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Microbiology An Evolving Science

"A subject collection from Cold Spring Harbor Perspectives in Biology."
Microbiology: An Evolving Science promotes a clear understanding of this rapidly advancing field in two distinctive ways. First, an emphasis on current research, genomics, and molecular genetics enables students to learn how microbiologists think as they master the discipline's foundational topics. Second, a stunning and consistently executed art program helps students visualize key microbiological processes and structures. Click here to see the full title details on the Norton Website. Food Safety: Emerging Issues, Technologies and Systems offers a

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systems approach to learning how to understand and address some of the major complex issues that have emerged in the food industry. The book is broad in coverage and provides a foundation for a practical understanding in food safety initiatives and safety rules, how to deal with whole-chain traceability issues, handling complex computer systems and data, foodborne pathogen detection, production and processing compliance issues, safety education, and more. Recent scientific industry developments are written by experts in the field and explained in a manner to improve awareness, education and communication of these issues. Examines effective control measures and molecular techniques for understanding specific pathogens Presents GFSI implementation

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concepts and issues to aid in implementation Demonstrates how operation processes can achieve a specific level of microbial reduction in food Offers tools for validating microbial data collected during processing to reduce or eliminate microorganisms in foods

Research and legislation in food microbiology continue to evolve, and outbreaks of foodborne disease place further pressure on the industry to provide microbiologically safe products. This second volume in the series *Advances in Microbial Food Safety* summarises major recent advances in this field, and complements volume 1 to provide an essential overview of developments in food microbiology. Part one opens the book with an interview with a food safety expert. Part two provides

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updates on single pathogens, and part three looks at pathogen detection, identification and surveillance. Part four covers pathogen control and food preservation. Finally, part five focuses on pathogen control management.

Extends the breadth and coverage of the first volume in the series Includes updates on specific pathogens and safety for specific foods Reviews both detection and management of foodborne pathogens

Microbial Evolution

Microbiology: An Evolving Science (Fifth International Student Edition)

Microbiology: An Evolving Science (Third Edition)

Avian Immunology

Intellectual Property Issues in

Microbiology

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Includes all testable terms,

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concepts, persons, places, and events. Cram101 Just the FACTS101 studyguides gives all of the outlines, highlights, and quizzes for your textbook with optional online comprehensive practice tests. Only Cram101 is Textbook Specific. Accompanies: 9780393123678. This item is printed on demand.

A new perspective on the biological roots of competition from the author of Anarchy Evolution and Cornell lecturer

Encyclopedia of Microbiology, Fourth Edition gathers both basic and applied dimensions in this dynamic field that includes virtually all environments on Earth. This range attracts a growing number of

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cross-disciplinary studies, which the encyclopedia makes available to readers from diverse educational backgrounds. The new edition builds on the solid foundation established in earlier versions, adding new material that reflects recent advances in the field. New focus areas include 'Animal and Plant Microbiomes' and 'Global Impact of Microbes'. The thematic organization of the work allows users to focus on specific areas, e.g., for didactical purposes, while also browsing for topics in different areas. Offers an up-to-date and authoritative resource that covers the entire field of microbiology, from basic principles, to applied technologies Provides an organic

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overview that is useful to academic teachers and scientists from different backgrounds Includes chapters that are enriched with figures and graphs, and that can be easily consulted in isolation to find fundamental definitions and concepts

This edition of 'Microbiology' provides a balanced, comprehensive introduction to all major areas of microbiology. The text is appropriate for students preparing for careers in medicine, dentistry, nursing and allied health, as well as research, teaching and industry.

The Selfish Gene

Philosophy of Microbiology

Microbiology: Laboratory Theory

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and Application

Microbial Physiology

Microbial Diversity in the Genomic
Era

Although Charles Darwin's theory of evolution laid the foundations of modern biology, it did not tell the whole story. Most remarkably, The Origin of Species said very little about, of all things, the origins of species. Darwin and his modern successors have shown very convincingly how inherited variations are naturally selected, but they leave unanswered how variant organisms come to be in the first place. In Symbiotic Planet, renowned scientist Lynn Margulis shows that symbiosis, which simply

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means members of different species living in physical contact with each other, is crucial to the origins of evolutionary novelty. Ranging from bacteria, the smallest kinds of life, to the largest -- the living Earth itself -- Margulis explains the symbiotic origins of many of evolution's most important innovations. The very cells we're made of started as symbiotic unions of different kinds of bacteria. Sex -- and its inevitable corollary, death -- arose when failed attempts at cannibalism resulted in seasonally repeated mergers of some of our tiniest ancestors. Dry land became forested only after symbioses of algae and fungi evolved into plants.

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Since all living things are bathed by the same waters and atmosphere, all the inhabitants of Earth belong to a symbiotic union. Gaia, the finely tuned largest ecosystem of the Earth's surface, is just symbiosis as seen from space. Along the way, Margulis describes her initiation into the world of science and the early steps in the present revolution in evolutionary biology; the importance of species classification for how we think about the living world; and the way "academic apartheid" can block scientific advancement. Written with enthusiasm and authority, this is a book that could change the way you view our living Earth.

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Chronicles the evolution of life on Earth, focusing on the microcosm researchers believe life began with. This book is an excellent supplementary textbook, written in simple language and easy to understand even for beginners. All topics related to microbiology are covered - general aspects like techniques, culture and identification of bacteria, bacterial genetics, water, soil and food microbiology and the study of viruses and fungi. Medical microbiology is also discussed, dealing with sample collection and identification of common pathogenic bacteria. The book has a unique style - a basic idea of the

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topic is given followed by various laboratory methods presented systematically, keeping in mind problems faced by students and also stressing the "do's and don'ts" whilst carrying out various experiments. Diagrams and flow charts help to make learning easier and more interesting. And the final chapters contain instructions on practical exercises written to enable the student to perform them with confidence and ease. This is a superb step-by-step guide for microbiology students.

The most contemporary microbiology textbook is also the most accessible. Extensive new research examples are used to

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integrate foundational topics with cutting-edge coverage of microbial evolution, genomics, molecular genetics, and biotechnology.

Microbiology: An Evolving Science is now more student-friendly, with an authoritative and readable text, a comprehensively updated art program, and an innovative media package.

An Evolving Science (Fourth International Student Edition)

Population Wars

Third International Student Edition

Manual of Microbiology

Prescott's Microbiology

Genetics and Evolution of Infectious Diseases, Second Edition, discusses the constantly

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evolving field of infectious diseases and their continued impact on the health of populations, especially in resource-limited areas of the world. Students in public health, biomedical professionals, clinicians, public health practitioners, and decision-makers will find valuable information in this book that is relevant to the control and prevention of neglected and emerging worldwide diseases that are a major cause of global morbidity, disability, and mortality. Although substantial gains have been made in public health interventions for the

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treatment, prevention, and control of infectious diseases during the last century, in recent decades the world has witnessed a worldwide human immunodeficiency virus (HIV) pandemic, increasing antimicrobial resistance, and the emergence of many new bacterial, fungal, parasitic, and viral pathogens. The economic, social, and political burden of infectious diseases is most evident in developing countries which must confront the dual burden of death and disability due to infectious and chronic illnesses. Takes an integrated approach to infectious diseases

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Includes contributions from leading authorities Provides the latest developments in the field of infectious disease

An ethologist shows man to be a gene machine whose world is one of savage competition and deceit

Suddenly, research findings require a paradigm shift in our view of the microbial world. The Human Microbiome Project at the National Institutes of Health is well under way, and unprecedented scientific technology now allows the censusing of trillions of microbes inside and on our bodies as well as in the places

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where we live, work, and play. This intriguing, up-to-the-minute book for scientists and nonscientists alike explains what researchers are discovering about the microbe world and what the implications are for modern science and medicine. Rob DeSalle and Susan Perkins illuminate the long, intertwined evolution of humans and microbes. They discuss how novel DNA sequencing has shed entirely new light on the complexity of microbe-human interactions, and they examine the potential benefits to human health: amazing possibilities for

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pinpoint treatment of infections and other illnesses without upsetting the vital balance of an individual microbiome. This book has been inspired by an exhibition, *The Secret World Inside You: The Microbiome*, at the American Museum of Natural History, which will open in New York in early November 2015 and run until August 2016. It will then travel to other museums in the United States and abroad.

Forensic Microbiology focuses on newly emerging areas of microbiology relevant to medicolegal and criminal investigations: postmortem

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changes, establishing cause of death, estimating postmortem interval, and trace evidence analysis. Recent developments in sequencing technology allow researchers, and potentially practitioners, to examine microbial communities at unprecedented resolution and in multidisciplinary contexts. This detailed study of microbes facilitates the development of new forensic tools that use the structure and function of microbial communities as physical evidence. Chapters cover: Experiment design Data analysis Sample preservation The influence of microbes on

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results from autopsy, toxicology, and histology Decomposition ecology Trace evidence This diverse, rapidly evolving field of study has the potential to provide high quality microbial evidence which can be replicated across laboratories, providing spatial and temporal evidence which could be crucial in a broad range of investigative contexts. This book is intended as a resource for students, microbiologists, investigators, pathologists, and other forensic science professionals.

Four Billion Years of Microbial Evolution
Genetics and Evolution of

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Infectious Diseases

Biotechnology of Microbial
Enzymes

A New Perspective on
Competition and Coexistence
Advances in Microbial Food
Safety

While viruses—the world's most abundant biological entities—are not technically alive, they invade, replicate, and evolve within living cells. Michael Cordingley goes beyond our familiarity with infections to show how viruses spur evolutionary change in their hosts and shape global ecosystems, from ocean photosynthesis to drug-resistant bacteria.

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Biotechnology of Microbial Enzymes: Production, Biocatalysis and Industrial Applications provides a complete survey of the latest innovations on microbial enzymes, highlighting biotechnological advances in their production and purification along with information on successful applications as biocatalysts in several chemical and industrial processes under mild and green conditions. Applications of microbial enzymes in food, feed, and pharmaceutical industries are given particular emphasis. The application of recombinant DNA technology

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within industrial fermentation and the production of enzymes over the last 20 years have produced a host of useful chemical and biochemical substances. The power of these technologies results in novel transformations, better enzymes, a wide variety of applications, and the unprecedented development of biocatalysts through the ongoing integration of molecular biology methodology, all of which is covered insightfully and in-depth within the book. Features research on microbial enzymes from basic science through application in

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multiple industry sectors for a comprehensive approach Includes information on metabolic pathway engineering, metagenomic screening, microbial genomes, extremophiles, rational design, directed evolution, and more Provides a holistic approach to the research of microbial enzymes

"Microbiology covers the scope and sequence requirements for a single-semester microbiology course for non-majors. The book presents the core concepts of microbiology with a focus on applications for careers in allied health. The pedagogical features of the

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text make the material interesting and accessible while maintaining the career-application focus and scientific rigor inherent in the subject matter.

Microbiology's art program enhances students' understanding of concepts through clear and effective illustrations, diagrams, and photographs. Microbiology is produced through a collaborative publishing agreement between OpenStax and the American Society for Microbiology Press. The book aligns with the curriculum guidelines of the American Society for Microbiology."--BC Campus website.

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Extensive new research examples are used to integrate foundational topics with cutting-edge coverage of microbial evolution, genomics, molecular genetics, and biotechnology. Microbiology: An Evolving Science is now more student-friendly, with an authoritative and readable text, a comprehensively updated art program, and an innovative media package.

Microbiology 1E the Human Experience Preliminary Edition

Microbial Forensics Getting to Know the Trillions of Bacteria and Other Microbes In, On, and

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Around You

Tools & Techniques

An Evolving Science by

Slonczewski, Joan L., ISBN

9780393123678

Filling a major gap in the philosophy of biology by examining central philosophical issues in microbiology, this book is aimed at philosophers and scientists who wish to gain insight into the basic philosophical issues of microbiology. Topics are drawn from evolutionary microbiology, microbial ecology, and microbial classification.

Preparing to enter her first year at a college located in orbit, Jennifer Ramos Kennedy grieves the untimely death of her twin brother

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and is urged to fulfill the expectations of her influential family in the wake of a surge in global warming and a threat by an invasive alien species.

Microbial Diversity in the Genomic Era presents insights on the techniques used for microbial taxonomy and phylogeny, along with their applications and respective pros and cons. Though many advanced techniques for the identification of any unknown bacterium are available in the genomics era, a far fewer number of the total microbial species have been discovered and identified to date. The assessment of microbial taxonomy and biosystematics techniques discovered and

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practiced in the current genomics era with suitable recommendations is the prime focus of this book.

Discusses the techniques used for microbial taxonomy and phylogeny with their applications and respective pros and cons Reviews the evolving field of bacterial typing and the genomic technologies that enable comparative analysis of multiple genomes and the metagenomes of complex microbial environments Provides a uniform, standard methodology for species designation

Microbiology: An Evolving Science (Third Edition)W. W. Norton

An Evolving Science by Joan L. Slonczewski, Isbn 9780393934472
Symbiotic Planet

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Emerging Issues, Technologies and Systems

Mass Spectrometry for the Clinical Laboratory

An Evolving Science by John W. Foster, Joan L. Slonczewski, Kathy M. Gillen, ISBN

The Fourth Edition of Microbial Physiology retains the logical, easy-to-follow organization of the previous editions. An introduction to cell structure and synthesis of cell components is provided, followed by detailed discussions of genetics, metabolism, growth, and regulation for anyone wishing to understand the mechanisms underlying cell survival and growth. This comprehensive reference approaches the subject

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from a modern molecular genetic perspective, incorporating new insights gained from various genome projects.

Microbial Forensics, Third Edition, serves as a complete reference on the discipline, describing the advances, challenges and opportunities that are integral in applying science to help solve future biocrimes. New chapters include: Microbial Source Tracking, Clinical Recognition, Bioinformatics, and Quality Assurance. This book is intended for a wide audience, but will be indispensable to forensic scientists and researchers interested in contributing to the growing field of microbial forensics. Biologists and

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microbiologists, the legal and judicial system, and the international community involved with Biological Weapons Treaties will also find this volume invaluable. Presents new and expanded content that includes a statistical analysis of forensic data, legal admissibility and standards of evidence Discusses actual cases of forensic bioterrorism Includes contributions from editors and authors who are leading experts in the field, with primary experience in the application of this fast-growing discipline At the core of Microbiology: The Human Experience are case histories that put foundational concepts in a real-world context. The bones are the

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consistent structure of learning objectives, summaries, and questions that support the clear, accurate, and organized presentation of the content. The connective tissue is the art and highly readable text, by two masterful teachers and an experienced physician assistant, which puts infectious disease front and center and highlights contemporary topics such as the human microbiome.

Never HIGHLIGHT a Book Again! Virtually all of the testable terms, concepts, persons, places, and events from the textbook are included. Cram101 Just the FACTS101 studyguides give all of the outlines, highlights, notes, and quizzes for your textbook with optional online

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Production, Biocatalysis and
Industrial Applications
The Highest Frontier
Food Safety**

An Evolving Science

Mass Spectrometry for the Clinical Laboratory is an accessible guide to mass spectrometry and the development, validation, and implementation of the most common assays seen in clinical labs. It provides readers with practical examples for assay development, and experimental design for validation to meet

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CLIA requirements, appropriate interference testing, measuring, validation of ion suppression/matrix effects, and quality control. These tools offer guidance on what type of instrumentation is optimal for each assay, what options are available, and the pros and cons of each. Readers will find a full set of tools that are either directly related to the assay they want to adopt or for an analogous assay they could use as an example. Written by expert users of the most common assays found in a clinical laboratory (clinical chemists, toxicologists, and clinical pathologists practicing mass

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spectrometry), the book lays out how experts in the field have chosen their mass spectrometers, purchased, installed, validated, and brought them on line for routine testing. The early chapters of the book covers what the practitioners have learned from years of experience, the challenges they have faced, and their recommendations on how to build and validate assays to avoid problems. These chapters also include recommendations for maintaining continuity of quality in testing. The later parts of the book focuses on specific types of assays (therapeutic drugs, Vitamin D, hormones,

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etc.). Each chapter in this section has been written by an expert practitioner of an assay that is currently running in his or her clinical lab. Provides readers with the keys to choosing, installing, and validating a mass spectrometry platform Offers tools to evaluate, validate, and troubleshoot the most common assays seen in clinical pathology labs Explains validation, ion suppression, interference testing, and quality control design to the detail that is required for implementation in the lab

The second edition of Avian Immunology provides an up-to-date overview of the current

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knowledge of avian immunology. From the ontogeny of the avian immune system to practical application in vaccinology, the book encompasses all aspects of innate and adaptive immunity in chickens. In addition, chapters are devoted to the immunology of other commercially important species such as turkeys and ducks, and to ecoimmunology summarizing the knowledge of immune responses in free-living birds often in relation to reproductive success. The book contains a detailed description of the avian innate immune system, encompassing the mucosal, enteric, respiratory and reproductive systems. The

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diseases and disorders it covers include immunodepressive diseases and immune evasion, autoimmune diseases, and tumors of the immune system. Practical aspects of vaccination are examined as well. Extensive appendices summarize resources for scientists including cell lines, inbred chicken lines, cytokines, chemokines, and monoclonal antibodies. The world-wide importance of poultry protein for the human diet, as well as the threat of avian influenza pandemics like H5N1 and heavy reliance on vaccination to protect commercial flocks makes this book a vital resource. This

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book provides crucial information not only for poultry health professionals and avian biologists, but also for comparative and veterinary immunologists, graduate students and veterinary students with an interest in avian immunology. With contributions from 33 of the foremost international experts in the field, this book provides the most up-to-date review of avian immunology so far Contains a detailed description of the avian innate immune system reviewing constitutive barriers, chemical and cellular responses; it includes a comprehensive review of avian Toll-like receptors

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Contains a wide-ranging review of the "ecoimmunology" of free-living avian species, as applied to studies of population dynamics, and reviews methods and resources available for carrying out such research. In the current era of significant innovations, science and technology are powerful tools improving human welfare through prosperity and sustainable development. The development of microbiology based industries in any given country is shaped by the characteristics of its technology—particularly its close relation to scientific knowledge, and by country-specific factors

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such as the level and nature of the scientific knowledge base, the institutional set-up, and the role assumed by the government, all of which influence the country's ability to exploit the new opportunities. This unique book presents an integrated approach for sustained innovation in various areas of microbiology. Focusing on the industrial and socio-legal implications of IPR in microbiological advances, it offers a comprehensive overview not only of the implications of IPR in omics-based research but also of the ethical and intellectual standards and how these can be developed for

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sustained innovation. The book is divided into three sections discussing current advances in microbiological innovations, recent intellectual property issues in agricultural, and pharmaceutical microbiology respectively. Integrating science and business, it offers a glimpse behind the scenes of the microbiology industry, and provides a detailed analysis of the foundations of the present day industry for students and professionals alike.

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Microcosmos

Forensic Microbiology

Outlines and Highlights for Microbiology

Microbiology

Viruses

How did life evolve on Earth? The answer to this question can help us understand our past and prepare for our future. Although evolution provides credible and reliable answers, polls show that many

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people turn away from science, seeking other explanations with which they are more comfortable. In the book *Science, Evolution, and Creationism*, a group of experts assembled by the National Academy of Sciences and the Institute of Medicine explain the fundamental methods of science, document the overwhelming evidence in support of biological evolution, and evaluate the alternative perspectives offered by advocates of various kinds of creationism, including "intelligent design." The book explores the many fascinating inquiries being pursued that put the science of evolution to work in preventing and treating human disease,

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developing new agricultural products, and fostering industrial innovations. The book also presents the scientific and legal reasons for not teaching creationist ideas in public school science classes. Mindful of school board battles and recent court decisions, *Science, Evolution, and Creationism* shows that science and religion should be viewed as different ways of understanding the world rather than as frameworks that are in conflict with each other and that the evidence for evolution can be fully compatible with religious faith. For educators, students, teachers, community leaders, legislators, policy makers, and parents who

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seek to understand the basis of evolutionary science, this publication will be an essential resource.

Designed for major and non-major students taking an introductory level microbiology lab course.

Whether your course caters to pre-health professional students, microbiology majors or pre-med students, everything they need for a thorough introduction to the subject of microbiology is right here.

The most current and visually engaging introduction to general microbiology.

Science, Evolution, and Creationism

Welcome to the Microbiome

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An Evolving Science Ebook
The Laboratory Experience
The Human Experience