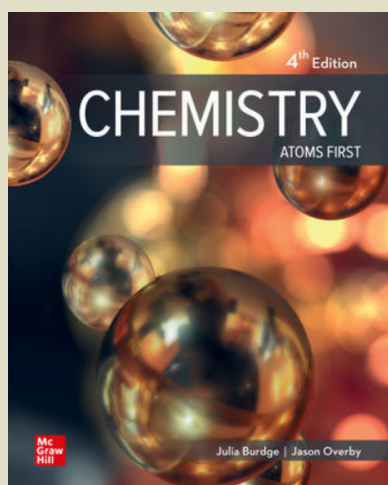


# List of Changes



## Chemistry: Atoms First 4th Edition

Julia Burdge/Jason Overby

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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 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 approach 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 truly meet the needs of the growing atoms-first market.

The fourth edition continues to build on the innovative success of the previous three editions. Changes to this edition include specific refinements intended to augment the student-centered pedagogical features that continue to make this book effective and popular both with professors, and with their students.

SEE LIST OF CHANGES ATTACHED.

## Changes to Burdge/ Overby: Chemistry, 4e

### New Features:

- Given the current climate of environmental awareness in both the classroom and the public in general, we have added a new series of vignettes in the form of boxed features titled Environmental Aspects. To encourage student engagement with the Environmental Aspects material, many of the boxes have accompanying end-of-chapter problems associated with them.
- To refresh student self-assessments, we have updated all Section Review questions to reimagined or completely new questions.
- There is a significant number of new or revised end-of-chapter problems.
- In accordance with the IUPAC recommendation for numbering groups on the periodic table, we have switched to the 1–18 numbering system, as have most modern chemists.
- A popular feature of our book is the use of thought-provoking chapter-opening photos that may not be immediately obvious in their connection to the content of chapter. The accompanying captions elucidate the important connections. We continue this with new photos and updated captions in many of the chapters.

### Chapter-by-Chapter Updates:

#### Chapter 1: Chemistry: The Science of Change

- A new Thinking Outside The Box feature has been included to focus on the states of matter. This feature box describes several of the dozens of different states of matter that have been designated or proposed.

#### Chapter 3: Quantum Theory and the Electronic Structure of Atoms

- The most significant change to this chapter is a splitting of the content for a more manageable and systematic approach to quantum mechanics.
- Refined much of the discussion with respect to the Planck equation and other equations involving Planck's constant.

#### Chapter 4: Periodic Trends of the Elements

- New introduction to the periodic table, providing an improved segue to understanding the quantum mechanical approach to multi-electron atoms.
- Content on multielectron atoms, previously found in Chapter 3, is now integrated into Chapter 4, making for a better logical progression in the understanding periodic properties.

#### Chapter 14: Chemical Kinetics

- In response to feedback from instructors, we have moved the coverage of kinetics earlier in the book, to Chapter 14. This order will provide flexibility to instructors, and will enable students to understand better the definition of chemical equilibrium.

#### Chapter 16: Chemical Equilibrium

- The introductory equilibrium chapter has an improved and expanded figure developed to clarify understanding of the process by which equilibrium is established.
- The chapter also contains a new Thinking Outside the Box feature that focusses on the inductive effect in acid strength—material particularly useful for students who go on to organic chemistry.