

## Physics

### Class Information

The live class is held once per week with a total of 30 class sessions. Each session is 90 minutes long.

### 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 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

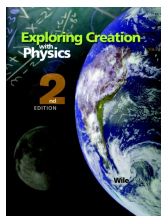
Email: [cleingang@myfunscience.com](mailto:cleingang@myfunscience.com)

Phone/Text: (360) 358-3268

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. 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:

While students are responsible for setting their own pace each week, there are still expectations regarding due dates and continual student progress. I have created the following late/missing assignment policy in order to allow students a flexible schedule within the course structure while still maintaining academic integrity, comprehension of the material, and effective time management.

- Assignment due dates were assigned by the teacher and are posted within the course.
- **Assignments not submitted by the due date will be considered late.** A grade of 0 (zero) will be entered in the grade book until the assignment is submitted and graded. Students will be notified through assignment feedback, comments, and/or email.
- Assignments turned in after the due date will receive a **penalty of 5% per day for up to 10 days.**
- ALL assignments must be submitted by the posted close of course date/time. If assignments are not submitted by the close of the course, they will receive an immediate zero and are not eligible for late submission.

**Late Policy Example:** Suppose you have an exam due on March 1 at 11:59 pm. Your volleyball team just went on a trip and you have fallen behind. You log into your course on Monday, March 2nd and see the exam is late and has been given a 0, lowering your overall grade.

-If you complete the exam a few days later on March 5th, a 15% penalty will be applied.

-If you put it off and complete the exam on March 11th, a 50% penalty will be applied

-If you never turn it in, it will remain a 0 and affect your overall final grade.

### **Assignment Drop Policy:**

One assignment from each grade category will be dropped at the end of each semester. Neither the course mid-term exam nor the course final exam are eligible to be dropped.

Grades are weighted according to the following categories:

Assignments .....	25% of final grade
Practice.....	10% of final grade
Labs .....	25% of final grade
Tests, quizzes .....	30% of final grade
Final test(s).....	10% of final grade
	100% total

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.