Advanced Chemistry in Creation

This chemistry course is designed to be taken after a college-preparatory chemistry course such as Exploring Creation with Chemistry. This course is the equivalent of taking a 1st semester college chemistry course but spread out over a school year. *Students should be comfortable manipulating an equation to solve for “x” with various algebraic functions such as log and natural log functions.* Historically, students who take this course do well on the CLEP and AP exams with additional exam preparation.

This course is designed to serve as a supplement to the independent curriculum provided by Apologia. Students are expected to read and work the problems in the textbook independently before coming to class. Lectures will explain concepts from new angles to further illustrate concepts that may not connect with a student on first read. This explanation often involves metaphors, real world examples, and additional problems. Additionally, students will be challenged in writing formal laboratory reports to develop their skills in technical writing while working on revisions with the instructor.

The course includes detailed discussions of stoichiometry (with limiting reactants), thermodynamics, kinetics, acids and bases, redox reactions, solutions, atomic structure, orbital hybridization, molecular orbitals, molecular geometry, chemical equilibrium, and nuclear chemistry. The student also receives an introduction to organic chemistry, focusing on the major functional groups, organic nomenclature, and polymer chemistry.

- **IT IS HIGHLY RECOMMENDED THAT YOU TAKE THE LIVE CLASS DUE TO THE ADVANCED DISCIPLINE OF THIS CLASS. THE DIFFICULT NATURE OF THE SUBJECT RAISES MANY QUESTIONS WHICH ARE BEST DEALT WITH IN OUR LIVE CLASSES.**

**Supplies for this class:**

- Order from Apologia.com
- **REQUIRED:** Advanced Chemistry in Creation (ACC), 2nd Edition, Dr. Jay L. Wile
- **REQUIRED:** Solutions and Tests for Advanced Chemistry in Creation, 2nd Edition
- **REQUIRED:** Advanced Chemistry Laboratory Kit (Can be ordered online and shipped to lower 48 US States. The glassware kit is not required for this course. Everything needed for lab equipment is in the Advanced Chemistry Kit.)
- **REQUIRED:** Laboratory materials
  - Some labs will require simple household items. which can be used or purchased at a local grocery, hardware, or big box store (e.g. Target or Walmart). I suggest buying these items during the school year, 1-2 weeks before the experiment is performed. All materials are listed in the textbook’s appendix.
- **REQUIRED:** Any 2 or 3 function scientific calculator (Ti-36X Solar or Ti-30XA are recommended due to instructor knowledge). Please see the supplemental calculator buying guide for more information.
- **REQUIRED:** Any word processor with an equation editor included (Microsoft Word is recommended due to instructor knowledge. Google Drive is also a good FREE option.)
- **OPTIONAL (LIVE STUDENTS ONLY):** Computer microphone and headphones (These items allow students to collaborate in groups effectively and verbally ask questions during lecture).
- **OPTIONAL (LIVE STUDENTS ONLY):** Computer pen tablet (Wacom or a budget tablet, e.g. XP-Pen G430, for digital note taking and sharing during live class group work)
Dan and his wife, Allyson, are alumni of Purdue University and currently reside in Madison, WI. Dan received a B.S. in biochemistry and completed his M.S. in entomology working while working in an insect physiology laboratory. He worked with the Purdue Improved Crop Storage team, funded by the Bill & Melinda Gates Foundation, in tackling the tough issues faced by West African farmers in protecting stored grain. Publications on this work can be found in the Journal of Stored Products.

Dan has been teaching since graduate school in 2012 and has been teaching chemistry and physics for the Apologia Online Academy since the 2014 school year. His classroom has been honed over the years to take advantage of multimedia tools to enhance student understanding. His goal of each Academy class session is to explain Apologia curriculum from new angles to bring new understanding beyond the text. Lessons include explanation with metaphor and relevant examples from the world around us. Dan tries to highlight connections between the lesson and other fields of discipline when possible. Problem solving methods are taught through working problems on a whiteboard while explaining the method. Questions are encouraged throughout the class and students are expected to be engaged through polls and discussion during the lesson. Through discussion students are asked to think critically when presented with information and to analyze the underlying mechanisms of the Created world that God has painted around them.

Dan fell in love with God upon the discovery of all the fingerprints left behind throughout creation. The study of both biochemistry and chemistry have been of interest in this regard. He has a passion for using his scientific knowledge to show evidence of the glory of God to others. Today Dan and Allyson attend Door Creek Church of Madison, WI and lead a young adults small group and bible study there.

In his free time Dan enjoys playing board games, video games, dancing, gardening, cooking, and discovering local good eats.