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| Titolo | Neurosciences - From Molecule to Behavior: a university textbook / / edited by C. Giovanni Galizia, Pierre-Marie Lledo |
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| Descrizione fisica | 1 online resource (XIV, 736 p. 418 illus., 397 illus. in color.) |
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| Soggetti | Neurosciences<br>Neurobiology |
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| Note generali | "Based on the 2nd edn. of the textbook "Neurowissenschaft" by Josef Dudel, Randolf Menzel and Robert F. Schmidt."--T.p. verso. |
| Nota di bibliografia | Includes bibliographical references and index. |
| Nota di contenuto | From Neurophysiology to Neuroscience: New echnologies and New Concepts in the Twentieth Century -- Evolution of Nervous Systems and Brains -- Ontogeny of the Vertebrate Nervous System -- Diseases -- Neurophilosophy -- Cellular and Molecular Basis of Neural Function -- Electrical Activity in Neurons -- The Synapse -- Biology and Function of Glial Cells -- The Autonomic Nervous System -- Neuropeptides and Peptide Hormones -- The Biological Function of Sensory Systems -- Olfaction.- Taste -- Thermosensation -- Mechanosensation -- Auditory Systems -- Vision -- Electroreception -- The Magnetic Senses -- Pain and Nociception -- Muscles and Motility -- Motor Control -- The Neural Bases of Emotions -- Experience-Dependent Plasticity in the Central Nervous System -- Cellular Correlates of Learning and Memory -- Circadian Timing -- Learning, Memory, and Cognition: Animal Perspectives -- Primate Social Intelligence -- Computational Neuroscience:Capturing the Essence. |
| Sommario/riassunto | Neurosciences – a comprehensive approach This textbook covers neuroscience from cellular and molecular mechanisms to behavior and cognitive processing. We also address evolution of the nervous system, computational neuroscience, the history of neuroscience as a discipline and neurophilosophy – to name but a few. The book provides the |

newest state-of-the-art knowledge about neuroscience from across the animal kingdom, with particular emphasis on model species commonly used in neuroscience labs across the world: mouse, zebra fish, fruit fly, honeybee, and nematode worm. We aim at university students of neuroscience, psychology, biological sciences, and medical sciences, but also computer scientists, philosophers, or anybody interested in understanding how brains work. The text offers itself as the main book in a class of neuroscience at a basic and advanced level. The main target readers consist of students at the level of a masters degree and at the Ph.D. level. The book is also suitable for advanced courses at the end of a bachelors degree curriculum. Thanks to its modular design, it provides an excellent source for interdisciplinary approaches as well, e. g., for philosophers looking for the physiological bases in debates about consciousness, for sports scientists looking at the neurobiological basis of motor control, for computer scientists interested in neural systems, for neurologists, psychiatrists, and biological psychologists interested in the neurobiological basis of brain diseases, as well as for biologists outside the field of neuroscience, in particular evolutionary and behavioral biologists. "Neurosciences" is compiled in the tradition of the successful textbook "Neurowissenschaft" edited by Dudel, Menzel, and Schmidt – having been published in two German editions by Springer. Following this tradition, the textbook covers the entire field of neurosciences from a zoological perspective but also adds the more recent breakthroughs in Neuroscience. This approach exploits the multitude of different solutions that have evolved among animals providing a background for understanding the basic mechanisms not just of human neuroscience, but of neural systems per se. Furthermore, we emphasize model species: the animals that, on a day-to-day basis, are used in neuroscience laboratories around the world. 30 chapters written by world experts in their respective fields assure that the scientific content is up-to-date and at the forefront of science. .