



# Course Syllabus

## Physics

### Class Information

The live class is held once per week with a total of 30 class sessions. Each session is 90 minutes long. Our class meets on Mondays at 9:00 am ET

### Class Description

Prerequisites: Algebra I, Algebra II (concurrent enrollment ok); Chemistry is recommended, but not required.

Class Description: Subatomic particles, planetary motion, even heat and energy can all be defined and explained through the study of natural processes and laws. This is the goal of physics: to understand and explain the workings of the universe. This course which will cover mechanics, Newton's laws, momentum, projectile and satellite motion, rotational motion, properties of matter, heat, thermodynamics, vibrations and waves, electrostatics, electromagnetic induction, reflection and refraction, light emission and quanta, atomic and nuclear physics, the atomic nucleus and radioactivity, fission and fusion, and special and general relativity. Students will complete a minimum of six experiments as chosen by the teacher. An emphasis will be placed on students understanding scientific inquiry, the scientific method, and the resulting science lab reports.

### Teacher Information

Teacher: Chris Leingang

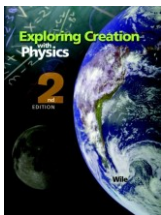
Email: [cleingang@myfunscience.com](mailto:cleingang@myfunscience.com)

Phone: (360) 358-3268 (When calling, please keep in mind that I am in the Pacific Time zone.)

Office Hour: By appointment

### Required Course Materials

Textbook:



*Exploring Creation with Physics, 2<sup>nd</sup> Edition*

Dr. Jay L. Wile

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ISBN 978-1-932012-42-2

Lab kit:



A configurable lab kit is available through [HomeScienceTools.com](http://HomeScienceTools.com).

Please feel free to leave out items you already own or can acquire cheaper locally. The kit can be found at this web address:

<https://www.homesciencetools.com/product/apologia-physics-lab-kit/>

## Class Schedule and Topical Agenda

### FALL TERM

|           |  |
|-----------|--|
| Class #1  | Module 1: Motion in One Dimension                        |
| Class #2  | Module 1: Review   |
| Class #3  | Module 2: One Dimensional Motion Equations and Free Fall |
| Class #4  | Module 2: Review / Test 1                                |
| Class #5  | Module 3: Two Dimensional Vectors                        |
| Class #6  | Module 3: Review   |
| Class #7  | Module 4: Motion in Two Dimensions                       |
| Class #8  | Module 4: Review / Test 2                                |
| Class #9  | Module 5: Newton's Laws                                  |
| Class #10 | Module 5: Review   |
| Class #11 | Module 6: Applications of Newton's Second Law            |
| Class #12 | Module 6: Review / Test 3                                |
| Class #13 | Module 7: Uniform Circular Motion and Gravity            |
| Class #14 | Module 7: Review   |
| Class #15 | Semester Review / Test 4 MIDTERM                         |

### SPRING TERM

|           |   |
|-----------|---|
| Class #16 | Module 8: Work and Energy                       |
| Class #17 | Module 8: Review                                |
| Class #18 | Module 9: Momentum                              |
| Class #19 | Module 9: Review / Test 5                       |
| Class #20 | Module 10: Periodic Motion                      |
| Class #21 | Module 10: Review                               |
| Class #22 | Module 11: Waves                                |
| Class #23 | Module 11: Review / Test 6                      |
| Class #24 | Module 12: Geometric Optics                     |
| Class #25 | Module 12: Review                               |
| Class #26 | Module 13: Coulomb's Law and the Electric Field |
| Class #27 | Module 13: Review / Test 7                      |
| Class #28 | Module 14: Electric Potential                   |
| Class #29 | Module 14: Review                               |
| Class #30 | Semester Review / Test 8 FINAL                  |

## Grade Scale and Grading Policy

### Assignment Submission:

All assignments are specified in the class pages and on the class calendar, and are to be submitted through the class page **before midnight ET** on the date they are due. Student work is not to be submitted via email. Some assignments will be submitted using a "Drop Box" while others will be submitted using a "Practice Link."

Assignments are returned to students, with feedback and grades within 7 days after the due date (unless work is submitted late). Specific assignment instructions will be discussed at the time of the assignment and will appear on the weekly class page.

**Make-up/Late Assignment Policy:**

Please take deadlines seriously. Assignments are late if they are submitted after the due date for any reason. Assignments extensions are rare and are at the sole discretion of the instructor. Instead of offering extensions, the instructor will drop 1 grade from each category (assignments, labs, tests) before a final grade is issued in the course. Please be aware that some tests may not be eligible to be dropped.

Late work is never advisable, but because there may be times when it is unavoidable, I will allow you to submit late work with the following deductions:

- 1-2 days late = -10%
- 3-4 days late = -20%
- 5-6 days late = -30%
- 7-8 days late = -40%
- 9-10 days late = -50%

Work submitted more than 10 days late will not be accepted except under extreme circumstances and only with instructor approval.

Grades are weighted according to the following categories:

- Assignments .....33% of final grade
- Labs .....33% of final grade
- Tests, quizzes .....34% of final grade
- 100% total

With the exception of the Semester Finals, the lowest score from each category will be dropped before a final semester grade is issued.

Neither the MIDTERM nor the FINAL are eligible to be dropped and both are required for all students.

The overall course grade will be an average of the two semester grades received.

**Grading Scale (in percent):**

- A 100-90
- B 89-80
- C 79-70
- D 69-60
- F 59 and Below

**Attendance Policy**

*Presence:* Students are strongly encouraged to attend live classes but are not required to attend live classes. However, students who do miss a class, for whatever reason, will be responsible for viewing the class recording and completing assignments. Recordings of each class are usually available within 2 hours of the class meeting and may then be accessed 24/7 from the course class pages. Students may also review recorded classes at any time.

*Participation:* Active participation is essential for maintaining the best learning environment. It is also a fun part of learning. Students are not required to attend classes live, but students who do are expected to engage with the teacher and with each other. Outside of live sessions, students are expected to log on and visit the class pages to see and contribute to new content, activities, or assignments. There, students may review class material, keep up-to-date on announcements and assignments, and verify that there have not been any changes to the class calendar and/or agenda.

The Internet may be used in the class to supplement course content and may be accessed by the teacher during live class lectures or by the student outside of live class meetings for general research or for additional information from such government, organizational, individual, or commercial sites that may be beneficial to learning, so parental supervision and participation in the learning process is strongly encouraged.

### **Class Conduct**

Students should conduct themselves in a worthy and appropriate manner, which includes behaving respectfully and politely to each other and the teacher. In both live and asynchronous class activities, students should strive to stay on task and on topic, to use appropriate language, and to be gracious in speech and conduct toward others. Generally, the same guidelines for civil in-person behavior are appropriate for this online class.

Students should strive for proper grammar and spelling in discussion boards and assignments, but the speedy and spontaneous nature of live class chat demands that these conventions may be loosened to facilitate more relaxed, informal communication.

Students who are unable to adhere to this type of conduct may be separated from the class, removed from the session if it continues to occur during a live class session, and will eventually result in parent notification if the behavior is disrupting the class.

### **Tips for Student Success**

Students who are **fully present, work diligently, actively participate (either via live class attendance or watching recordings promptly and attentively), and consistently communicate** will be the most successful.

**Communication:** Students who are unable to find something, are unable to remember instructions, are having trouble understanding, or are otherwise having difficulty engaging in the class should take every opportunity to communicate with the teacher. It is important to ask questions and keep an open line of communication about all class related activities for the best learning experience.

### **Academic Honor and Integrity**

Colleges and universities, and indeed every professional and educational environment, take issues of academic honesty very seriously. Research shows that plagiarism, what most people automatically think of when hearing the phrase “academic honesty,” is most often committed when students are pressed for time, care very little about the assignment, or are unaware of what plagiarism is. These may be addressed by planning, attitude adjustment, and careful instruction, and these areas of concern may be visited as needed in this class.

However, academic honesty is also much more. It is a matter of integrity. **Being a student or professional of integrity includes submitting your own work, working in a timely manner, and demonstrating effort and diligence.**

**Philippians 4:8**

Finally, brethren, whatever is true, whatever is honorable, whatever is right, whatever is pure, whatever is lovely, whatever is of good repute, if there is any excellence and if anything worthy of praise, dwell on these things.

**Colossians 3:23-24**

Whatever you do, work at it with all your heart, as working for the Lord, not for human masters, since you know that you will receive an inheritance from the Lord as a reward. It is the Lord Christ you are serving.