that provide information on key topics in learning and memory, written by experts in the field, and includes biographical sketches of notable individuals, now deceased, who have contributed to the understanding of learning and memory.

The Senses: A Comprehensive Reference John Wiley & Sons

With over 350 illustrations, this impressive volume traces the rich history of ideas about the functioning of the brain from its roots in the ancient cultures of Egypt, Greece, and Rome through the centuries into relatively modern times. In contrast to biographically oriented accounts, this

book is unique in its emphasis on the functions of the brain and how they came to be associated with specific brain regions and systems. Among the topics explored are vision, hearing, pain, motor control, sleep, memory, speech, and various other facets of intellect. The emphasis throughout is on presenting material in a very readable way, while describing with scholarly acumen the historical evolution of the field in all its amazing wealth and detail. From the opening introductory chapters to the concluding look at treatments and therapies, this monumental work will captivate readers from cover to cover. It will be valued as both an historical reference and as an exciting tale of scientificdiscovery. It is bound to attract a wide readership among students and professionals in the neural sciences as well as general readers interested in the history of science and medicine.

Master Introductory Psychology

Academic Press

You've probably seen it before: a human brain dramatically lit from the side, the camera circling it like a helicopter shot of Stonehenge, and a modulated baritone voice exalting the brain's elegant design in reverent tones. To which this book says: Pure nonsense. In a work at once deeply learned and wonderfully accessible, the neuroscientist David Linden counters the widespread assumption that the brain is a paragon of design--and in its place gives us a compelling explanation of how the brain's serendipitous evolution has resulted in nothing short of our

humanity. A guide to the strange and often illogical world of neural function, The Accidental Mind shows how the brain is not an optimized, general-purpose problem-solving machine, but rather a weird agglomeration of ad-hoc solutions that have been piled on through millions of years of evolutionary history. Moreover, Linden tells us how the constraints of evolved brain design have ultimately led to almost every transcendent human foible: our long childhoods, our extensive memory capacity, our search for love and long-term relationships, our need to create compelling narrative, and, ultimately, the universal cultural impulse to create both religious and scientific explanations. With forays into evolutionary biology, this analysis of mental function answers some of our most common questions about how we've come to be who we are.

The Hippocampus Book Clarendon Press

This volume brings together authors working on a wide range of topics to provide an up to date account of the underlying mechanisms and functions of neurogenesis and synaptogenesis in the adult brain. With an increasing understanding of the role of neurogenesis and synaptogenesis it is possible to envisage improvements or novel treatments for a number of diseases and the possibility of harnessing these phenomena to reduce the impact of ageing and to provide mechanisms to repair the brain.

Toward a Theory of Neuroplasticity Springer

A practical guide on how to assess and treat schizophrenia and related disorders using cognitive rehabilitation.

The Hippocampus Academic Press

A novel perspective on the biological mechanisms of episodic memory, focusing on the encoding and retrieval of spatiotemporal trajectories. Episodic memory proves essential for daily function, allowing us to remember where we parked the car, what time we walked the dog, or what a friend said earlier. In How We Remember, Michael Hasselmo draws on recent developments in neuroscience to present a new model describing the brain mechanisms for encoding and remembering such events as spatiotemporal trajectories. He reviews physiological breakthroughs on the regions implicated in episodic memory, including the discovery of grid cells, the cellular mechanisms of persistent spiking and resonant frequency, and the topographic coding of space and time. These discoveries inspire a theory for understanding the encoding and retrieval of episodic memory not just as discrete snapshots but as a dynamic replay of spatiotemporal trajectories, allowing us to "retrace our steps" to recover a memory. In the main text of the book, he presents the model in narrative form, accessible to scholars and advanced undergraduates in many fields. In the appendix, he presents the material in a more quantitative style, providing mathematical descriptions appropriate for advanced undergraduates and graduate students in neuroscience or

engineering.

Neural Plasticity and Memory Wiley-Interscience

Following the successful format of the first volume on long-term potentiation--a leading candidate for the neuronal basis of learning and memory--Volume 2 brings together the most recent data and hypotheses by top neuroscientists regarding the mechanisms of this phenomenon and of long-term depression (LTD).Following the successful format of the first volume on long- term potentiation--a leading candidate for the neuronal basis of learning and memory--Volume 2 brings together the most recent data and hypotheses by top neuroscientists regarding the mechanisms of this phenomenon and of long-term depression (LTD). The book is divided into several sections covering different aspects of the field ranging from molecular mechanisms of plasticity to computational neurobiology. It revisits some of the major points covered in Volume 1, updating them in this fast-moving field. It also introduces several new issues that have arisen since then. Of the many possible new topics that could have been added, the editors have focused on retrograde messengers and the mechanisms and functions of LTP and LTD because they are the subject of much interest, research, and controversy. The section on retrograde messengers deals primarily with nitric oxide.

The Brain from Inside Out Academic Press

Mathematics for Neuroscientists, Second Edition, presents a comprehensive introduction to mathematical and computational methods used in neuroscience to describe and model neural components of the brain from ion channels to single neurons, neural networks and their relation to behavior. The book contains more than 200 figures generated using Matlab code available to the student and scholar. Mathematical concepts are introduced hand in hand with neuroscience, emphasizing the connection between experimental results and theory. Fully revised material and corrected text Additional chapters on extracellular potentials, motion detection and neurovascular coupling Revised selection of exercises with solutions More than 200 Matlab scripts reproducing the figures as well as a selection of equivalent Python scripts Cambridge University Press

Sleep. Memory. Pleasure. Fear. Language. We experience these things every day, but how do our brains create them? Your Brain, Explained is a personal tour around your gray matter. Neuroscientist Marc Dingman gives you a crash course in how your brain works and explains the latest research on the brain functions that affect you on a daily basis. You'll also discover what happens when the brain doesn't work the way it should, causing problems such as insomnia, ADHD, depression, or addiction. You'll learn how neuroscience is working to fix these problems, and how you can build up your defenses against the most common faults of the

mind. Along the way you'll find out: · Why brain training games don't prevent dementia · What it's like to remember every day of your life as if it were yesterday · Which popular psychiatric drug was created from German rocket fuel · How you might unknowingly be sabotaging your sleep Drawing on the author's popular YouTube series, 2-minute Neuroscience, this is a friendly, engaging introduction to the human brain and its quirks from the perspective of a neuroscientist--using real-life examples and the author's own eye-opening illustrations. Your brain is yours to discover!

Understanding the Brain: From Cells to Behavior to Cognition Elsevier Neuroscience is one of the most fascinating and complex areas of scientific research, with new advances being made every day. In 50 Human Brain Ideas You Really Need to Know, Mo Costandi condenses all we know about the brain and how it works into series of introductions to the most important concepts. Outlining both long-standing theories - such as the function of neurons and synaptic transmission - and cutting-edge ideas - including neuroethics and brain-computer interfacing - with straightforward narrative and clear two-colour illustrations, this book is a perfect beginner's guide to the most powerful and mysterious organ in the body. The ideas explored include: The nervous impulse; Differences between the male and female brain; The root of addiction; Neurobiological basis for personality;

The relationship between sleep and memory.

Philosophy and Neuroscience Psychology Press

What distinguishes good explanations in neuroscience from bad? Carl F. Craver constructs and defends standards for evaluating neuroscientific explanations that are grounded in a systematic view of what neuroscientific explanations are: descriptions of multilevel mechanisms. In developing this approach, he draws on a wide range of examples in the history of neuroscience (e.g. Hodgkin and Huxleys model of the action potential and LTP as a putative explanation for different kinds of memory), as well as recent philosophical work on the nature of scientific explanation. Readers in neuroscience, psychology, the philosophy of mind, and the philosophy of science will find much to provoke and stimulate them in this book.

Neuroscience For Dummies Springer Science & Business Media

This internationally authored volume presents major findings, concepts, and methods of behavioral neuroscience coordinated with their simulation via neural networks. A central theme is that biobehaviorally constrained simulations provide a rigorous means to explore the implications of relatively simple processes for the understanding of cognition (complex behavior). Neural networks are held to serve the same function for behavioral neuroscience as population genetics for evolutionary science. The volume is divided into six sections, each of which includes both

experimental and simulation research: (1) neurodevelopment and genetic algorithms, (2) synaptic plasticity (LTP), (3) sensory/hippocampal systems, (4) motor systems, (5) plasticity in large neural systems (reinforcement learning), and (6) neural imaging and language. The volume also includes an integrated reference section and a comprehensive index.

Origins of Neuroscience Oxford University Press

This book consists of five sections. The first section details methods for analyzing both presynaptic and postsynaptic function and emphasizes the molecular aspects of synapses. It describes ongoing studies of neurotransmitter release, voltage-sensitive ion channels, and electronic transmission at gap junctions. The second section focuses on the growing menagerie of neurotransmitters: their catagorization into chemical families, their relation to ion channels, their modulation by second messenger systems and their role in pharmacologic action. The third section considers the important relationship of transmitter diversity and synaptic types to the behavior of actual cellular networks. All of the studies described in these sections point to the necessity of considering interactions between anatomy, chemistry, physiology and pharmacology if synaptic function is to be understood at any one of these levels of analysis.

Learning & Memory Cambridge University Press

This edited volume provides an overview the state-of-the-art in the field of cognitive neuroscience of memory consolidation. In a number of sections, the editors collect contributions of leading researchers . The topical focus lies on current issues of interest such as memory consolidation including working and long-term memory. In particular, the role of sleep in relation to memory consolidation will be addressed. The target audience primarily comprises research experts in the field of cognitive neuroscience but the book may also be beneficial for graduate students.
Neuronal Mechanisms of Memory Formation Cambridge University Press
This selection of reviews gives an up-to-date picture of memory research. Great progress has been made in identifying the memory trace at the molecular and cellular level and individual reviews address the major mechanisms by which changes in synaptic strength can persist. Exciting research at the systems level is also reviewed including the growing importance of changes in inhibitory interneurons and how they play a role in memory formation. Finally, reviews present cognitive and neurobiological models of human memory that explain, characterize and organize the act of memory within a coherent framework. * Provides an unique overview that covers all perspectives and methodological approaches to memory * Broad coverage of memory research from molecular to human studies in one source * Up-to-date reviews give the latest important ideas on memory formation

The Neuroscience of Adolescence John Wiley & Sons
The hippocampus is an important brain region, a true central hub for memory of various kinds and other processes. Neuropsychiatric disorders such as Alzheimer's disease, drug addiction, and schizophrenia are characterized by hippocampal alterations. The dentate gyrus of the hippocampus is a site exhibiting adult neurogenesis. This book covers the topic of the hippocampus from various perspectives. It discusses adult neurogenesis, effect of enriched environments on hippocampal plasticity, and long-term potentiation-associated gene expression. The book also addresses multiscale representations of complex environments and strategies in the hippocampus-dependent spatial tasks. Finally, insight into the hippocampus as a link between negative affect and relapse to psychostimulants is provided. The book collects evidence of various hippocampal functions in healthy and disordered brain.
The Accidental Mind Elsevier
Master Introductory Psychology gives you all the information you need for any introductory psychology class or for self-study. This book breaks down all the key concepts in psychology and provides an engaging and memorable guide for each unit. Clear explanations and examples are combined with helpful memory strategies so content can stick in your head after a single reading. It's a step-by-step guide through all of the ideas you need to know. Each unit also includes a chapter summary, a list of key

terms for review, and extensive references and recommendations for exploring subjects in more detail. Don't settle for dry definitions or endless multiple-choice questions that don't develop true understanding. Instead get the guide that builds a solid foundation and helps you master introductory psychology. This complete edition covers 16 units: History and Approaches Research Methods Biological Bases of Behavior Sensation & Perception Learning Memory Language & Cognition States of Consciousness Intelligence Personality Motivation & Emotion Development Social Psychology Stress & Health Psychological Disorders Treatment

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