apologia

LIVE CLASSES

Exploring Creation with Chemistry

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Syllabus

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Description:

Looking to delve into the intricate mechanisms by which God's Creation operates? Look no further! This course is designed to introduce high school students to the essential principles of chemistry and provide a solid foundation for further study in the sciences and college-level coursework.

Throughout the course, we'll cover an array of topics ranging from the scientific method, scientific writing, and calculator usage to chemical nomenclature, significant figures, and scientific units. You'll also gain a deep understanding of chemical classification, molar calculations, stoichiometry, thermochemistry, thermodynamics, kinetics, acids and bases, redox reactions, solutions, atomic structure, Lewis structures, molecular geometry, gas laws, and equilibrium.

At the core of our course lies experimentation and problem-solving. You'll be challenged to think critically about real-world problems using the scientific method and experimentation. With thirty-one experiments to complete, you'll have ample opportunity to explore the practical side of chemistry. All the experiments can be performed at home using items found around the house or easily obtained from a local store. Throughout the course, you'll keep detailed lab notes and learn to write formal laboratory reports, honing your skills as a young scientist.

Our course structure is designed to help you succeed. Each week, you'll read the textbook and answer "On Your Own" problems before attending a 90-minute live lecture. During these sessions, we'll explore some of the more nuanced points of the material, providing insights that will help you master the subject matter. Outside of class, you'll have ample opportunity to engage with other students and the instructor through our class discussion board and class Discord server.

At the end of each module, you'll complete an online assessment to test your knowledge of the material. Your instructor or teaching assistant will provide you with a grade and personalized feedback to help you grow and develop your skills as a chemist.

Don't miss out on this exciting opportunity to explore Creation and build a strong foundation for future scientific endeavors!

Prerequisites:

It is **recommended** that enrolled students have completed at least **Algebra I** and should be comfortable rearranging equations for an unknown using addition, subtraction, multiplication, and division.

Course Materials:

Students should have obtained all the course materials listed below prior to the first week of class. Please purchase all laboratory materials in advance to minimize your trips to the store.

- One of the following 3rd Edition Chemistry sets:
    - Exploring Creation with Chemistry, 3rd Ed. – Basic Set **(Minimum Requirement)**
        - Included in the Basic Set:
            - Exploring Creation with Chemistry Textbook, 3rd Ed. by Kristy Plourde
            - Exploring Creation with Chemistry Solutions & Tests Manual, 3rd Ed.
    - Exploring Creation with Chemistry, 3rd Ed. – Advantage Set **(Recommended)**

        - Included in the Advantage Set:
            - Exploring Creation with Chemistry Textbook, 3rd Ed. by Kristy Plourde
            - Exploring Creation with Chemistry Student Notebook, 3rd Ed.
            - Exploring Creation with Chemistry Solutions & Tests Manual, 3rd Ed.
- Any scientific or graphing calculator
- Any word-processing program
- Lab materials—a supply list can be found in the textbook
- Glassware Set—Some items within the set are required, but the full set is recommended. The required items are:
    - Litmus paper (red and blue)
    - Mass scale (0 to 500 grams)
    - Thermometer (-10 to 110 °C)

Course Progression:

We will spend 2 weeks on each of the 16 modules within this curriculum. Every Monday the instructor will post an announcement video that gives students reminders of what they should be working on each week. Each week students will either attend a 90-minute live lecture for their registered section or watch a recording of the lecture. Before the lecture, students are expected to read the module, do experiments, complete the “On Your Own” problems, and take notes so that they can ask informed questions during the live lecture.

Lectures focus on explaining abstract concepts, problem-solving, and answering student questions. Due to time and logistical constraints, we will not reserve class time for doing the experiments on camera, but questions are welcome if clarification is needed. In the second week of each module, students will complete the study guide to prepare for the exam.

Chemistry relies more on logic than memorization, so practicing with extra problems is recommended. There are optional practice exams in the Solutions Manual, which can be used for studying. At the end of each module, students will complete an online exam through our class Canvas portal. The online exams have no time limit and require a proctor. Students may also reference a crib sheet prepared on a standard piece of paper during the exam. Graded exams will be returned with feedback within two weeks.

Assignment Structure:

Students will complete the assignments detailed below during the year. These will all be submitted and graded through our class Canvas portal.

Homework Notebooks

As students work through this course, they are required to keep a detailed notebook. This notebook not only acts as the student's primary homework assignment but also serves as evidence to colleges that the student has completed a chemistry course with a laboratory component. It can be either the official Apologia companion Student Notebook or a traditional spiral notebook.

At the end of each quarter (every 4 modules) a parent or guardian will check the student's notebook for completion of these items. The grade given for the

notebook is based on **completion**, not the accuracy of the answers. More specific instructions will be provided at a later date.

Students should keep a written record of the following in their homework notebooks:

- Reading & Class Notes- Students should show evidence that they are taking notes while reading and attending lecture. Highlighting is not an acceptable substitute for taking notes. Taking notes is a proven method of learning. Chemistry can be quite challenging so most students will need detailed notes to succeed.
- Work & Answers to Problems in the Textbook- Students should keep a record of all the problems they worked on during the module. As students read the textbook they should show all their work and answers to the On Your Own (OYO) questions and the study guide (review & practice problems) found at the end of each module. Students are expected to self-correct their bookwork using the "Solutions and Test Manual" to check for comprehension.

  Note: Parents, please ensure that students are **not** doing the initial work directly out of the solution manual.

- Experiment Notes- All the laboratory experiments within the textbook are designed to be easily done at home. These labs are found throughout the reading and positioned to reinforce introduced concepts through a hands-on experience. Students **must complete all the experiments** included in the text. Students must complete each experiment and take notes on the process and the observations that they made. Each experiment must have a notebook entry (about 1 page in length) that both tracks experiment completion and acts a laboratory record for college admissions. Students should either fill in the

questions provided in the official Apologia companion Student Notebook or answer the following questions.

- Label the entry with a title, date, and your name
- What was the purpose (the goal) of the experiment?
- What were your results? (Include any recorded data or calculations)
- What do the results indicate?
- Can you conclude anything?
- What did you learn from the experiment?
- What does the experiment demonstrate about the book concept being explored?

Online Module Exams

Students will be assessed at the end of each of the 16 modules in this course through an online exam administered through our class Canvas portal. Exams consist of two parts: a computer-graded multiple-choice section and a worksheet section that is manually scored by the instructor or teaching assistant. Partial credit is available to the student for showing detailed work on the worksheet section.

These exams are closed book and students are not permitted to access outside web resources during the assessment. Students may use a 2 or 3 function calculator and a crib sheet prepared in advance on a standard piece of paper. Exams must be proctored and signed by a parent, guardian, or approved adult exam proctor to ensure academic integrity. Of the 16 module exams, the lowest two scores will be dropped automatically from the student's overall grade.

Formal Laboratory Reports

This course will help prepare students for long form laboratory reports expected by college science courses and will also help prepare students for the world of published scientific research. Students will complete a total of three formal laboratory report assignments over the course of the year.

The three reports will increasingly rely on the student's own ability to compose a scientific report. Each of these reports features a video pre-lab that will help prepare students to perform the associated experiment accurately. The first report is a tutorial, which teaches the full reporting process to the student through interactive lessons that includes a video and examples.

The second report features a video lecture that helps students compose a full-length report with my guidance. By the time the students reach the third report, they will have learned the skills needed for the assignment, which they will complete on their own without guidance beyond the pre-lab.

Students will turn in each formal laboratory report assignment twice, once in the form of a rough draft. The instructor or teaching assistant will provide notes in the form of a rubric which the student may then use to revise and submit a final draft of the report for a re-grade. A deadline is provided on the calendar for the rough and final drafts.

Extra Credit

The instructor reserves the right to offer or not offer extra credit opportunities in the form of additional exam questions and homework assignments. Retaking exams is not offered in this course, but two exams are dropped to account for a "bad test day."

Each quarter, students can earn 5 “EUREKA!” extra credit points (20 total points). These points are earned through posting helpful information on the Canvas discussion board. Some ways that students can earn this credit includes explaining a concept, sharing a helpful video, or creating a module-relevant meme (these are posted in a pinned thread with instructions).

Each module will contain a “Mental Awareness Check” or MAC for short. The MAC is a random “password” that is provided during a lecture, activity, set of instructions, announcement, or discussion board post. If students find the word and provide it at the end of each module exam, 1 point of extra credit is awarded. The MAC should encourage student engagement in lectures and minimize distractions during class.

The point break down for these course assignments is detailed below. Extra credit is in excess of what is indicated below so it is possible for students to receive a score above 100%.

Activity	Points
1x Syllabus Quiz	50
16x Online Module Exams	700 (50 each, lowest 2 dropped)
1x Formal Lab Report Tutorial Homework	50
1x Guided Formal Lab Report	50
1x Full-Length Formal Lab Report	50
4x Quarterly Notebook Checks	400 (100 each)
Total Points	1300

Due Dates and Late Policy:

This course is scheduled, and all students are expected to turn assignments in **before** deadlines. The course calendar is available for download at the top of the module menu of our course Canvas portal. This calendar lists all live lecture times and assignment due dates for the entire year. All live lecture times and due dates will be communicated in **Eastern time (EST)**. Extensions will not be provided due to a time zone difference, so please manage your time and work accordingly.

Late work will be accepted with applied late penalties for up to four weeks following the calendar deadline. After four weeks, the course instructor will no longer accept late work. Formal laboratory report rough drafts are an exception to this policy and will never be accepted late by the instructor. Whenever an assignment is late (even 1 minute late), a **late penalty of 10%** will be applied. For every additional week that an assignment/exam is late, an **additional 10% penalty** will be applied.

Totally cool hidden syllabus secret: If you email me (mrmartin@apologia.com) a photo of a cute otter prior to August 31st, I will give you 5 points of extra credit. Please do not share this secret with anyone. I am trusting you to be super cool about this. Welcome to the Otter Club.

Parents can request extensions on behalf of their students. **All extension requests must be received by Friday at 5 p.m. EST.** Extension requests may be requested over the weekend, but the instructor will not reply until noted office hours. If the extension is approved, all late penalties will be waived for the approved extension window. The course instructor reserves the right to deny extension requests.

Class Canvas Portal:

Once the school year has started, the instructor will communicate exclusively through our class Canvas portal. Students will access all class information, submit course assignments, and view their grades through Canvas. Students will receive their invitation to our class Canvas portal in August before class begins.

Please note: if you have a Canvas account from another institution, we have a Canvas website that is unique to Apologia, and you will be prompted to make a new login at https://apologia.instructure.com/. Parents can request an optional "observer" account to monitor their student's activity or grades by emailing the instructor.

The instructor will post announcements through Canvas at least once per week to cover items such as assignment reminders and exam notes. All students are required to read these announcements. We will not use live class time to cover this information.

Weekly Live Lecture:

Live online lectures will be presented via Zoom. Students should attend the live lecture that they registered for once per week for 90 minutes. You can find the link to join your session on our Canvas portal. The Zoom meeting will be open 15 minutes before the official start time. The instructor uses this 15-minute timeframe to host "pre-class," during which we will watch videos, chat, and play trivia. This pre-class time has proven valuable in building community within the digital classroom space. Pre-class attendance is optional and will never include material on the module exam.

Each section will follow the live lecture schedule in the table below.

Section Number	Lecture Day	Lecture Time
1	Tuesday	10:00 AM – 11:30 AM ET
2	Wednesday	1:30 PM – 3:00 PM ET
3	Thursday	10:00 AM – 11:30 AM ET

Students are expected to be respectful to both the instructor and their classmates during live lecture time. The instructor will stop periodically during lecture to interact with students and ask for questions. To facilitate a healthy live class environment, please adhere to the following rules of conduct.

- When joining the classroom, students should join with their first and last names (no funny nicknames or usernames).
- Treat my classroom as if we were in a physical classroom together, and be respectful.
- Please make sure all conversation is appropriate for the classroom setting.
- Hold questions until the instructor checks in and asks for questions. I do this so that they don't get buried in the chat box and become difficult to find.
- Please ask logistical questions about assignments and due dates outside of live class on our Canvas discussion board, Discord, or by email.

Live Lecture Attendance Policy:

The instructor **does not require attendance** of the live lectures but highly recommends students attend as many of the live lectures as possible to take advantage of live Q&A. Lectures are recorded and posted on the course

Canvas page under the associated week and module. If you miss a lecture, please watch the recording. You can also use the recording for review as you prepare for the online exam.

Academic Dishonesty:

Academic dishonesty is any type of cheating that occurs on any exercise related to this course. It can include plagiarism, fabrication, deception, cheating, bribery, sabotage, professional misconduct, and impersonation. **Any type of cheating will not be tolerated!**

Cheating includes, but is not limited to, copying homework, falsifying reasons for needing an extension, copying other students' exams/homework/answers, impersonating a parent on a signature form, having someone else log into a Canvas/Zoom account to complete material on a student's behalf, or plagiarizing material someone else has written and claiming it as your own.

All course assignments must be written in your own words. Plagiarism, including verbatim copying of text from the internet and using intellectual property without appropriate citation, is not acceptable. Plagiarism includes paraphrasing information from a source and not citing it. Be sure to cite any information that you did not conceive for the first time as a scientific pioneer!

Assignments that have been cheated on will receive 0 points, and the parent will be notified. The instructor and director reserve the right to remove a student from class for reasons of academic dishonesty.

Help and Questions Outside of Live Class:

Apologia Live Classes (ALC) is an online teaching and grading service that can help with your homeschooling. It's good for students who need some help

but not 1-on-1 tutoring. This class works differently than a traditional class. You should read the textbook and work on problems on your own before class. This way, class time can be used for more complex topics and answering questions. We have one 90-minute lecture per week, so students should supplement their studies with reading and problem-solving outside of class.

This course utilizes a free chat platform called Discord for students to communicate with each other and the instructor outside of class. This space is intended to give students a space to collaborate, discuss material, and build community outside of live class. Students are also encouraged to use this space to organize study groups with fellow students. The instructor moderates the space to help keep the students safe. Utilization of Discord is completely *optional*, and all participants must complete the permission form found on Canvas with their parent/guardian prior to joining.

Personal tutoring is not a service included through ALC, but you can reach out to the instructor directly if your student is struggling. The course is cumulative, so it's important to get help early. The instructor is available to help students with questions through the Canvas discussion board, class Discord server, or email and is available from **Tuesday through Friday from 8 a.m. EST through 5:00 p.m. EST**. If a message is received outside these hours, the instructor will reply to you as soon as possible upon returning.