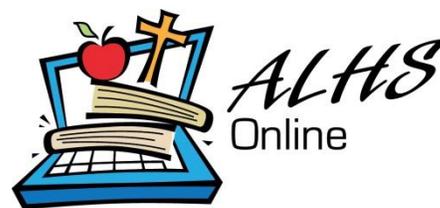


# Physical Science Online

## Course Syllabus 2020-21



|                       |                                      |
|-----------------------|--------------------------------------|
| <b>Instructor:</b>    | Kevin Zimmerman (kzimmerman@blc.edu) |
| <b>Title:</b>         | Physical Science                     |
| <b>Grade Level:</b>   | 9 - 12                               |
| <b>Course Length:</b> | 2 semesters                          |
| <b>Credit:</b>        | 1 credit                             |
| <b>Prerequisites:</b> | none                                 |

### Description:

Students study God's creation and apply principles of science and predictions about nature to the real world. Students especially developing an understanding of the atomic theory of matter and how it applies to the matter that surrounds them in the real world. Students need to view lesson videos, take digital notes, read resources, and respond to both individual and group prompts involving real world situations. Students will also certify regarding lab safety and participate in some very basic lab activities involving household materials.

### Course Outcomes:

As a result of taking this course, students will learn about...

1. the place of science in their lives as Christians.
2. how science is important to them as American citizens.
3. conducting safe measurements and investigations in the lab.
4. the roles of matter and energy in the universe, especially viewing the world through the lens of the atomic theory of matter.

### Course Outline:

Unit 1: Introduction to Matter  
Unit 2: Physical Properties of Matter  
Unit 3: The Types of Matter  
Unit 4: The Types of Energy  
Semester Exam  
Unit 5: Atoms  
Unit 6: Radioactivity  
Unit 7: The Periodic Table of the Elements  
Unit 8: Protons, Neutrons, and Electrons  
Unit 9: Bonds  
Unit 10: Chemical Reactions  
Final Exam

### Wait a second!

What about gas laws? Or electricity? Or sound? There are a bunch of topics that are in physical science textbooks that *aren't* in this course!

**That's right.** The typical physical science textbook is unwieldy and covers way too much information for students to learn and actually understand. In many physical science courses learning is reduced to students memorizing lists of terms the best they can, answering recall test questions, then moving on to the next topic. This course is designed to give students a tool – an atomic understanding of creation that augments their scientific worldview. Several past students have responded saying this is one of the most *useful* science classes they have taken because it helped them understand matter without a hopeless marathon of memorizing definitions.

## Course Materials:

There is **no required textbook** for this course, however a CK-12 Physical Science online textbook is available, but you must first create a CK-12 account. The required material for Physical Science will be presented through online videos and articles that are organized on the physical science Moodle page. You are responsible for finding access to the internet, which you will use on a daily basis to log into the Physical Science Moodle page to complete the objectives of the course.

## Daily Expectations:

The lessons in Physical Science are designed to prompt a fair amount of thinking about real-world applications of the material. As a result, they tend to be longer lessons and each is scheduled for **two days** on the calendar. Students can complete the lesson all at once on one day and take the next day off, or they can complete half in one day and half the next day. Students may have to wait for others to post to discussions before those activities can be completed, so, especially if a student is doing a “one day on, one day off” pattern, it’s important to expect to go back and check the previous lesson’s discussions.

There are a few activities that run **longer than two days**. For example, the first lab activity requires students to actually practice writing safe and correct lab procedures to prove that you understand the safety training and how to measure density. Every test in the course includes preparation days and the actual test day. The semester projects are also scheduled across several days. Please plan for extended activities according to the course calendars.

## Evaluation & Grading Scale:

Daily Practice Work: 2%

A key to succeeding at lifelong learning is to take the time to read, watch, listen, and think. In this class, you will be (1) reading assigned articles, (2) watching video clips, (3) listening to classmates’ ideas during discussions, and (4) thinking deeply about all of these things as you learn. The daily work you do for Physical Science is NOT busywork, it’s a learning opportunity. Just doing the daily assignments is not enough, you need to deeply consider them. Think about how the concepts in the assignments fit into your mental framework of understanding in physical science so that you grow in understanding. Practice work is valued at 2% of the overall grade because just doing practice doesn’t indicate what students learn. However, if the practice work grade is low, it is usually an indicator that the final assessment grade, and the student’s overall grade, will also be low because the student is not taking the time to really think through the concepts.

Tests, Writing, and Performance Assessments: 98%

It is not enough to just read the articles, watch the movies, and listen to the ideas and opinions of others—just doing the homework does not guarantee a high grade in physical science. You must prove that you have thought enough about the things that you learn to make them somewhat permanent in your brain. Therefore, at the end of each unit, you will be taking tests, writing paragraphs, and showing me what you’ve retained and how your thinking has matured. It is VERY

important that you realize that, if you cannot demonstrate mature thinking on the final assessments, regardless of whether or not the homework is done, you will earn a lower grade for physical science.

Final assessments will consist of all of the following: (1) short written assessments that prove that students are able to apply the individual things they learn to impromptu real world situations, (2) a final exam made up of selected response questions that measure students' knowledge about the terms and ability to apply the terms to real life, and (3) a final paper applying the concepts learned about matter (especially atoms and bonds) to real life samples of matter assigned by the teacher.

## Grading Scale

|           |          |          |          |        |
|-----------|----------|----------|----------|--------|
| 98-100 A+ | 87-89 B+ | 77-79 C+ | 67-69 D+ |        |
| 93-97 A   | 83-86 B  | 73-76 C  | 63-66 D  | 59-0 F |
| 90-92 A-  | 80-82 B- | 70-72 C- | 60-62 D- |        |

## Instructor Policies:

*Classroom Responsibility Policy:* In high school, college, and the workplace, the quality of your learning/workmanship depends on “being there”, being ready, actively participating, and honestly valuing what you learn. I expect my students to be responsible for learning. Being responsible means

for face-to-face students...

1. being in class on time for the whole period,
2. having all materials you are required to have each day,
3. participating actively using critical thinking in lesson activities like note-taking, reading, and discussing,
4. making a reasonable effort and doing your best work, and
5. reflecting the love of Christ by speaking and acting respectfully toward one another.

for online students...

1. spending enough time on lessons to actually learn them,
2. checking to be sure you complete all lesson activities,
3. participating actively using critical thinking in online lesson activities like note-taking, reading, and discussing,
4. making a reasonable effort and doing your best work, and
5. reflecting the love of Christ by interacting respectfully with one another online.

*Late Work Policy:* In life, whether you are a student or an employee, it is sometimes understandable that you miss deadlines and turn in work late, but it is never acceptable. Your boss may understand the circumstances that led to missing a deadline, but as a consequence he or she will lose confidence in how trustworthy you are. You may be overlooked for a raise or promotion because of late work, and repeated late work will get you fired.

Physical science is the same way. I understand that, because students lead busy lives, at times you may not have your homework done. That doesn't mean it's acceptable. Late work will certainly lead to missed learning opportunities, which could eventually become a failing grade in the course. If you miss an assignment in Physical Science, you are required to complete it by the next school day. Your parents and school advisor will be contacted to help you stay on track. **There is no option to take a low grade and not complete an assignment** – all assignments must be completed to be eligible for the final exam.

It is very important that you communicate with your instructor if you miss an assignment, keeping the instructor informed about your plans for staying caught up.

*Academic Honesty Policy:* If you steal the work of others instead of doing your own work, there is no chance that you will learn. In life, there are legal consequences for stealing the work of others. In this classroom, stealing the work of others has these consequences: (1) contact with you and your parents and high school advisor to discuss the incident and (2) redoing all related assignments to prove that you have learned.

### **ALHS Online Policies:**

Current ALHS Online policies are listed in the *Handbook for ALHS Online Students and Parents*, available on the [ALHSO.org](http://ALHSO.org) website. This includes policies on non-discrimination, anti-harassment, student expectations, attendance, academic honesty, student discipline, student grades, course add/drop, etc.

Please note the policy on **class attendance** which states in part:

***“Even if a student’s local school does not have school on a particular day (snow day, teacher’s conference, quarter break, choral fest, class trip, etc.) ALHS Online courses will continue to meet and students are expected to complete required work on time.”***

Students also fall under the policies of the school were they attend as a full-time student. When applicable, these same local school policies will be applied to enrollment in this ALHSO course.