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Class-tested by thousands of students and using simple equipment and green chemistry ideas, UNDERSTANDING THE PRINCIPLES OF ORGANIC CHEMISTRY: A LABORATORY COURSE includes 36 experiments that introduce traditional, as well as recently developed synthetic methods. Offering up-to--date and novel experiments not found in other lab manuals, this innovative book focuses on safety, gives students practice in the basic techniques used in the organic lab, and includes microscale experiments, many drawn from the recent literature. An Online Instructor's Manual available on the book's instructor's companion website includes helpful information, including instructors' notes, prelab meeting notes, experiment completion times, answers to end-of-experiment questions, video clips of techniques, and more. Important Notice: Media content referenced within the product description or the product text may not be available in the ebook version.

This clearly written, class-tested manual has long given students hands-on experience covering all the essential topics in general chemistry. Stand alone experiments provide all the background introduction necessary to work with any general chemistry text. This revised edition offers new experiments and expanded information on applications to real world situations.

LABORATORY INQUIRY IN CHEMISTRY, Thrid Edition provides a unique set of guided-inquiry investigations that focus on constructing knowledge about the conceptual basis of laboratory techniques, instead of simply learning techniques. By focusing on developing skills for designing experiments, solving problems, thinking critically, and selecting and applying appropriate techniques, the authors expose students to a realistic laboratory experience, typical of the practicing chemist. This new edition continues the proven three-phase learning cycle: exploration of chemical behaviors within the context of the problems posed; concept invention--the use of data and observations to construct accepted scientific knowledge about the concepts explored in the laboratory investigation; and, concept application--where students apply their conceptual understanding of the investigation at hand by modifying or extending the experiments, and write a report that emphasizes conceptual relevance. These college and honors level inquiry-based experiments correlate well with the recommended experiments outlined by the Advanced Placement Chemistry Development Committee. Important Notice: Media content referenced within the product description or the product text may not be available in the ebook version.

Shows how chemistry affects our lives. * To emphasize the experimental basis of chemistry, chapters begin with demonstrations that readers can perform for themselves. * Think, Speculate, Reflect, and Ponder sections include questions that ask readers to think critically about the connections between chemistry, society, and individual values.

This full-color manual is designed to satisfy the content needs of either a one- or two-semester introduction to physical science course populated by nonmajors. It provides students with the opportunity to explore and make sense of the world around them, to develop their skills and knowledge, and to learn to think like scientists. The material is written in an accessible way, providing clearly written procedures, a wide variety of exercises from which instructors can choose, and real-world examples that keep the content engaging. Exploring Physical Science in the Laboratory guides students through the mysteries of the observable world and helps them develop a clear understanding of challenging concepts.

With more than 3 million fans, TheDadLab has quickly become an online sensation by creating a solution for parents when they hear the dreaded 'I'm bored' complaint, and now, for the first time, Sergei Urban has transferred his most popular experiments to print in this beautifully illustrated and mind-blowing book! Using everyday ingredients that you can find in your kitchen cupboard, Sergei shows experiments that are not only fun for children, but fun for adults too! With 40 wonderful activities, including 15-never-before-posted, TheDadLab includes additional information not found on his online posts: each activity will feature a detailed explanation simplifying the information that stems from the fields of Science, Technology, engineering, and Mathematics (STEM) for a parent to help explain their curious child and answer the questions 'how' and 'why.'

An introduction to acids and bases.

Fundamentals of Chemistry, Fourth Edition covers the fundamentals of chemistry. The book describes the formation of ionic and covalent bonds; the Lewis theory of bonding; resonance; and the shape of molecules. The book then discusses the theory and some applications of the four kinds of spectroscopy: ultraviolet, infrared, nuclear (proton) magnetic resonance, and mass. Topics that combine environmental significance with descriptive chemistry, including atmospheric pollution from automobile exhaust; the metallurgy of iron and aluminum; corrosion; reactions involving ozone in the upper atmosphere; and the methods of controlling the pollution of air and water, are also considered. Chemists and students taking courses related to chemistry and environmental chemistry will find the book invaluable.

Lab Manual

The manual contains laboratory experiments written specifically for the prep-chem lab, as well as for the general chemistry course. Available as a complete manual or custom published at http://custompub.whfreeman.com.

Basic research, progress in technology and informatics, and the success of clinical pharmacology are the fundamental bases of this interesting field of medicine. Nowadays, critical care medicine is no longer for experts only, but it is a field in which researchers and clinicians, nurses and technical staff work in an interdisciplinary way, each offering their own skills. The volume is divided in six sections, devoted to critical care key issues, to lung diseases, to trauma, to acid-base equilibrium, to perioperative medicine, and to obstetrics.

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Part of the Prentice Hall Series in Educational Innovation for Chemistry, this unique book is a collection of information, examples, and references on learning theory, teaching methods, and pedagogical issues related to teaching chemistry to college students. In the last several years there has been considerable activity and research in chemical education, and the materials in this book integrate the latest developments in chemistry. Each chapter is written by a chemist who has some expertise in the specific technique discussed, has done some research on the technique, and has applied the technique in a chemistry course.

This brief version of Exploring Anatomy and Physiology in the Laboratory, 3e, is intended for one-semester anatomy and physiology courses geared toward allied health students. Exploring Anatomy & Physiology Laboratory: Core Concepts, by Erin C. Amerman is a comprehensive, beautifully illustrated, and affordably priced lab manual that features an innovative, interactive approach to engage your students and help ensure a deeper understanding of A&P.

A study guide is an excellent foundation, especially when you are pursuing knowledge in science. Science is all about facts and provable information. In chemistry, you study a lot of compounds and combinations of information and without the building blocks, you've got nothing to work with. Getting help with those harder concepts and reminding yourself of the easy ones can save your life and make it easier to pass those classes or spark a passion.

Changes in the organization of health services in developing countries have led to the district level assuming more responsibility for the planning, delivery and quality of community health care. This fully up-dated new edition has been produced to help those working in the district laboratory, and those responsible for the organization and management of community laboratory services and the training of district laboratory personnel. Replacing the previous publication Medical Laboratory Manual for Tropical Countries, this book provides an up-to-date practical bench manual, taking a modern approach to the provision of a quality medical laboratory service. It includes practical accounts of: organization and staffing of district laboratory services; total quality management; health and safety; equipping district laboratories; parasitological tests, illustrated in colour; clinical chemistry tests; how to plan a training curriculum for district laboratory personnel. Volume 2, published in late 1999, covers microbiological tests, haematological tests and blood transfusion tests.

"Students will be able to analyze several systems during the course of the unit. These include the "problem system", defined by the boundaries of the area affected by the acid spill; the stream ecosystem (into which the acid flows); and the transportation system (which will be disrupted by the acid spill). In addition, all experiments set up during the course will be treated as systems."--P. 3.

Provides step-by-step instructions for performing basic chemistry experiments involving mass, density, chemical reactions, and acids and bases, along with information on how to turn some experiments into science fair projects.

Practical Chemistry Lab Experiments is a lab workbook consisting of labs that follows a basic high school chemistry course. There are a total of 10 labs that include topics such as: -Density-Intermolecular Forces-Stoichiometry-Ideal Gases-Concentration-Acids and bases-Gravimetric AnalysisThe workbook is designed to guide students through each topic with background information, a lab experiment, and questions for understanding. The format was designed to be easy to grade. This book was created with the assistance of current and former general chemistry students.

Lab Manuals

While acid-base indicators continue to find new applications in an ever-widening range of scientific disciplines, there is no current book that focuses entirely on the subject, nor one that brings together the relevant advances that have evolved over the last three decades. The Handbook of Acid-Base Indicators compiles the most up-to-date, comprehensive information on over 200 water-based and solvent-based indicators into a single source. Organized alphabetically, entries include: common name, other names, CA index name, CAS registry number, Merck index number, chemical structure, chemical/dye class, molecular formula, molecular weight, pH range, color change at pH, pKa, physical form, solubility, UV-visible (Lambda-max), melting point, and boiling point. This resource also offers unique coverage including protocols for synthesizing indicator compounds; data relating to adverse effects, toxicity, and safety; and major applications for each indicator. The Handbook of Acid-Base Indicators contains practical information for widespread applications that include semiconductors, displays, nanotechnology, OLEDs, fuel cells, sensors, security, surface coatings, adhesives, insecticides, agricultural chemicals, textiles, packaging, cosmetics, personal care products, pharmaceuticals, and the detection and treatment of disease.

This book contains microscale experiments designed for use in schools and colleges.

Make your environmental lab--and lab technicians' work practices--the safest possible. * Protect workers from hazardous material they handle on-site * Protect the civilian population from harm in a hazardous materials emergency * Prevent accidents before they happen The purpose of Safe Work Practices for the Environmental Laboratory is twofold: 1. For the person designated as the laboratory's Chemical Hygiene Officer or Safety Officer, this text is a user friendly reference that will provide a format, a template, a guide to compliance with OSHA's Laboratory Standard (29 CFR 1910.145); and 2. for the person who is assigned to work in the environmental laboratory, this user-friendly text provides the information needed not only to perform routine laboratory tasks correctly, but also to perform them safely. The environmental lab is involved with performing analytical testing and sampling protocols relating to air, soil, biosolids, sludges, drinking water, wastewater, groundwater, stormwater, waste characterization, petroleum products, and HRSD/NPDES effluent studies. Many wastewater treatment plants and water works have their own environmental laboratories. These labs primarily perform analysis of process conditions to ensure optimization of the process. However, even these small labs (a few are quite large) perform "environmental sampling" and therefore are environmental labs. The actual genesis of the environmental laboratory can be attributed to the environmental regulations that have been generated by USEPA, AOAC, ASTM, NIOSH, OSHA, and other regulatory and advisory entities. The typical environmental laboratory contains several different types of hazards the lab worker must guard against. This is the case even though modern environmental laboratories have been designed to take maximum advantage of engineering controls that work to "engineer-out" most hazards. The main hazard discussed in this text has to do with hazardous materials--dangerous chemicals and compounds--and the effect they can have on work practices. OSHA is quite specific in regard to protecting the laboratory worker from harm that could result from handling hazardous materials--these specifics are discussed in detail throughout this text. It is important to point out that this text will provide the user with more than just a "safety book." For example, this text provides the user with a sample Chemical Hygiene Plan, it discusses various safe work practices for standard operating procedures normally performed in the environmental laboratory, and it discusses procedures to use for emergency response activities, such as clean-up of chemical spills. The bottom line is that probably the most important benefit to be derived from using this text is the exposure the user receives to the lessons and examples presented throughout the text; these lessons learned and examples provide information on how to make your environmental laboratory and the performance of your individual work practices safer. When you get right down to it, isn't this what a safety text should be all about?

This full-color, comprehensive, affordable manual is appropriate for two-semester introductory chemistry courses. It is loaded with clearly written exercises, critical thinking questions, and full-color illus-

trations and photographs, providing ample visual support for experiment set up, technique, and results.

Provides knowledge and models of good practice needed by students to work safely in the laboratory as they progress through four years of undergraduate laboratory work Aligns with the revised safety instruction requirements from the ACS Committee on Professional Training 2015 “Guidelines and Evaluation Procedures for Bachelor’s Degree Programs” Provides a systematic approach to incorporating safety and health into the chemistry curriculum Topics are divided into layers of progressively more advanced and appropriate safety issues so that some topics are covered 2-3 times, at increasing levels of depth Develops a strong safety ethic by continuous reinforcement of safety; to recognize, assess, and manage laboratory hazards; and to plan for response to laboratory emergencies Covers a thorough exposure to chemical health and safety so that students will have the proper education and training when they enter the workforce or graduate school

For students, DIY hobbyists, and science buffs, who can no longer get real chemistry sets, this one-of-a-kind guide explains how to set up and use a home chemistry lab, with step-by-step instructions for conducting experiments in basic chemistry -- not just to make pretty colors and stinky smells, but to learn how to do real lab work: Purify alcohol by distillation Produce hydrogen and oxygen gas by electrolysis Smelt metallic copper from copper ore you make yourself Analyze the makeup of seawater, bone, and other common substances Synthesize oil of wintergreen from aspirin and rayon fiber from paper Perform forensics tests for fingerprints, blood, drugs, and poisons and much more From the 1930s through the 1970s, chemistry sets were among the most popular Christmas gifts, selling in the millions. But two decades ago, real chemistry sets began to disappear as manufacturers and retailers became concerned about liability. ,em>The Illustrated Guide to Home Chemistry Experiments steps up to the plate with lessons on how to equip your home chemistry lab, master laboratory skills, and work safely in your lab. The bulk of this book consists of 17 hands-on chapters that include multiple laboratory sessions on the following topics: Separating Mixtures Solubility and Solutions Colligative Properties of Solutions Introduction to Chemical Reactions & Stoichiometry Reduction-Oxidation (Redox) Reactions Acid-Base Chemistry Chemical Kinetics Chemical Equilibrium and Le Chatelier's Principle Gas Chemistry Thermochemistry and Calorimetry Electrochemistry Photochemistry Colloids and Suspensions Qualitative Analysis Quantitative Analysis Synthesis of Useful Compounds Forensic Chemistry With plenty of full-color illustrations and photos, Illustrated Guide to Home Chemistry Experiments offers introductory level sessions suitable for a middle school or first-year high school chemistry laboratory course, and more advanced sessions suitable for students who intend to take the College Board Advanced Placement (AP) Chemistry exam. A student who completes all of the laboratories in this book will have done the equivalent of two full years of high school chemistry lab work or a first-year college general chemistry laboratory course. This hands-on introduction to real chemistry -- using real equipment, real chemicals, and real quantitative experiments -- is ideal for the many thousands of young people and adults who want to experience the magic of chemistry.

Build skill and confidence in the lab with the 61 experiments included in this manual. Safety is strongly emphasized throughout the lab manual. Important Notice: Media content referenced within the product description or the product text may not be available in the ebook version.

Teaching all of the necessary concepts within the constraints of a one-term chemistry course can be challenging. Authors Denise Guinn and Rebecca Brewer have drawn on their 14 years of experience with the one-term course to write a textbook that incorporates biochemistry and organic chemistry throughout each chapter, emphasizes cases related to allied health, and provides students with the practical quantitative skills they will need in their professional lives. Essentials of General, Organic, and Biochemistry captures student interest from day one, with a focus on attention-getting applications relevant to health care professionals and as much pertinent chemistry as is reasonably possible in a one term course. Students value their experience with chemistry, getting a true sense of just how relevant it is to their chosen profession. To browse a sample chapter, view sample ChemCasts, and more visit www.whfreeman.com/gob

"As elegantly practical as it is theoretically elegant. It is a guided tour, as one examines the tools of expert teachers as they engage students in a journey that is aptly dubbed Reading Apprenticeship?learning how to become a savvy, strategic reader under the tutelage of thoughtful, caring, and demanding teachers.? P. David Pearson, University of California, Berkeley, and founding editor of the Handbook of Reading Research. Reading for Understanding is a monumental achievement. It was a monumental achievement when it came out as a first edition in 1999, bringing years of rigorous reading research together in a framework for teaching that made sense in actual secondary school classrooms. Now, just thirteen years later, Schoenbach and Greenleaf have several randomized clinical trials and multiple on-going studies at their fingertips to demonstrate the effects of this approach for developing the reading and thinking of young people in our nation?s middle and high school classrooms, as well as in community college classrooms. Their careful work on developing disciplinary literacy among all students represents a passion for and commitment to supporting students?and their teachers?in reading for understanding, which translates to reading for enjoyment, self-awareness, learning, and for purposeful and informed action in our society. ?Elizabeth Moje, Arthur F. Thurnau Professor and Associate Dean for Research, School of Education, University of Michigan Reading Apprenticeship has proven to be an inspiration to Renton Technical College faculty and students alike. They have learned together to view themselves as readers in transformative ways, as they embrace powerful techniques to increase reading comprehension. The ideas and strategies in Reading for Understanding anchor this new and broad-based energy around reading and an enthusiasm among our faculty to model effective reading strategies for our students. ?Steve Hanson, President, Renton Technical College, Renton, Washington Reading for Understanding has the finest blend I have seen of research, strategies, and classroom vignettes to deepen teacher learning and help them connect the dots between theory and practice. ?Curtis Refior, Content Area Literacy Coach, Fowlerville Community Schools, Fowlerville, Michigan A teacher-tested, research-based resource for dramatically improving reading skills Published in partnership with WestEd, this significantly updated second edition of the bestselling book contains strategies for helping students in middle school through community college gain the reading independence to master subject area textbooks and other material. Based on the Reading Apprenticeship program, which three rigorous "gold standard" research studies have shown to be effective in raising students' reading achievement Presents a clear framework for improving the reading and subject area learning of all students, including English learners, students with special needs, as well as those in honors and AP courses Provides concrete tools for classroom use and examples from a range of classrooms Presents a clear how-to for teachers implementing the subject area literacies of the Common Core Standards Reading for Understanding proves it's never too late for teachers and students to work together to boost literacy, engagement, and achievement.

This new edition introduces more problem-solving strategies and new conceptual and challenge problems. Each chapter review has been enhanced with learning goals to reinforce the mastery of concepts for students.

Stories from years of teaching high school chemistry.

Succeed in your course using this lab manual's unique blend of laboratory skills and exercises that effectively illustrate concepts from the main text, CHEMISTRY FOR TODAY: GENERAL, ORGANIC, AND BIOCHEMISTRY, 8e. The book's 15 general chemistry and 20 organic/biochemistry safety-scale laboratory experiments use small quantities of chemicals and emphasize safety and proper disposal of materials. Safety-scale' is the authors' own term for describing the amount of chemicals each lab experiment requires--less than macroscale quantities, which are expensive and hazardous, and more than microscale quantities, which are difficult to work with and require special equipment. Important Notice: Media content referenced within the product description or the product text may not be available in the ebook version.

This second edition of the classic textbook, The Archaeologist’s Laboratory, is a substantially revised work that offers updated information on the archaeological work that follows fieldwork, such as the processing and analysis of artifacts and other evidence. An overarching theme of this edition is the quality and validity of archaeological arguments and the data we use to support them. The book introduces many of the laboratory activities that archaeologists carry out and the ways we can present research results, including graphs and artifact illustrations. Part I introduces general topics concerning measurement error, data quality, research design, typology, probability and databases. It also includes data presentation, basic artifact conservation, and laboratory safety. Part II offers brief surveys of the analysis of lithics and ground stone, pottery, metal artifacts, bone and shell artifacts, animal and plant remains, and sediments, as well as dating by stratigraphy, seriation and chronometric methods. It concludes with a chapter on archaeological illustration and publication. A new feature of the book is illustration of concepts through case studies from around the world and from the Palaeolithic to historical archaeology.The text is appropriate for senior undergraduate students and will also serve as a useful reference for graduate students and professional archaeologists.

Known for its readability and systematic, rigorous approach, this fully updated Ninth Edition of FUNDAMENTALS OF ANALYTICAL CHEMISTRY offers extensive coverage of the principles and practices of analytic chemistry and consistently shows students its applied nature. The book's award-winning authors begin each chapter with a story and photo of how analytic chemistry is applied in industry, medicine, and all the sciences. To further reinforce student learning, a wealth of dynamic photographs by renowned chemistry photographer Charlie Winters appear as chapter-openers and throughout the text. Incorporating Excel spreadsheets as a problem-solving tool, the Ninth Edition is enhanced by a chapter on Using Spreadsheets in Analytical Chemistry, updated spreadsheet summaries and problems, an Excel Shortcut Keystrokes for the PC insert card, and a supplement by the text authors, EXCEL APPLICATIONS FOR ANALYTICAL CHEMISTRY, which integrates this important aspect of the study of analytical chemistry into the book's already rich pedagogy. New to this edition is OWL, an online homework and assessment tool that includes the Cengage YouBook, a fully customizable and interactive eBook, which enhances conceptual understanding through hands-on integrated multimedia interactivity. Available with InfoTrac Student Collections http://gocengage.com/infotrac. Important Notice: Media content referenced within the product description or the product text may not be available in the ebook version.

This manual contains 43 finely tuned, self-contained experiments chosen to introduce basic lab techniques and to illustrate core chemical principles. The Eleventh Edition has been revised to correlate more tightly with Brown/LeMay/Bursten's Chemistry: The Central Science, 11/e and now features a guide on how to keep a lab report notebook. Safety and waste management are covered in greater detail, and many pre-lab and post-lab questions have been updated. The labs can also be customized through Catalyst, Pearson's custom database program. Basic Laboratory Techniques; Identification of Substances by Physical Properties; Separation of the Components of a Mixture; Chemical Reactions; Chemical Formulas; Chemical Reactions of Copper and Percent Yield; Chemicals in Everyday Life: What Are They and How Do We Know? Gravimetric Analysis of a Chloride Salt; Gravimetric Determination of Phosphorus in Plant Food; Paper Chromatography: Separation of Cations and Dyes; Molecular Geometries of Covalent Molecules: Lewis Structures and the VSEPR model; Atomic Spectra and Atomic Structure; Behavior of Gases: Molar Mass of a Vapor; Determination of R: The Gas-Law Constant; Activity Series; Electrolysis, the Faraday, and Avogadro's Number; Electrochemical Cells and Thermodynamics; The Chemistry of Oxygen: Basic and Acidic Oxides and the Periodic Table; Colligative Properties: Freezing-Point Depression and Molar Mass; Titration of Acids and Bases; Reactions in Aqueous Solutions: Metathesis Reactions and Net Ionic Equations; Colorimetric Determination of an Equilibrium Constant in Aqueous Solution; Chemical Equilibrium: LeChâtelier's Principle; Hydrolysis of Salts and pH of Buffer Solutions; Determination of the Dissociation Constant of a Weak Acid; Titration Curves of Polyprotic Acids; Determination of the Solubility-Product Constant for a Sparingly Soluble Salt; Heat of Neutralization; Rates of Chemical Reactions I: A Clock Reaction; Rates of Chemical Reactions II: Rate and Order of Decomposition; Introduction to Qualitative Analysis; Abbreviated Qualitative-Analysis Scheme. A hands-on workbook/CD useful for anyone studying general chemistry.