

Read Free Chemistry Atoms First Burdge 1st Edition

# **Chemistry Atoms First Burdge 1st Edition**

**Research in science education has recognized the importance of history and philosophy of science (HPS). Nature of science (NOS) is considered to be an essential part of HPS with important implications for teaching science. The role played by textbooks in developing students' informed conceptions of NOS**

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**has been a source of considerable interest for science educators. In some parts of the world, textbooks become the curriculum and determine to a great extent what is taught and learned in the classroom. Given this background and interest, this monograph has evaluated NOS in university level general chemistry textbooks published in U.S.A. Most textbooks in this study provided little insight with respect to the nine criteria used for evaluating NOS. Some of the**

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**textbooks, however, inevitably refer to HPS and thus provide guidelines for future textbooks. A few of the textbooks go into considerable detail to present the atomic models of Dalton, Thomson, Rutherford, Bohr and wave mechanical to illustrate the tentative nature of scientific theories --- an important NOS aspect. These results lead to the question: Are we teaching science as practiced by scientists? An answer to this question can help us to understand**

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**the importance of NOS, by providing students an HPS-based environment, so that they too (just like the scientists) feel the thrill and excitement of discovering new things. This monograph provides students and teachers guidelines for introducing various aspects of NOS, based on historical episodes.**

**Overview Inspired by recommendations from the AAAS vision and Change Report. Principles of Biology is reflective**

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**of the shift taking place in the majors biology course from large and detail rich to short and conceptual, with a focus on new, cutting-edge science. A succinct and inviting text focused on central concepts, Principles of Biology helps students connect fundamental principles while challenging them to develop and hone critical thinking skills. Five new chapters introduce cutting-edge topics that will benefit students who continue their study of biology in future courses**

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**(Chapters 11, 16, 24, 41 and 47)**

**This is part one of two for Chemistry by OpenStax. This book covers chapters 1-11. Chemistry is designed for the two-semester general chemistry course. For many students, this course provides the foundation to a career in chemistry, while for others, this may be their only college-level science course. As such, this textbook provides an important opportunity for students to learn the core concepts of chemistry and**

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**understand how those concepts apply to their lives and the world around them. The text has been developed to meet the scope and sequence of most general chemistry courses. At the same time, the book includes a number of innovative features designed to enhance student learning. A strength of Chemistry is that instructors can customize the book, adapting it to the approach that works best in their classroom. The images in this textbook are grayscale.**

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## **An Atoms-Focused Approach Lab Manual for Chemistry: Atoms First**

### **Chemical Principles Package: Chemistry - Atoms First with Connect 1-semester Access Card**

*McGraw-Hill Connect® is a subscription-based learning service accessible online through your personal computer or tablet. Choose this option if your instructor will require Connect to be used in the course. Your subscription to Connect includes the following:*

- *SmartBook® - an adaptive digital*



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version of the course textbook that personalizes your reading experience based on how well you are learning the content. • Access to your instructor's homework assignments, quizzes, syllabus, notes, reminders, and other important files for the course. • Progress dashboards that quickly show how you are performing on your assignments and tips for improvement. • The option to purchase (for a small fee) a print version of the book. This binder-ready, loose-leaf version includes free shipping. • LearnSmart® Prep is a super adaptive product that quickly and efficiently prepares

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*students for a college level course. Complete system requirements to use Connect can be found here: <http://www.mheducation.com/higher-ed/platforms/connect/training-support-students.html>*

*The authors, who have more than two decades of combined experience teaching an atoms-first course, have gone beyond reorganizing the topics. They emphasize the particulate nature of matter throughout the book in the text, art, and problems, while placing the chemistry in a biological, environmental, or geological context. The authors use a consistent problem-solving model and provide*

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*students with ample opportunities to practice.*

*Laboratory Manual to Accompany Chemistry: Atoms First by Gregg Dieckmann and John Sibert from the University of Texas at Dallas. This laboratory manual presents a lab curriculum that is organized around an atoms-first approach to general chemistry. The philosophy behind this manual is to (1) provide engaging experiments that tap into student curiosity, (2) emphasize topics that students find challenging in the general chemistry lecture course, and (3) create a laboratory environment that encourages*

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*students to “solve puzzles” or “play” with course content and not just “follow recipes.” Laboratory Manual represents a terrific opportunity to get students turned on to science while creating an environment that connects the relevance of the experiments to a greater understanding of their world. This manual has been written to provide instructors with tools that engage students, while providing important connections to the material covered in an atoms-first lecture course.*

*Chemistry: An Atoms First Approach*

*An Atoms First Approach to General Chemistry*

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*Laboratory Manual*

*Chemistry Education*

*An Introduction to Chemistry - Atoms First*

*Atoms First*

Chemistry, Fifth Edition, by Julia Burdge offers a clear writing style written with the students in mind. Julia uses her experience of teaching hundreds of general chemistry students per year and creates content to offer more in-depth explanation in areas where she knows they have problems. Continuing in the Burdge tradition, the fifth edition balances the

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necessary fundamental concepts with engaging real-life examples and applications, while utilizing a consistent, step-by-step problem-solving approach and an innovative art and media program.

This text is designed for a rigorous course in introductory chemistry. Its central theme is to challenge students to think and question while providing a sound foundation in the principles of chemistry.

Steve and Susan Zumdahl's texts focus on helping students build critical thinking skills

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through the process of becoming independent problem-solvers. They help students learn to think like a chemists so they can apply the problem solving process to all aspects of their lives. In CHEMISTRY: AN ATOMS FIRST APPROACH, the Zumdahls use a meaningful approach that begins with the atom and proceeds through the concept of molecules, structure, and bonding, to more complex materials and their properties. Because this approach differs from what most students have experienced in high school courses, it

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encourages them to focus on conceptual learning early in the course, rather than relying on memorization and a plug and chug method of problem solving that even the best students can fall back on when confronted with familiar material. The atoms first organization provides an opportunity for students to use the tools of critical thinkers: to ask questions, to apply rules and models and to evaluate outcomes. Important Notice: Media content referenced within the product description or the product text may not be



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available in the ebook version.

Overcoming Students' Misconceptions in Science

AP Chemistry

Strategies and Perspectives from Malaysia

Principles of Biology

Loose Leaf for Chemistry

**Get a Better Grade in Organic Chemistry**  
**Organic Chemistry may be challenging, but that doesn't mean you can't get the grade you want. With David Klein's Organic Chemistry as a Second Language: Translating the Basic**

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**Concepts, you'll be able to better understand fundamental principles, solve problems, and focus on what you need to know to succeed. Here's how you can get a better grade in Organic Chemistry: Understand the Big Picture. Organic Chemistry as a Second Language points out the major principles in Organic Chemistry and explains why they are relevant to the rest of the course. By putting these principles together, you'll have a coherent framework that will help you better understand your textbook. Study More**

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**Efficiently and Effectively Organic Chemistry as a Second Language provides time-saving study tips and a clear roadmap for your studies that will help you to focus your efforts. Improve Your Problem-Solving Skills Organic Chemistry as a Second Language will help you develop the skills you need to solve a variety of problem types-even unfamiliar ones! Need Help in Your Second Semester? Get Klein's Organic Chemistry II as a Second Language! 978-0-471-73808-5 "Atoms First seems to be the flavor of the**

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**year in chemistry textbooks, but many of them seem to be little more than rearrangement of the chapters. It takes a master like McQuarrie to go back to the drawing board and create a logical development from smallest to largest that makes sense to students."---Hal Harris, University of Missouri-St. Louis "McQuarrie's book is extremely well written, the order of topics is logical, and it does a great job with both introductory material and more advanced concepts. Students of all skill levels**

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**will be able to learn from this book."---Mark Kearley, Florida State University This new fourth edition of General Chemistry takes an atoms-first approach from beginning to end. In the tradition of McQuarrie's many previous works, it promises to be another groundbreaking text. This superb new book combines the clear writing and wonderful problems that have made McQuarrie famous among chemistry professors and students worldwide. Presented in an elegant design with all-new illustrations, it is available in a**

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**soft-cover edition to offer professors a fresh choice at an outstanding value. Student supplements include an online series of descriptive chemistry Interchapters, a Student Solutions Manual, and an optional state-of-the-art Online Homework program. For adopting professors, an Instructor's Manual and a CD of the art are also available. This is part two of two for Chemistry: Atoms First by OpenStax. This book covers chapters 11-21. Chemistry: Atoms First is a peer-reviewed, openly licensed introductory**

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**textbook produced through a collaborative publishing partnership between OpenStax and the University of Connecticut and UConn Undergraduate Student Government Association. This title is an adaptation of the OpenStax Chemistry text and covers scope and sequence requirements of the two-semester general chemistry course.**

**Reordered to fit an atoms first approach, this title introduces atomic and molecular structure much earlier than the traditional approach, delaying the introduction of more**

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**abstract material so students have time to acclimate to the study of chemistry.**

**Chemistry: Atoms First also provides a basis for understanding the application of quantitative principles to the chemistry that underlies the entire course. The images in this textbook are grayscale.**

**For Students of Pharmacy, Pharmaceutical Sciences and Medicinal Chemistry**

**Best Practices, Opportunities and Trends**

**Introduction to Chemistry**

**Chemistry 2e**



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### **Introduction to Graphics Communications for Engineers (B.E.S.T series)**

*Winner of the CHOICE Outstanding Academic Title 2017 Award This comprehensive collection of top-level contributions provides a thorough review of the vibrant field of chemistry education. Highly-experienced chemistry professors and education experts cover the latest developments in chemistry learning and teaching, as well as the pivotal role of chemistry for shaping a more sustainable future. Adopting a practice-oriented approach, the current challenges and opportunities posed by chemistry education are critically discussed,*

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*highlighting the pitfalls that can occur in teaching chemistry and how to circumvent them. The main topics discussed include best practices, project-based education, blended learning and the role of technology, including e-learning, and science visualization. Hands-on recommendations on how to optimally implement innovative strategies of teaching chemistry at university and high-school levels make this book an essential resource for anybody interested in either teaching or learning chemistry more effectively, from experience chemistry professors to secondary school teachers, from educators with no formal training in didactics to frustrated chemistry students.*

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*approach that works best in their classroom."--Openstax College website.*

*From its very origin, Introductory Chemistry: An Atoms First Approach has been developed and written using an atoms?first approach specific to introductory chemistry. It is not a pared down version of a general chemistry text, but carefully crafted with the introductory?chemistry student in mind. The ordering of topics facilitates the conceptual development of chemistry for the novice, rather than the historical development that has been used traditionally. Its language and style are student?friendly and conversational and the importance and wonder of chemistry in everyday life are emphasised*

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*at every opportunity. Continuing in the Burdge tradition, this text employs an outstanding art program, a consistent problem-solving approach, interesting applications woven throughout the chapters and a wide range of end-of-chapter problems.*

*Maternal-fetal Medicine*

*Nature of Science in General Chemistry Textbooks*

*An Atoms First Approach 2e*

*Part 2: Atoms First*

*Chemistry*

A comprehensive introduction to inorganic chemistry and, specifically, the science of metal-based drugs, *Essentials of Inorganic Chemistry* describes the basics of inorganic

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chemistry, including organometallic chemistry and radiochemistry, from a pharmaceutical perspective. Written for students of pharmacy and pharmacology, pharmaceutical sciences, medicinal chemistry and other health-care related subjects, this accessible text introduces chemical principles with relevant pharmaceutical examples rather than as stand-alone concepts, allowing students to see the relevance of this subject for their future professions. It includes exercises and case studies.

The atoms first approach provides a consistent and logical method for teaching general chemistry. This approach starts with the fundamental building block of matter, the atom, and uses it as the stepping stone to understanding more complex chemistry topics. Once mastery of the nature of atoms and

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electrons is achieved, the formation and properties of compounds are developed. Only after the study of matter and the atom will students have sufficient background to fully engage in topics such as stoichiometry, kinetics, equilibrium, and thermodynamics. Thus, the Atoms First method empowers instructors to present the most complete and compelling story of general chemistry. Julia Burdge is renowned for setting chemistry in interesting, relevant context; and for her engaging, conversational writing style--presenting chemistry in a way students can appreciate and understand; while satisfying instructors' requirements for rigor, accuracy, and comprehensive coverage. Jason Overby teaches general chemistry using an atoms-first approach, bringing a unique perspective and years of experience to the

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development of this new project. Far from a simple re-ordering of topics, this is a book that will truly meet the needs of the growing atoms-first market. Together, these authors have developed a product with the same engaging writing style, modern and descriptive artwork, sound problem-solving approach and wide range of end-of-chapter problems that customers are accustomed to with the Burdge/Chemistry product. Jason Overby's involvement with this project was crucial as he has been teaching with this approach for over four years which allowed Julia and Jason to create a product that fits the need for this growing market.

This book discusses the importance of identifying and addressing misconceptions for the successful teaching and learning of science across all levels of science education from



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elementary school to high school. It suggests teaching approaches based on research data to address students' common misconceptions. Detailed descriptions of how these instructional approaches can be incorporated into teaching and learning science are also included. The science education literature extensively documents the findings of studies about students' misconceptions or alternative conceptions about various science concepts. Furthermore, some of the studies involve systematic approaches to not only creating but also implementing instructional programs to reduce the incidence of these misconceptions among high school science students. These studies, however, are largely unavailable to classroom practitioners, partly because they are usually found in various science education journals that

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teachers have no time to refer to or are not readily available to them. In response, this book offers an essential and easily accessible guide.

Connect 1-Semester Access Card for Chemistry: Atoms First  
Chemistry + Aleks for General Chemistry

Atoms First, 1 Semester

An Atoms First Approach

Essentials of Inorganic Chemistry

*Laboratory Manual to Accompany Chemistry:*

*Atoms First by Gregg Dieckmann and John Sibert  
from the University of Texas at Dallas. This  
laboratory manual presents a lab curriculum that  
is organised around an atoms-first approach to*

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*general chemistry. The philosophy behind this manual is to (1) provide engaging experiments that tap into student curiosity, (2) emphasize topics that students find challenging in the general chemistry lecture course, and (3) create a laboratory environment that encourages students to “solve puzzles” or “play” with course content and not just “follow recipes.” The laboratory manual represents a terrific opportunity to get students turned on to science while creating an environment that connects the relevance of the experiments to a greater understanding of their world. This manual has been written to provide*

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*instructors with tools that engage students, while providing important connections to the material covered in an atoms-first lecture course.*

*"The fourteenth edition continues a long tradition of providing a firm foundation in the concepts of chemical principles while instilling an appreciation of the important role chemistry plays in our daily lives. We believe that it is our responsibility to assist both instructors and students in their pursuit of this goal by presenting a broad range of chemical topics in a logical format. At all times, we strive to balance theory and application and to illustrate principles with applicable examples*

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*whenever possible"--*

*ChemistryIntroductory Chemistry: An Atoms First ApproachMcGraw-Hill Education*

*The Central Science*

*Introductory Chemistry: An Atoms First Approach*

*Translating the Basic Concepts*

*General Chemistry*

*Problem-Solving Workbook with Selected*

*Solutions for Chemistry: Atoms First*

The Workbook includes the student solutions manual for a one-stop shop for student use.

The Workbook was written by Dawn Richardson and Amina El-Ashmawy from Collin College. The

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Workbook offers students the opportunity to practice the basic skills and test their understanding of the content knowledge within the chapter. Types of problems and how to solve them are presented along with any key notes on the concepts to facilitate understanding. Key Concepts, Study Questions, Practice Questions, and a Practice Quiz are provided within each chapter. The student will find detailed solutions and explanations for the odd-numbered problems in this text in the solutions manual by AccuMedia Publishing Services, Julia Burdge, and Jason Overby. "General Chemistry: Atoms First," Second

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Edition starts from the building blocks of chemistry, the atom, allowing the authors to tell a cohesive story that progresses logically through molecules and compounds to help students intuitively follow complex concepts more logically. This unified thread of ideas helps students build a better foundation and ultimately gain a deeper understanding of chemical concepts. Students can more easily understand the microscopic-to-macroscopic connections between unobservable atoms and the observable behavior of matter in daily life, and are brought immediately into real chemistry instead of being forced to

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memorize facts. Reflecting a true atoms first perspective, the Second Edition features experienced atoms-first authors, incorporates recommendations from a panel of atoms-first experts, and follows historical beliefs in teaching chemistry concepts based and real experimental data first. This approach distinguishes this text in the market based whereby other authors teach theory first, followed by experimental data.

An Introduction to Chemistry is intended for use in beginning chemistry courses that have no chemistry prerequisite. The text was written for students who want to prepare



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themselves for general college chemistry, for students seeking to satisfy a science requirement for graduation, and for students in health-related or other programs that require a one-semester introduction to general chemistry.

Loose Leaf Version for Chemistry: Atoms First  
Field and Wave Electromagnetics  
Introductory Chemistry  
Organic Chemistry I as a Second Language  
Principles and Practice

***The atoms first approach provides a consistent and logical method for teaching general chemistry. This***

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***approach starts with the fundamental building block of matter, the atom, and uses it as the stepping stone to understanding more complex chemistry topics. Once mastery of the nature of atoms and electrons is achieved, the formation and properties of compounds are developed. Only after the study of matter and the atom will students have sufficient background to fully engage in topics such as stoichiometry, kinetics, equilibrium, and thermodynamics. Thus, the Atoms First method empowers instructors to present the most complete and compelling story of general chemistry. Far from a simple re-ordering of topics, this is a book that will***

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***From its very origin, Introductory Chemistry: An Atoms First Approach by Julia Burdge and Michelle Driessen has been developed and written using an atoms-first approach specific to introductory chemistry. It is not a pared down version of a general chemistry text, but carefully crafted with the introductory-chemistry student in mind. The ordering of topics facilitates the conceptual development of chemistry for the novice, rather than the historical development that has been used traditionally. Its language and style are***

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***Green Chemistry and the Ten Commandments of Sustainability***

***Package: Loose Leaf Introductory Chemistry - An Atoms First Approach with Connect 1-semester Access Card***

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## ***ISE Chemistry***