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The Origin of Life on EarthBiology 2, Lecture 5: History of Life History of Biology [Full Audiobook] by Louis Compton Miall ~~Darwin: On the Origin of Species - Summary and Analysis~~ Lands That Will FLOOD in Our Lifetime Classical Music for Studying \u0026 Brain Power | Mozart, Vivaldi, Tchaikovsky... ~~Life begins at 40: the biological and cultural roots of the midlife crisis | The Royal Society~~ ~~Is Genesis History? - Watch the Full Film~~ The History of Earth (HD - 720P) Proof of evolution that you can find on your body How to study One chapter in One Hour | Easy Tricks The RNA Origin of Life Exploring the Universe: Crash Course Big History #2 Cartoon about the origin of life: O as Origin ~~Class 12 | Biology | Evolution | Origin of Life~~ Class 12 biology chapter 7,Part 1||Evolution||origin of life||Study with Farru ~~Where Did Life Come From? (feat. PBS Space Time and Eons!)~~ The mysterious origins of life on Earth - Luka Seamus Wright Biology CH 1.1 - Study of Life

The Insane Biology of: The OctopusA Brief History of Life on Earth: The Full Series

Origin And Evolution Of LifeBiology History Of Life Study

A team of geneticists and archeologists from Ireland, France, Iran, Germany, and Austria has sequenced the DNA from a 1,600-year-old sheep mummy from an ancient Iranian salt mine, Chehrābād. This ...

DNA from 1,600-year-old Iranian sheep mummy brings history to life

Advertisement For roughly a year, scientists have debated whether or not Venus has signs of life hidden in its clouds. The theory is based on traces of phosphine gas in its upper atmosphere, a sign of ...

Turns Out □Signs Of Life□ On Venus Are Something Completely Different

Running Across a Lifetime," explores a life of scientific research and discovery in nature, and some extraordinary feats of the human body. And the author himself, Bernd Heinrich, is the subject of ...

Bernd Heinrich on his "unusual" life as a runner and biologist in Maine
Scientists from The University of Tokyo Institute of Industrial Science have designed a machine learning algorithm to predict the size of an individual cell as it grows and divides. By using an ...

Computer-assisted biology: Decoding noisy data to predict cell growth
according to a new study published in the journal Current Biology. Throughout the evolutionary history of Homo sapiens, positive natural selection has frequently targeted proteins that physically ...

Coronavirus Epidemic Occurred in East Asia 25,000 Years Ago, Genetic Study Shows
New human sexology research from two groups of researchers suggests that monogamy may not always the healthiest way to love and be loved.

Love And Sex With Many: Research On The Health And Wellness Of Consensual Non-Monogamy
The methane wafting from Enceladus may be a sign that life teems in the Saturn moon's subsurface sea, a new study reports. In 2005, Saturn orbiter discovered geysers blasting particles of water ice ...

Methane in plume of Saturn's moon Enceladus could be sign of alien life, study suggests
The methane wafting from Enceladus may be a sign that life teems in the Saturn moon's subsurface sea, a new study reports. In 2005, Saturn orbiter discovered geysers blasting particles of water ice ...

Methane wafting from 'tiger stripes' on Saturn moon could be sign of alien life, study suggests
African coelacanths (Latimeria chalumnae) reach maturity around the age of 55 and gestate their offspring for 5 years, according to a study published ... as well as other life-history traits ...

African Coelacanths Can Live for Up To 100 Years, Scale Analysis Shows
Echoing through history by reviving fungal specimens originally preserved and described a flabbergasting quarter of a millenium ago by the "Father of Modern Taxonomy" Carl Linnaeus, this study ...

Fungal spores from 250-year-old collections given new lease of life
St. Jude Children's Research Hospital scientists have used single-molecule fluorescence resonance energy transfer (smFRET) and cryogenic electron microscopy (cryo-EM) to capture six new structures of ...

Molecules in motion: researchers capture six new structures of the ribosome in action

The severe megafires that occurred in eastern Australia during 2019-20 were much larger and more concentrated across the landscape than in previous years, according to a study by researchers at Penn ...

Australian megafires burn critical habitat of 'Vulnerable' virus-harboring bats
Collecting DNA in waters worldwide can help scientists figure out which places are the most important for conservation.

National Museum of Natural History
The partnership started when Ellen Zhong, a graduate student from the Computational and Systems Biology (CSB) Program, decided to use a computational pattern-recognition tool called a neural network ...

The power of two
The study was conducted by an international collaboration ... computational and integrative biology - Cibio of UniTrento, the Paris Brain Institute-Institut du Cerveau at Sorbonne Université ...

Study identifies the cell of origin of medulloblastoma
The study was conducted by an international collaboration ... computational and integrative biology - Cibio of UniTrento, the Paris Brain Institute-Institut du Cerveau at Sorbonne Université ...

Searching for the cell of origin of childhood brain cancer
This action funds an NSF Postdoctoral Research Fellowship in Biology for FY 2021, Integrative Research Investigating the Rules of Life Governing Interactions ... to conduct a Genome Wide Association ...

NSF Postdoctoral Fellowship in Biology FY 2021: Evolution of eastern gray squirrels in urban environments
Researchers published their findings in Current Biology today ... in the other, said study co-author Edward Stanley, director of the Florida Museum of Natural History's Digital Discovery and ...

Study presents new species of bizarre, extinct lizard previously misidentified as a bird
This remarkable specimen has revealed sheep husbandry practices of the ancient Near East and underlined how natural mummification can affect DNA degradation.

Today many school students are shielded from one of the most important concepts in modern science: evolution. In engaging and conversational style, Teaching About Evolution and the Nature of Science provides a well-structured framework for understanding and

teaching evolution. Written for teachers, parents, and community officials as well as scientists and educators, this book describes how evolution reveals both the great diversity and similarity among the Earth's organisms; it explores how scientists approach the question of evolution; and it illustrates the nature of science as a way of knowing about the natural world. In addition, the book provides answers to frequently asked questions to help readers understand many of the issues and misconceptions about evolution. The book includes sample activities for teaching about evolution and the nature of science. For example, the book includes activities that investigate fossil footprints and population growth that teachers of science can use to introduce principles of evolution. Background information, materials, and step-by-step presentations are provided for each activity. In addition, this volume: Presents the evidence for evolution, including how evolution can be observed today. Explains the nature of science through a variety of examples. Describes how science differs from other human endeavors and why evolution is one of the best avenues for helping students understand this distinction. Answers frequently asked questions about evolution. Teaching About Evolution and the Nature of Science builds on the 1996 National Science Education Standards released by the National Research Council--and offers detailed guidance on how to evaluate and choose instructional materials that support the standards. Comprehensive and practical, this book brings one of today's educational challenges into focus in a balanced and reasoned discussion. It will be of special interest to teachers of science, school administrators, and interested members of the community.

This comprehensive history of cell evolution □deftly discusses the definition of life□ as well as cellular organization, classification and more (San Francisco Book Review). The origin of cells remains one of the most fundamental mysteries in biology, one that has spawned a large body of research and debate over the past two decades. With In Search of Cell History, Franklin M. Harold offers a comprehensive, impartial take on that research and the controversies that keep the field in turmoil. Written in accessible language and complemented by a glossary for easy reference, this book examines the relationship between cells and genes; the central role of bioenergetics in the origin of life; the status of the universal tree of life with its three stems and viral outliers; and the controversies surrounding the last universal common ancestor. Harold also discusses the evolution of cellular organization, the origin of complex cells, and the incorporation of symbiotic organelles. In Search of Cell History shows us just how far we have come in understanding cell evolution□and the evolution of life in general□and how far we still have to go. □Wonderful□A loving distillation of connections within the incredible diversity of life in the biosphere, framing one of biology□s most important remaining questions: how did life begin?□□Nature

The rhythm of life on Earth includes several strong themes contributed by Kingdom Fungi. So why are fungi ignored when theorists ponder the origin of life? Casting aside common theories that life originated in an oceanic primeval soup, in a deep, hot place, or even a warm little pond, this is a mycological perspective on the emergence of life on Earth. The author traces the crucial role played by the first biofilms □ products of aerosols, storms, volcanic plumes and rainout from a turbulent atmosphere □ which formed in volcanic caves 4 billion years ago. Moore describes how these biofilms contributed to the formation of the first prokaryotic cells, and later, unicellular stem eukaryotes, highlighting the role of the fungal grade of organisation in the evolution of higher organisms. Based on the latest research, this is a unique account of the origin of life and its evolutionary diversity to the present day.

We tend to see history and evolution springing from separate roots, one grounded in the human world and the other in the natural world.

Human beings have, however, become probably the most powerful species shaping evolution today, and human-caused evolution in other species has probably been the most important force shaping human history. This book introduces readers to evolutionary history, a new field that unites history and biology to create a fuller understanding of the past than either can produce on its own. Evolutionary history can stimulate surprising new hypotheses for any field of history and evolutionary biology. How many art historians would have guessed that sculpture encouraged the evolution of tuskless elephants? How many biologists would have predicted that human poverty would accelerate animal evolution? How many military historians would have suspected that plant evolution would convert a counter-insurgency strategy into a rebel subsidy? With examples from around the globe, this book will help readers see the broadest patterns of history and the details of their own life in a new light.

This book is devoted to 250 years of collecting, organizing and preserving paleontological specimens by generations of scientists. Paleontological collections are a huge resource for modern research and should be available for national and international scientists and institutions, as well as prospective public and private customers. These collections are an important part of the scientific enterprise, supporting research, public education, and the documentation of past biodiversity. Much of what we are beginning to understand about our world, we owe to the collection, preservation, and ongoing study of natural specimens. Properly preserved collections of fossil marine or terrestrial plants and animals are archives of Earth's history and vital to our ability to learn about our place in its future. The approach employed by the editors involves not only an introduction to the paleontological collections in general, but also information on the international and national collection networks. Particular attention is given to new exhibition concepts and approaches of sorting, preserving and researching in paleontological collections and also their neglect and/or threat. In addition, the book provides information on all big public museums, on important state museums and regional Museums, and also on university collections. This is a highly informative and carefully presented book, providing scientific insight for readers with an interest in fossil record, biodiversity, taxonomy, or evolution, as well as natural history collections at large.

Concepts of Biology is designed for the single-semester introduction to biology course for non-science majors, which for many students is their only college-level science course. As such, this course represents an important opportunity for students to develop the necessary knowledge, tools, and skills to make informed decisions as they continue with their lives. Rather than being mired down with facts and vocabulary, the typical non-science major student needs information presented in a way that is easy to read and understand. Even more importantly, the content should be meaningful. Students do much better when they understand why biology is relevant to their everyday lives. For these reasons, Concepts of Biology is grounded on an evolutionary basis and includes exciting features that highlight careers in the biological sciences and everyday applications of the concepts at hand.We also strive to show the interconnectedness of topics within this extremely broad discipline. In order to meet the needs of today's instructors and students, we maintain the overall organization and coverage found in most syllabi for this course. A strength of Concepts of Biology is that instructors can customize the book, adapting it to the approach that works best in their classroom. Concepts of Biology also includes an innovative art program that incorporates critical thinking and clicker questions to help students understand--and apply--key concepts.

The origin of life from inanimate matter has been the focus of much research for decades, both experimentally and philosophically. Luisi takes the reader through the consecutive stages from prebiotic chemistry to synthetic biology, uniquely combining both approaches. This book presents a systematic course discussing the successive stages of self-organisation, emergence, self-replication, autopoiesis, synthetic compartments and construction of cellular models, in order to demonstrate the spontaneous increase in complexity from inanimate matter to the first cellular life forms. A chapter is dedicated to each of these steps, using a number of synthetic and biological examples. With end-of-chapter review questions to aid reader comprehension, this book will appeal to graduate students and academics researching the origin of life and related areas such as evolutionary biology, biochemistry, molecular biology, biophysics and natural sciences.

The field of planetary biology and chemical evolution draws together experts in astronomy, paleobiology, biochemistry, and space science who work together to understand the evolution of living systems. This field has made exciting discoveries that shed light on how organic compounds came together to form self-replicating molecules--the origin of life. This volume updates that progress and offers recommendations on research programs--including an ambitious effort centered on Mars--to advance the field over the next 10 to 15 years. The book presents a wide range of data and research results on these and other issues: The biogenic elements and their interaction in the interstellar clouds and in solar nebulae. Early planetary environments and the conditions that lead to the origin of life. The evolution of cellular and multicellular life. The search for life outside the solar system. This volume will become required reading for anyone involved in the search for life's beginnings--including exobiologists, geoscientists, planetary scientists, and U.S. space and science policymakers.

Evolution is the central unifying theme of biology. Yet today, more than a century and a half after Charles Darwin proposed the idea of evolution through natural selection, the topic is often relegated to a handful of chapters in textbooks and a few class sessions in introductory biology courses, if covered at all. In recent years, a movement has been gaining momentum that is aimed at radically changing this situation. On October 25-26, 2011, the Board on Life Sciences of the National Research Council and the National Academy of Sciences held a national convocation in Washington, DC, to explore the many issues associated with teaching evolution across the curriculum. Thinking Evolutionarily: Evolution Education Across the Life Sciences: Summary of a Convocation summarizes the goals, presentations, and discussions of the convocation. The goals were to articulate issues, showcase resources that are currently available or under development, and begin to develop a strategic plan for engaging all of the sectors represented at the convocation in future work to make evolution a central focus of all courses in the life sciences, and especially into introductory biology courses at the college and high school levels, though participants also discussed learning in earlier grades and life-long learning. Thinking Evolutionarily: Evolution Education Across the Life Sciences: Summary of a Convocation covers the broader issues associated with learning about the nature, processes, and limits of science, since understanding evolutionary science requires a more general appreciation of how science works. This report explains the major themes that recurred throughout the convocation, including the structure and content of curricula, the processes of teaching and learning about evolution, the tensions that can arise in the classroom, and the target audiences for evolution education.

How did life start? Is the evolution of life describable by any physics-like laws? Stuart Kauffman's latest book offers an explanation-beyond what the laws of physics can explain-of the progression from a complex chemical environment to molecular reproduction, metabolism and to

early protocells, and further evolution to what we recognize as life. Among the estimated one hundred billion solar systems in the known universe, evolving life is surely abundant. That evolution is a process of "becoming" in each case. Since Newton, we have turned to physics to assess reality. But physics alone cannot tell us where we came from, how we arrived, and why our world has evolved past the point of unicellular organisms to an extremely complex biosphere. Building on concepts from his work as a complex systems researcher at the Santa Fe Institute, Kauffman focuses in particular on the idea of cells constructing themselves and introduces concepts such as "constraint closure." Living systems are defined by the concept of "organization" which has not been focused on in enough in previous works. Cells are autopoetic systems that build themselves: they literally construct their own constraints on the release of energy into a few degrees of freedom that constitutes the very thermodynamic work by which they build their own self creating constraints. Living cells are "machines" that construct and assemble their own working parts. The emergence of such systems-the origin of life problem-was probably a spontaneous phase transition to self-reproduction in complex enough prebiotic systems. The resulting protocells were capable of Darwin's heritable variation, hence open-ended evolution by natural selection. Evolution propagates this burgeoning organization. Evolving living creatures, by existing, create new niches into which yet further new creatures can emerge. If life is abundant in the universe, this self-constructing, propagating, exploding diversity takes us beyond physics to biospheres everywhere.