Vertebrates Comparative Anatomy Function Evolution

Exam Prep Flash Cards for Vertebrates: Comparative Anatomy, Comparative Vertebrate EndocrinologyLife's DevicesFeeding in VertebratesOntogeny and Phylogeny of the Vertebrate HeartThe Dissection of VertebratesFundamentals of Comparative Vertebrate EndocrinologyComparative Vertebrate NeuroanatomyAirway Chemoreceptors in VertebratesVertebratesComparative Vertebrate MorphologyComparative PlacentationComparative Anatomy of VertebratesThe Teeth of Mammalian VertebratesFunctional Anatomy of the VertebratesVertebratesA Laboratory Manual for Comparative Vertebrate AnatomyVertebratesExam Prep for: Loose Leaf for Vertebrates; Comparative Your Inner FishVertebratesComparative Anatomy And DevelopmentEvolution and Development of FishesAnalysis of Vertebrate StructureComparative AnatomyAn Introduction to the Study of the Comparative Anatomy of AnimalsHyman's Comparative Vertebrate AnatomyAn Introduction to Biological EvolutionComparative Physiology of Vertebrate RespirationVertebrate EndocrinologyComparative Vertebrate AnatomySensory Evolution on the ThresholdComparative Anatomy of the VertebratesFunctional Anatomy of the VertebratesEvolution of Brain and Behavior in VertebratesAtlas of Terrestrial Mammal LimbsVertebrate ZoologyComparative Anatomy and Phylogeny of Primate Muscles and Human EvolutionComparative Vertebrate Anatomy: A Laboratory Dissection GuideFeeding

Exam Prep Flash Cards for Vertebrates: Comparative Anatomy,

Comparative Vertebrate Endocrinology

World-class palaeontologists and biologists summarise the state-of-the-art on fish evolution and development.

Life's Devices

This is a major new textbook that is intended to lead students away from purely descriptive zoology courses into an experimental approach that emphasizes asking and answering questions about nature. The book gives a panoramic view of vertebrate life, classification, ecology and behaviour. Section I of the book describes the major groups of vertebrates and their origins. The second section covers classification and its methodology. Section III describes the ecology of vertebrates from two standpoints: how individuals cope with environmental extremes, and principles of population and community ecology as illustrated by experiments carried out in the field. Section IV describes the geographic distribution of vertebrates. The fifth section discusses migration. Vertebrate behaviour is the subject of the final section and covers observations and the theories and experiments they have inspired.

Feeding in Vertebrates

"This one-semester text is designed for an upper-level majors course. Vertebrates features a unique emphasis on function and evolution of vertebrates, complete anatomical detail, and excellent pedagogy. Vertebrate groups are organized phylogenetically, and their systems discussed within such a context. Morphology is foremost, but the author has developed and integrated an understanding of function and evolution into the discussion of anatomy of the various systems"--Amazon.com.

Ontogeny and Phylogeny of the Vertebrate Heart

Comparative Vertebrate Morphology provides a comprehensive discussion of vertebrate morphology. The structure-function concept at the level of organs and organ systems is fundamental to an understanding of comparative evolutionary morphology. It is upon these three interrelated aspects—structure, function, and evolution— that that contents of this volume have been organized and presented. The book opens with a discussion of general concepts on vertebrate evolution. This is followed by separate chapters on vertebrate phylogeny, skeletal components, the cranial and postcranial skeleton, muscular tissues, muscular system, and development of the integument, nervous tissues, sense organs, nervous system structure, nervous pathways, and endocrines. Subsequent chapters deal with the digestive, respiratory, circulatory, excretory and water balance, and reproductive systems. This book was designed to meet the needs of a one-semester course for students who have already had an introductory course in biology. It is assumed that the lectures will be supplemented by a laboratory with its own laboratory manual. The organization of the text allows the instructor to coordinate the laboratory and lecture portions of the course.

The Dissection of Vertebrates

Fundamentals of Comparative Vertebrate Endocrinology

Originally published in 1976, the object of this volume was to present a relatively up-to-date overview of what was known, what was suspected, and what remained to be discovered concerning the general question of the evolution of the vertebrate brain and behaviour, and to present a list of references for those who wanted to delve deeper into one or another aspect of the problem. Accordingly, it contains chapters by palaeontologists, sensory morphologists and physiologists, comparative neurologists and comparative psychologists. The chapters are arranged in a sequence loosely approximating the order in which the various animals, brain structures, or behaviour first appeared. Therefore, the chapters fall naturally into sections, each section directed to a group of vertebrates, beginning with those which have very remote common ancestry and progressing to those with more recent common ancestry with mankind.

Comparative Vertebrate Neuroanatomy

Science produces fascinating puzzles: why is there such a range of placental structures when other mammalian organs are so structurally uniform ? Why and

how did the different placental structures evolve ? Comparative placental studies can facilitate the identification of the common factors in placental growth, differentiation and function and their relevance to possible evolutionary pathways. Comparative Placentation is the only book presenting up-to-date data illustrating the great variety of structure but uniform function of vertebrate placentas from fish to man. This information is essential for selection of suitable models to investigate particular practical problems of impaired or anomalous growth in human and animal placentation. The unique collection of the best light and electron micrographs from the last thirtyfive years which precisely illustrate the structural range in each taxon, make the book the most authoritative publication in this field and a vital source of information for anyone interested on reproductive physiology, anatomy and medicine.

Airway Chemoreceptors in Vertebrates

The Dissection of Vertebrates covers several vertebrates commonly used in providing a transitional sequence in morphology. With illustrations on seven vertebrates – lamprey, shark, perch, mudpuppy, frog, cat, pigeon – this is the first book of its kind to include high-quality, digitally rendered illustrations. This book received the Award of Excellence in an Illustrated Medical Book from the Association of Medical Illustrators. It is organized by individual organism to facilitate classroom presentation. This illustrated, full-color primary dissection manual is ideal for use by students or practitioners working with vertebrate anatomy. This book is also recommended for researchers in vertebrate and functional morphology and comparative anatomy. The result of this exceptional work offers the most comprehensive treatment than has ever before been available. * Received the Award of Excellence in an Illustrated Medical Book from the Association of Medical Illustrators * Expertly rendered award-winning illustrations accompany the detailed, clear dissection direction * Organized by individual organism to facilitate classroom presentation * Offers coverage of a wide range of vertebrates * Full-color, strong pedagogical aids in a convenient lay-flat presentation

Vertebrates

The book provides a comprehensive and up-to-date account of the information available on the morphological, physiological and evolutionary aspects of specialized cells distributed within the epithelia of the airways in the vertebrates. A lot of work has been done on the cell and molecular biology of these cells which are regarded as as oxygen recep

Comparative Vertebrate Morphology

Comparative Placentation

This high-quality laboratory manual may accompany any comparative anatomy text, but correlates directly to Kardong's Vertebrates: Comparative Anatomy, Function, Evolution text. This lab manual carefully guides students through

dissections and is richly illustrated. First and foremost, the basic animal architecture is presented in a clear and concise manner. Throughout the dissections, the authors pause strategically to bring the students' attention to the significance of the material they have just covered.

Comparative Anatomy of Vertebrates

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The Teeth of Mammalian Vertebrates

Provides comprehensive coverage of the integrative role of hormones in co-ordinating bodily function in animals.

Functional Anatomy of the Vertebrates

This collection of reviews will be of considerable interests to biologists and MDs working on any aspect of cardiovascular function. With state-of-the-art reviews written by competent experts in the field, the content is also of interest for MSc and PhD students in most fields of cardiovascular physiology.

Vertebrates

A Laboratory Manual for Comparative Vertebrate Anatomy

Comparative Vertebrate Neuroanatomy Evolution and Adaptation Second Edition Ann B. Butler and William Hodos The Second Edition of this landmark text presents a broad survey ofcomparative vertebrate neuroanatomy at the introductory level,representing a unique contribution to the field of evolutionaryneurobiology. It has been extensively revised and updated, withsubstantially improved figures and diagrams that are usedgenerously throughout the text. Through analysis of the variationin brain structure and function between major groups ofvertebrates, readers can gain insight into the evolutionary historyof the nervous system. The text is divided into threesections: * Introduction to evolution and variation, including a survey ofcell structure, embryological development, and

anatomicalorganization of the central nervous system; phylogeny and diversityof brain structures; and an overview of various theories of brainevolution * Systematic, comprehensive survey of comparative neuroanatomyacross all major groups of vertebrates * Overview of vertebrate brain evolution, which integrates thecomplete text, highlights diversity and common themes, broadensperspective by a comparison with brain structure and evolution ofinvertebrate brains, and considers recent data and theories of theevolutionary origin of the brain in the earliest vertebrates,including a recently proposed model of the origin of the brain inthe earliest vertebrates that has received strong support fromnewly discovered fossil evidence Ample material drawn from the latest research has been integratedinto the text and highlighted in special feature boxes, includingrecent views on homology, cranial nerve organization and evolution,the relatively large and elaborate brains of birds in correlationwith their complex cognitive abilities, and the current debate onforebrain evolution across reptiles, birds, and mammals. Comparative Vertebrate Neuroanatomy is geared to upper-levelundergraduate and graduate students in neuroanatomy, but anyoneinterested in the anatomy of the nervous system and how itcorresponds to the way that animals function in the world will findthis text fascinating.

Vertebrates

This entertaining and informative book describes how living things bump up against non-biological reality. "My immodest aim," says the author, "is to change how you view your immediate surroundings." He asks us to wonder about the design of plants and animals around us: why a fish swims more rapidly than a duck can paddle, why healthy trees more commonly uproot than break, how a shark manages with such a flimsy skeleton, or how a mouse can easily survive a fall onto any surface from any height. The book will not only fascinate the general reader but will also serve as an introductory survey of biomechanics. On one hand, organisms cannot alter the earth's gravity, the properties of water, the compressibility of air, or the behavior of diffusing molecules. On the other, such physical factors form both constraints with which the evolutionary process must contend and opportunities upon which it might capitalize. Life's Devices includes examples from every major group of animals and plants, with references to recent work, with illustrative problems, and with suggestions of experiments that need only common household materials.

Exam Prep for: Loose Leaf for Vertebrates; Comparative

Your Inner Fish

Endocrinology, as a discipline, was a late arrival in the corpus of established subjects. Its growth in recent years has been prodigious, extending from mor phology to molecular levels. Most of the major endocrine glands were noted by the early anatomists, although the adrenal glands were not described until 1563 by Bartholomaeus Eustachius (1520-1574). On the other hand, elucidation of the function of these glands was extremely slow. Key work by A. A. Berthold (1849), although overlooked at the time, showed that comb atrophy in castrated fowl was

prevented by testis transplantation. The idea that glands produced substances reach ing the bloodstream directly and not via excretory ducts stemmed from Claude Bernard, who first used the term internal secretion in 1855. The clinical observa tions of Thomas Addison at Guy's Hospital-published as a monograph in 1855 entitled The Constitutional and Local Effects of Disease of the Suprarenal Capsules -were seminal. However, the stimulus of this early research did not bring imme diate widespread further investigations. Upon the discovery of secretin in 1902, Bayliss and Starling considered the term "internal secretion" to be clumsy, and the term "hormone" was coined (from OQ[!UW-1 excite or arouse) and it was first used by Starling in his Croonian of 1905.

Vertebrates

Atlas of Terrestrial Mammal Limbs is the first comprehensive and detailed anatomy book on a broad phylogenetic and ecological range of mammals. This extraordinary new work features more than 400 photographs and illustrations visualizing the limb musculature of 28 different species. Standardized views of the dissected bodies and concise text descriptions make it easy to compare the anatomy across different taxa. It provides tables of nomenclature and comparative muscle maps (schematic drawings on the origins and insertions of the muscles onto bones) in a diversity of animals. Atlas of Terrestrial Mammal Limbs is a reliable reference and an indispensable volume for all students and professional researchers in biology, paleontology, and veterinary medicine. Key Features: Provides an overview of the anatomy of the mammalian limb Includes osteological correlates of the limb muscles Illustrates anatomy in 2D Guides dissection Documents anatomical diversity in mammalian limbs Related Titles: D. L. France. Human and Nonhuman Bone Identification: A Color Atlas. (ISBN 978-1-4200-6286-1) S. N. Byers. Forensic Anthropology Laboratory Manual, 4th Edition (ISBN 978-1-1386-9073-8) S. N. Byers. Introduction to Forensic Anthropology, 5th Edition (ISBN 978-1-1381-8884-6) R. Diogo, et al. Muscles of Chordates: Development, Homologies, and Evolution (ISBN 978-1-1385-7116-7)

Comparative Anatomy And Development

Ranging from crocodiles and penguins to seals and whales, this synthesis explores the function and evolution of sensory systems in animals whose ancestors lived on land. It explores the dramatic transformation of smell, taste, sight, hearing, and balance that occurred as lineages of reptiles, birds, and mammals returned to aquatic environments.

Evolution and Development of Fishes

"Comparative Anatomy of Vertebrates is written bearing in mind that the modern trends of studies on the chordates have changed drastically from the classical study of one or two commonly available representative types to a detailed comparative account of organs and organ systems present in all available extant forms." "The book provides an introduction to structure-function concept at the level of organs and organ systems, which is fundamental to the understanding of synthesis of comparative anatomy. The book is divided into twelve chapters. The

first chapter deals with characteristics of chordates, followed by integumentry system, skeletal system, muscular system, digestive system, respiratory system, circulatory system, excretory system, reproductive system, nervous system, receptor system and lastly endocrine system."--BOOK JACKET.

Analysis of Vertebrate Structure

As the first four-legged vertebrates, called tetrapods, crept up along the shores of ancient primordial seas, feeding was among the most paramount of their concerns. Looking back into the mists of evolutionary time, fish-like ancestors can be seen transformed by natural selection and other evolutionary pressures into animals with feeding habitats as varied as an anteater and a whale. From frog to pheasant and salamander to snake, every lineage of tetrapods has evolved unique feeding anatomy and behavior. Similarities in widely divergent tetrapods vividly illustrate their shared common ancestry. At the same time, numerous differences between and among tetrapods document the power and majesty that comprises organismal evolutionary history. Feeding is a detailed survey of the varied ways that land vertebrates acquire food. The functional anatomy and the control of complex and dynamic structural components are recurrent themes of this volume. Luminaries in the discipline of feeding biology have joined forces to create a book certain to stimulate future studies of animal anatomy and behavior.

Comparative Anatomy

This book is a concise study of the structure and function of vertebrate respiratory systems. It describes not only the individual organ systems, but also the relationship of these systems to each other and to the animal's environment. For example, the author emphasizes that a proper understanding of respiration involves a consideration of the external environment as a source of oxygen as well as the biochemistry of the cell; and, from the evolutionary point of view, that physiological changes in the respiratory and circulatory systems are dominated by the origin of the land habit. The author's approach to the subject exemplifies that trend to the amalgamation of Zoology and Physiology, which has become increasingly marked at universities and schools in recent years. This synthesis requires, broadly, a knowledge of classical comparative anatomy, ecology, evolution, physiology and biochemistry; an enormous task, but nevertheless one in which the zoologist holds a central position. This book indicates the nature of such an eclectic approach, with the animal, in its environment and its evolution, as its focal point. Covering a rapidly changing field of research the author refers to many recent views and indicates where these differ from those commonly accepted.

An Introduction to the Study of the Comparative Anatomy of Animals

This book provides students and researchers with reviews of biological questions related to the evolution of feeding by vertebrates in aquatic and terrestrial environments. Based on recent technical developments and novel conceptual approaches, the book covers functional questions on trophic behavior in nearly all vertebrate groups including jawless fishes. The book describes mechanisms and

theories for understanding the relationships between feeding structure and feeding behavior. Finally, the book demonstrates the importance of adopting an integrative approach to the trophic system in order to understand evolutionary mechanisms across the biodiversity of vertebrates.

Hyman's Comparative Vertebrate Anatomy

Written for a general college audience, this book offers an introduction to the principles and significance of Darwinian evolution. It differs from most other textbooks on evolution in three fundamental ways: first, it is intended for students taking evolution early in their studies; second, it examines the intellectual significance of Darwinian evolution; and third, the text departs from the standard treatment of evolution in other textbooks, wherein the arguments are reductionist, molecular, and overwhelmingly genetic in emphasis. Ken Kardong, also author of Vertebrates; Comparative Anatomy, Function, Evolution, is known for his accessible writing style. His almost conversational approach to this topic puts the reader at ease while learning evolutionary concepts. The result is an inviting book that will be read.

An Introduction to Biological Evolution

This full-color manual is a unique guide for students conducting the comparative study of representative vertebrate animals. It is appropriate for courses in comparative anatomy, vertebrate zoology, or any course in which the featured vertebrates are studied.

Comparative Physiology of Vertebrate Respiration

The purpose of this book, now in its third edition, is to introduce the morphology of vertebrates in a context that emphasizes a comparison of structire and of the function of structural units. The comparative method involves the analysis of the history of structure in both developmental and evolutionary frameworks. The nature of adaptation is the key to this analysis. Adaptation of a species to its environment, as revealed by its structure, function, and reproductive success, is the product of mutation and natural selection–the process of evolution. The evolution of structure and function, then, is the theme of this book which presents, system by system, the evolution of structure and function of vertebrates. Each chapter presents the major evolutionary trends of an organ system, with instructions for laboratory exploration of these trends included so the student can integrate concept with example.

Vertebrate Endocrinology

Vertebrate Endocrinology represents more than just a treatment of the endocrine system-it integrates hormones with other chemical bioregulatory agents not classically included with the endocrine system. It provides a complete overview of the endocrine system of vertebrates by first emphasizing the mammalian system as the basis of most terminology and understanding of endocrine mechanisms and then applies that to non-mammals. The serious reader will gain both an

understanding of the intricate relationships among all of the body systems and their regulation by hormones and other bioregulators, but also a sense of their development through evolutionary time as well as the roles of hormones at different stages of an animal's life cycle. Includes new full color format includes over 450 full color, completely redrawn image Features a companion web site hosting all images from the book as PPT slides and .jpeg files Presents completedly updated and revitalized content with new chapters, such as Endocrine Disrupters and Behavioral Endocrinology Offers new clinical correlation vignettes throughout

Comparative Vertebrate Anatomy

This one-semester text is designed for an upper-level majors course. Vertebrates features a unique emphasis on function and evolution of vertebrates, complete anatomical detail, and excellent pedagogy. Vertebrate groups are organized phylogenetically, and their systems discussed within such a context. Morphology is foremost, but the author has developed and integrated an understanding of function and evolution into the discussion of anatomy of the various systems.

Sensory Evolution on the Threshold

Comparative Anatomy of the Vertebrates

Functional Anatomy of the Vertebrates

Hearts and Heart-Like Organs, Volume 1: Comparative Anatomy and Development focuses on the complexities of the heart and heart-like organs in various species, from the invertebrates and the lower vertebrates to humans. More specifically, it investigates the hearts of worms and mollusks, urochordates and cephalochordates, fishes, amphibians, reptiles, birds, mammals, and humans. Organized into 11 chapters, this volume begins with an overview of myogenic hearts and their origin, the circulatory system of the annelids, and the nervous control and pharmacology of mollusk hearts. It then discusses the phyletic relationships and circulation systems of primitive chordates, cardiovascular function in the lower vertebrates, fine structure of the heart and heart-like organs in cyclostomes, and fine structure as well as impulse propagation and ultrastructure of lymph hearts in amphibians and reptiles. It also explains the neural control of the avian heart, functional and nonfunctional determinants of mammalian cardiac anatomy, postnatal development of the heart, and anatomy of the mammalian heart. The book concludes with a chapter on the anatomy of the human pericardium and heart. This book is a valuable resource for biological and biomedical researchers concerned with the anatomy and physiology of the heart.

Evolution of Brain and Behavior in Vertebrates

Atlas of Terrestrial Mammal Limbs

This book challenges the assumption that morphological data are inherently unsuitable for phylogeny reconstruction, argues that both molecular and morphological phylogenies should play a major role in systematics, and provides the most comprehensive review of the comparative anatomy, homologies and evolution of the head, neck, pectoral and upper limb muscles of primates. Chapters 1 and 2 provide an introduction to the main aims and methodology of the book. Chapters 3 and 4 and Appendices I and II present the data obtained from dissections of the head, neck, pectoral and upper limb muscles of representative members of all the major primate groups including modern humans, and compare these data with the information available in the literature. Appendices I and II provide detailed textual (attachments, innervation, function, variations and synonyms) and visual (high quality photographs) information about each muscle for the primate taxa included in the cladistic study of Chapter 3, thus providing the first comprehensive and up to date overview of the comparative anatomy of the head, neck, pectoral and upper limb muscles of primates. The most parsimonious tree obtained from the cladistic analysis of 166 head, neck, pectoral and upper limb muscle characters in 18 primate genera, and in representatives of the Scandentia, Dermoptera and Rodentia, is fully congruent with the evolutionary molecular tree of Primates, thus supporting the idea that muscle characters are particularly useful to infer phylogenies. The combined anatomical materials provided in this book point out that modern humans have fewer head, neck, pectoral and upper limb muscles than most other living primates, but are consistent with the proposal that facial and vocal communication and specialized thumb movements have probably played an important role in recent human evolution. This book will be of interest to primatologists, comparative anatomists, functional morphologists, zoologists, physical anthropologists, and systematicians, as well as to medical students, physicians and researchers interested in understanding the origin, evolution, homology and variations of the muscles of modern humans. Contains 132 color plates.

Vertebrate Zoology

Neil Shubin, the paleontologist and professor of anatomy who co-discovered Tiktaalik, the “fish with hands,” tells the story of our bodies as you've never heard it before. The basis for the PBS series. By examining fossils and DNA, he shows us that our hands actually resemble fish fins, our heads are organized like long-extinct jawless fish, and major parts of our genomes look and function like those of worms and bacteria. Your Inner Fish makes us look at ourselves and our world in an illuminating new light. This is science writing at its finest—enlightening, accessible and told with irresistible enthusiasm.

Comparative Anatomy and Phylogeny of Primate Muscles and Human Evolution

Comparative Vertebrate Anatomy: A Laboratory Dissection Guide

This book introduces students to the groups of vertebrates and explores the

anatomical evolution of vertebrates within the context of the functional interrelationships of organs and the changing environments to which vertebrates have adapted. The text contains all of the material taught in classic comparative anatomy courses, but integrates this material with current research in functional anatomy. This integration adds a new dimension to our understanding of structure and helps students understand the evolution of vertebrates.

Feeding

The Teeth of Mammalian Vertebrates presents a comprehensive survey of mammalian dentitions that is based on material gathered from museums and research workers from around the world. The teeth are major factors in the success of mammals, and knowledge of tooth form and function is essential in mammalian biology. Illustrated with high-quality color photographs of skulls and dentitions, together with X-rays, CT images and histology, this book reveals the tremendous variety of tooth form and structure in mammals. Written by two internationally-recognized experts in dental anatomy, the book provides an up-to-date account of how teeth are adapted to acquiring and processing food. With its companion volume, this book provides a complete survey of the teeth of vertebrates. It is the ideal resource for students and researchers in zoology, biology, anthropology, archaeology and dentistry. Provides a comprehensive account of mammalian dentitions, together with helpful reading lists Illustrated by 900 high-quality photographs, X-rays, CT scans and histological images from leading researchers and world class museum collection Depicts lateral and occlusal views of the skull and dentition, which conveys a much greater level of morphological detail than line drawings Contains clear-and-concise, up-to-date reviews of the structure and properties of dental tissues, especially the enamel and tooth support system, both of which play vital roles in the functioning of the mammalian dentition