

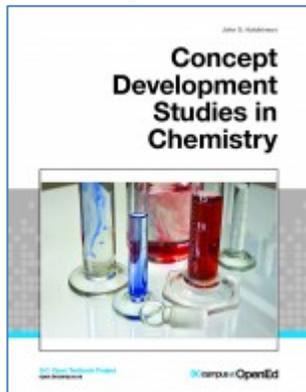


## Faculty Review of Open eTextbooks

The [California Open Educational Resources Council](http://www.cool4ed.org) has designed and implemented a faculty review process of the free and open eTextbooks showcased within the California Open Online Library for Education ([www.cool4ed.org](http://www.cool4ed.org)). Faculty from the California Community Colleges, the California State University, and the University of California were invited to review the selected no/low cost and open eTextbooks using a rubric. Faculty received a stipend for their efforts and funding was provided by the State of California, the William and Flora Hewlett Foundation, and the Bill and Melinda Gates Foundation.

Textbook Name:

### Concept Development Studies in Chemistry



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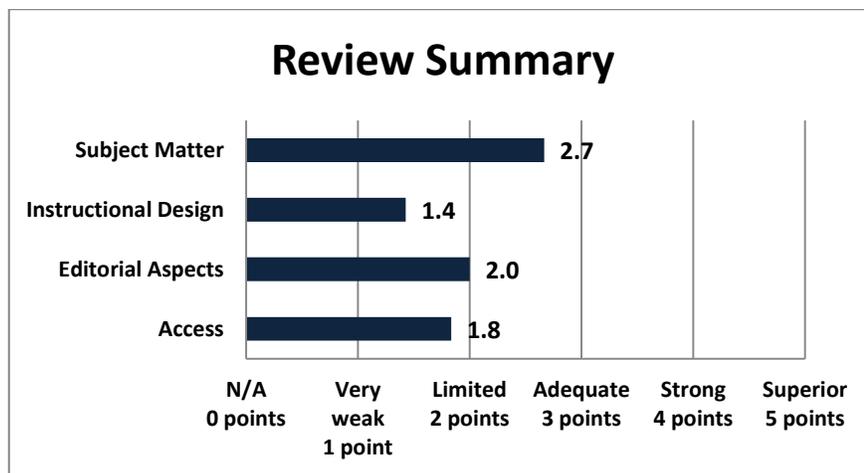
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Format Reviewed:  
[Online](#) and [PDF](#)

A small fee may be associated with various formats.

Date Reviewed:  
August, 2014.



### California OER Council eTextbook Evaluation Rubric

CA Course ID: [CHEM 110](#) or [CHEM 120S](#)

Subject Matter (30 possible points)	N/A (0 pts)	Very Weak (1pt)	Limited (2 pts)	Adequate (3pts)	Strong (4 pts)	Superior (5 pts)
Is the content accurate, error-free, and unbiased?					X	
Does the text adequately cover the designated course with a sufficient degree of depth and scope?			X			
Does the textbook use sufficient and relevant examples to present its subject matter?				X		
Does the textbook use a clear, consistent terminology to present its subject matter?				X		
Does the textbook reflect current knowledge of the subject matter?				X		

Subject Matter (30 possible points)	N/A (0 pts)	Very Weak (1pt)	Limited (2 pts)	Adequate (3pts)	Strong (4 pts)	Superior (5 pts)
Does the textbook present its subject matter in a culturally sensitive manner? (e.g. Is the textbook free of offensive and insensitive examples? Does it include examples that are inclusive of a variety of races, ethnicities, and backgrounds?)		X				

Total points: 16 out of 30

Please provide comments on any aspect of the subject matter of this textbook:

- Overall, the textbook is written in way that is quite clear and readable.
- The approach taken by the author is somewhat nontraditional and different from many mainstream textbooks in general chemistry (each topic or concept being presented by starting with a few stated questions, which are then analyzed using experimental observations and logical deductions to present a model or explanation that provides answers to the stated questions)
- Each chapter appears to be separate and distinct (i.e., each chapter does not lead into the next). This limits wide adoption of the textbook because not everyone subscribes to author's approach.
- A few major topics from the mainstream general chemistry curriculum are missing. For example, only covalent bonds are discussed under bonding (ionic bonds and metallic bonds are missing). Likewise, electrochemistry and a few other essential topics are missing.
- The end-of-chapter review and discussion questions are inadequate and need to be strengthened (and there are no solutions to the questions). The figures in the textbook are very weak and there are no illustrations that convey the relationships between the microscopic (i.e., molecular or atomic level depictions) and the macroscopic (a major pedagogical tool in modern chemistry instruction).

Instructional Design (35 possible points)	N/A (0 pts)	Very Weak (1pt)	Limited (2 pts)	Adequate (3pts)	Strong (4 pts)	Superior (5 pts)
Does the textbook present its subject materials at appropriate reading levels for undergrad use?					X	
Does the textbook reflect a consideration of different learning styles? (e.g. visual, textual?)		X				
Does the textbook present explicit learning outcomes aligned with the course and curriculum?		X				
Is a coherent organization of the textbook evident to the reader/student?		X				
Does the textbook reflect best practices in the instruction of the designated course?		X				
Does the textbook contain sufficient effective ancillary materials? (e.g. test banks, individual and/or group activities or exercises, pedagogical apparatus, etc.)		X				
Is the textbook searchable?		X				

Total points: 10 out of 35 points

Please provide comments on any aspect of the subject matter of this textbook:

- The instructional design of this textbook is very nontraditional. A coherent organization of the materials may be evident to an expert in the field, but may not be evident to a novice (student) reader. The illustrations or depictions of different representations of chemical phenomena at the macroscopic, molecular, symbolic and graphical levels and integrating them with underlying chemical concepts and principles are extraordinarily weak.
- Learning chemistry requires conceptualization skills and visualization skills as well as mathematical and problem solving skills. It requires students to make connections among the different representations of chemical phenomena at the macroscopic, molecular, symbolic and graphical levels and integrating them with underlying chemical concepts and principles.
- Several research studies have documented that many beginning chemistry students have difficulty integrating these different viewpoints unless their relationships are emphasized, reinforced, and presented concurrently during instruction. Unfortunately, the instructional design of this textbook does not take this into consideration.

<b>Editorial Aspects (25 possible points)</b>	N/A (0 pts)	Very Weak (1pt)	Limited (2 pts)	Adequate (3pts)	Strong (4 pts)	Superior (5 pts)
Is the language of the textbook free of grammatical, spelling, usage, and typographical errors?				X		
Is the textbook written in a clear, engaging style?				X		
Does the textbook adhere to effective principles of design? (e.g. are pages laid out and organized to be clear and visually engaging and effective? Are colors, font, and typography consistent and unified?)				X		
Does the textbook include conventional editorial features? (e.g. a table of contents, glossary, citations and further references)			X			
How effective are multimedia elements of the textbook? (e.g. graphics, animations, audio)		X				

Total points: 12 out of 25 points

Please provide comments on any aspect of the subject matter of this textbook:

This textbook lacks many of the extra features that other commercial textbooks provide (i.e., an integrated online homework system, solutions guide, power points of illustrations for instructors, test banks, animations, simulations, visualizations, etc.).

<b>Access (30 possible points)</b>	N/A (0 pts)	Very Weak (1pt)	Limited (2 pts)	Adequate (3pts)	Strong (4 pts)	Superior (5 pts)
Is the textbook compatible with standard and commonly available hardware/software in college/university campus student computer labs?				X		
Is the textbook accessible in a variety of different electronic formats? (e.g. .txt, .pdf, .epub, etc.)				X		
Can the textbook be printed easily?				X		
Does the user interface implicitly inform the reader how to interact with and navigate the textbook?		X				
How easily can the textbook be annotated by students and instructors?		X				

Total points: 11 out of 30 points

Please provide comments on any aspect of the subject matter of this textbook:

- This textbook was easily accessible using most standard Internet browsers. However, the material can only be navigated in a linear fashion.
- I could not find a way for students to annotate the material and there was no glossary of terms or other ancillary materials.

<b>Overall Ratings (10 possible points)</b>						
	Not at all (0 pts)	Very Weak (1 pt)	Limited (2 pts)	Adequate (3 pts)	Strong (4 pts)	Superior (5 pts)
What is your overall impression of the textbook?			X			
	Not at all (0 pts)	Strong reservations (1 pt)	Limited willingness (2 pts)	Willing (3 pts)	Strongly willing (4 pts)	Enthusiastically willing (5 pts)
How willing would you be to adopt this book?	X					

## Overall Comments

If you were to recommend this textbook to colleagues, what merits of the textbook would you highlight?

The writing style of this textbook is clear and easy to read. The approach taken in presenting the body of knowledge is interesting and nontraditional.

What areas of this textbook require improvement in order for it to be used in your courses?

The overall approach taken in this textbook is inconsistent to my personal teaching preference. The textbook does not adequately develop connections between topics, between chemical concepts and principles, and between different representations to provide an overview of the fundamental aspects of general chemistry in a logical and hierarchical manner.

We invite you to add your feedback on the textbook or the review to [the textbook site in MERLOT](#).  
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