

Listen

PHYS 1211k - Principles of Physics I and Lab

[Term]

Course Instructor

[Instructor Name]
[Institution name]
[Institution address]
Phone Number: (xxx) xxx-xxxx
Fax: (xxx) xxx-xxxx
E-mail address: xxxxxxxxxxx@xxxxx.edu

Office hours:
Xxxday, X:00 am/pm - X:00 am/pm

During office hours, you can find me in XXX. You can also reach me during office hours at the listed phone number.

NOTICE: Please use the internal course e-mail for general correspondence. I provide my external e-mail address for emergencies only. I cannot answer questions, accept assignments, or discuss grades via external e-mail.

Response Time: Unless you are notified otherwise, I will attempt to respond to all student questions and emails within 24 hours during the week and within 48 hours on the weekend.

Accessibility Services

In order to receive special accommodations, **students must provide documentation to the instructor** from the disabilities center at their affiliate institution or from the Regents Center for Learning Disorders. If you are a student who is disabled as defined under the Americans with Disabilities Act and require assistance or support services, **please notify the instructor prior to attempting any activities or assessments in this course during the first week of class.**

Also, students with disabilities or who require special testing accommodations must contact the Proctored Exam Testing Coordinator at etesting@westga.edu before scheduling a proctored exam appointment.

Other resources:

- <https://ecore.usg.edu/current-students/accessibility-services>
- <http://www.section508.gov>
- <http://www.w3.org/TR/WCAG/>
- <http://webaim.org/>

Class Format and Attendance

This course is an online course using *GoVIEW* and your computer as the delivery medium. You are not required to attend class face-to-face; however, a midterm and final exam will be given in a proctored environment. This means you will need to appear in person at a designated location to take the exams. You may take proctored exams at any of the affiliate institutional testing centers for a proctored exam or you must locate an independent proctor.

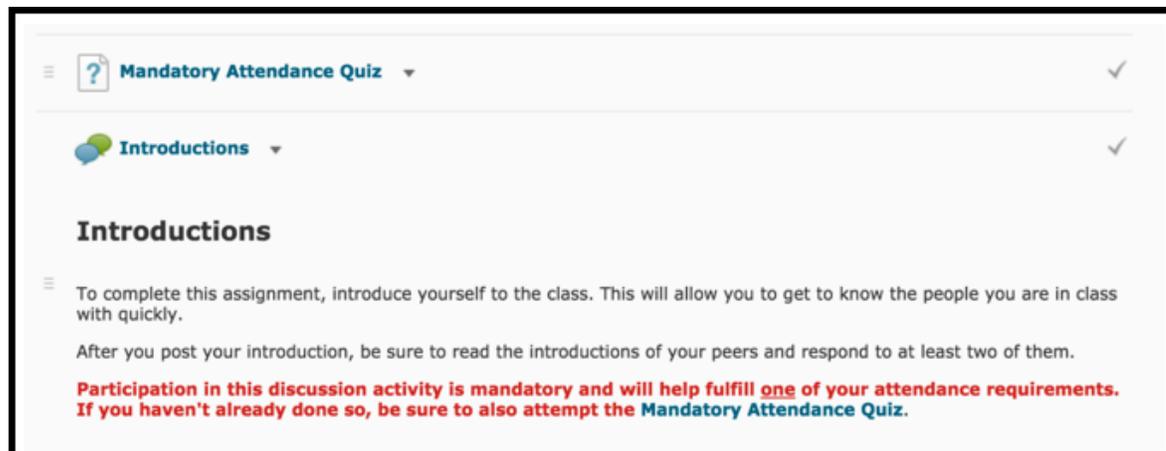
Attendance

"Attendance" and presence are required. You will be expected to participate in ongoing discussions of the lesson topics and to interact with other students and your instructor regularly. Lack of participation in weekly online discussions is considered an absence, even if you are logged into the course. Failure to submit a laboratory report is also considered an absence from the laboratory portion of this course. If for any reason you are unable to participate by the due dates listed in the course calendar, it is your responsibility to inform your instructor.

Attendance Verification

IMPORTANT- In order to confirm your attendance and participation in this course, you must complete the Mandatory Attendance Quiz AND the Introductions discussion activity before the participation deadline. Please note that failure to complete these activities may result in you being removed from the course.

Participation dates for the term can be found in the News widget on your course homepage or at the following URL: <https://ecore.usg.edu/courses/calendar/index.php>. BOTH of these activities are required and can be found within the Course Content's Start folder.



The screenshot shows a course interface with two main sections: 'Mandatory Attendance Quiz' and 'Introductions'. The 'Introductions' section contains the following text:

To complete this assignment, introduce yourself to the class. This will allow you to get to know the people you are in class with quickly.

After you post your introduction, be sure to read the introductions of your peers and respond to at least two of them.

Participation in this discussion activity is mandatory and will help fulfill one of your attendance requirements. If you haven't already done so, be sure to also attempt the Mandatory Attendance Quiz.

Course Credit Compliance

This course is delivered online except for two face-to-face proctored exams (a mid-term and a final exam) and the completion of at-home experimental data collection and analysis. This requires the online equivalent of 3000 minutes of instruction plus an additional 4500 minutes of supporting activities. As such, you will be completing the following online activities during this course (times are approximate):

| Component | Instruction Time |
|---|------------------|
| Discussion Postings | 300 minutes |
| Virtual meetings/chat or audio & video | 600 minutes |
| Course Content Facilitation | 600 minutes |
| Experimental data collection and laboratory reports | 600 minutes |
| On-line Quizzes | 600 minutes |
| Proctored Exams | 300 minutes |

It is anticipated that students will need to work independently for twice the number of minutes listed above to complete the online activities.

Time Commitment

Taking an online course is not easier or faster. On the contrary, it will take as much time as taking a face-to-face class or more. If you normally go to class 3 hours per week per course, you will need to devote that same amount of time to your online course. In

addition to online time, you should spend time studying and working with course materials several hours per week offline. It will be helpful to set aside regular study time when you can work uninterrupted. Offline time could be spent in composing messages to post online, reading, studying, and working homework problems.

The amount of time it will take you to complete the work for the course will depend on many factors, which will vary with each individual. Students can expect to spend anywhere from 8 - 15 hours per week on this course. Consult the course Calendar and your instructor to be sure you are on schedule, keeping up with the material and taking quizzes on time.

As a general rule in this course, you will be expected to

- Log in regularly to check messages from your instructor and other students.
- Check the Calendar for announcements from your instructor.
- Study, read online materials, and work all assigned problems for each lesson.
- Complete all course work and assignments in the time allowed.

Course Information

Course Description

Principles of Physics I and Laboratory is a 4 semester credit hour introductory course which will include material from mechanics, thermodynamics and waves. Elementary differential calculus will be used. This course has a laboratory component that requires the purchase or acquisition of a limited amount of materials and equipment to complete the activities. Students enrolling in eCore lab science courses are advised to consult their transferring institution concerning the transferability of course credits.

Pre-requisites

- MATH 1501 – Calculus I (Differential Calculus)

Course Objectives

Upon completion of this course, you will be able to

1. Understand and apply the laws and concepts associated with physics by solving word problems.
2. Perform simple laboratories and reach appropriate conclusions.
3. Write clear, concise laboratory reports.
4. Represent data graphically by hand and computer.

Course Structure

The following Units and Lessons are included in this course:

- Unit 1: Measurement and Vectors
 - Lesson 1 - Measurement
 - Lesson 2 - Vectors
- Unit 2: Kinematics
 - Lesson 3 - One-dimensional Motion
 - Lesson 4 - Two-dimensional Motion
- Unit 3: Dynamics
 - Lesson 5 - Newton's Laws of Motion
 - Lesson 6 - Applications of Newton's Laws
- Unit 4: Vibrations and Waves
 - Lesson 7 - Vibrational Motion
 - Lesson 8 - Wave Motion
- Unit 5: Conservation Laws
 - Lesson 9 - Work and Energy
 - Lesson 10 - Impulse and Momentum
- Unit 6: Rotational Motion
 - Lesson 11 - Static Equilibrium
 - Lesson 12 - Rotational Motion
- Unit 7: Thermodynamics
 - Lesson 13 - Heat and Temperature
 - Lesson 14 - The Laws of Thermodynamics

Laboratory Experiments

The Physics 1211K Laboratory is designed to reinforce the principles and concepts learned in the course. The experiments provide an opportunity to investigate and test physical principles, and to reach appropriate conclusions based on data analysis. Hands-on experimental procedures result in an enhanced understanding of physics concepts through empirical observation. Students are required to completing ten out of the twelve experiments and encouraged to perform all twelve. The additional one or two lab reports will count as bonus points towards the final lab grade.

The lab grade will be based on completed data collection and the reasonableness of the results (more than one trial may be necessary in certain cases); the accuracy of computation and data analysis, and the graphical presentation of data when applicable; and the quality of written responses to Questions and conclusions drawn from the data.

Materials and Resources

Course Text

eCore has explored cost-reducing options for students and currently offers an open source text for this course. The term *open* implies information or technology that is shared freely without copyright restrictions.

The open text for this course allows students to read, download, and/or print the book at no cost. The textbook is embedded by chapter in the 14 lessons that constitute the course, but the full version can be accessed below.

| | |
|----------------|---|
| Title | <i>OpenStax College Physics</i> |
| Authors | Paul Urone and Roger Hinrichs, senior authors |
| Access | Web Access: http://cnx.org/contents/Ax2o07U1@9.33:HR_VN3f7@3/Introduction-to-Science-and-th |
| | PDF Access: https://d3bxy9euw4e147.cloudfront.net/oscms-prodms/media/documents/CollegePhysics-LR.pdf |
| Type | Required |
| License |  CC BY SA |
| | http://creativecommons.org/licenses/by-sa/3.0/us/legalcode |

Course Materials

This course has a laboratory component that requires you to purchase a lab kit and gather a list of household materials. More information can be found below, but you are encouraged to purchase the kit and begin gathering the additional materials as soon as possible. For PHYS 1211K, there are 3 options for collecting materials.

To conveniently order the materials:

URL: <http://www.testkitsupply.com/>

Username (case sensitive): ecore

Password (case sensitive): !studentkits123

- Once you have logged in, select "Place Order" (left menu)
- There are two options for Physics Kits:
 - For PHYS Specialty Kit (contains harder to find items), search EC-5302-KIT
 - For PHYS Kit (contains most items needed), search EC-5301-KIT
- To see all kits, select "Student Kits" (left menu)
- Enter "1" in the "Quantity" text box and click "Add"
- The kit will appear in your "Shopping Cart" on the left

- Select "Review Order" (below left menu) and input your billing and shipping information

To collect the necessary materials on your own, check out the following information:

- Free items

The following items can be obtained without purchase, although a store-bought ruler, protractor, or meter stick may be preferred.

| Item | Source | Note |
|----------------------------------|---|---|
| 30 cm Ruler | Paper 30 cm ruler pdf file | For best results, print the file on heavier paper such as card stock. |
| Protractor | Paper protractor pdf file | For best results, print the file on heavier paper such as card stock. |
| Meter-long Tape | paper cut-out meter tape pdf file | There are two meter-long measuring tapes per page. Cut out and tape together the sections carefully. The finished product can be attached to a yardstick or wooden slat to make a 'meter stick'. |
| Timer | Link to an on-line stopwatch | Choose the 'stopwatch' option. |
| Logger Pro Graphing Software | www.vernier.com | Your instructor will provide instructions for downloading and installing this software. Please watch the tutorial - How to use Logger Pro . |
| Sapling Learning homework system | Registration link | Your instructor will provide instructions for identifying the correct course section at Sapling Learning. Additional technical support can be obtained by emailing Support@Saplinglearning.com |

- Office Supplies

The following items can be purchased at any office supply store, or a store that has a Home and Office section. Examples are given.

| Item | Dollar Tree | Dollar General | Walmart |
|------------------|--|--|---|
| 30 cm Ruler | 'Jot' brand, 2-pk | DG brand, \$0.50 | plastic, \$0.32 |
| Protractor | 'Jot' brand, with a compass | | 'Fiskars' brand, \$2.97, with a compass |
| String or Thread | 'Craftsman's square' brand, thread 3-pk. | 'Sewing Patch' brand, thread 3-pk, \$1.00 | 'Prym' brand, sewing kit, \$1.00 |
| Paper Clips | 'Jot' brand, 250-ct | DG brand, \$1.00 | 'Casemate' brand, 100 ct, \$1.24 |
| Rubber Bands | 'Jot' brand, 3.5 oz | DG brand, \$1.00 | 'Advantage' brand, \$0.67 |
| Tape | 'Jot' brand, invisible | DG brand, \$1.00 | 'Casemate' brand, \$0.97 |
| Marbles | A bag of 50 marbles and a shooter | 'Imperial' brand, \$1.00 50 plus a shooter | |
| Slinky | plastic Magic Spring | plastic Rainbow Spring, \$1.00 | original metal slinky(TM) \$3.00 |

- Specialty Items

The following items are required for certain experiments but are less likely to be found locally or in a general store.

| Items | Source(s) | Note |
|-----------------------------|---|--|
| 0.5 N Spring Scale | Amazon purchase link | A spring scale is needed for five of the experiments, beginning with Lab #2. |
| Meter Stick/Yard Stick (x2) | Lowe's Purchase Link \$0.98 ea. Walmart \$1.42 ea. in the sewing section | Two yardsticks may be used to make a ramp by taping them together with a cardboard backing. A groove down the middle will guide the marble down the ramp. One yardstick is needed for Lab # 11. The meter-long measuring tape can be attached to a yard stick to make a 'meter stick'. |
| Slinky ^(TM) | Amazon Purchase Link | If a Slinky ^(TM) can't be found locally, here is a link to one at Amazon. |

- Common Items

Some of the experiments require common items typically found around the home. Special purchase is not required: for example, any small item about the size of a house key can be used to make a plumb bob.

| Item | Experiment(s) | Note |
|--------------------------------------|--|--|
| A small weight, such as a house key | <ul style="list-style-type: none"> Lab #1: Graphing Data Lab #10: Collisions in Two Dimensions | The weight attached to a string serves as a pendulum for Lab #1 and a plumb line for Lab # 10. |
| Thread or twist tie | <ul style="list-style-type: none"> Lab #2: Vector Addition | The thread is used to tie three rubber bands together. |
| Large-size book, at least 8.5" x 11" | <ul style="list-style-type: none"> Lab #2: Vector Addition | The book is the frame to stretch the rubber bands. |
| CD case or paperback book | <ul style="list-style-type: none"> Lab #5: Frictional Force | The case or book is dragged across a flat surface. |
| Three 12-oz plastic water bottles | <ul style="list-style-type: none"> Lab #5: Frictional Force Lab #9: Energy Conservation | The bottles are used as weights; other objects of similar mass may be used instead. |
| Medium-sized book | <ul style="list-style-type: none"> Lab #9: Energy Conservation | Any objects suitable for dragging against friction or hanging from a rubber band can be used. |
| Can of soda, paperback book, etc. | <ul style="list-style-type: none"> Lab #11: Static Equilibrium | Any object suitable for hanging may be used. |
| Any grocery item in a can | <ul style="list-style-type: none"> Lab #12: The Rolling Can | This is the rolling can. |

Bookstore

The eCore textbook listing and eCore bookstore information can be found here: <https://ecore.usg.edu/courses/textbooks.php>

Planet eCore

Visit the Planet eCore blog to read about eCore students, faculty, and trends in online education:

<http://planetecampus.blogspot.com/>.

Smarthinking Online Tutoring

Smarthinking is an online tutoring resource for eCore students providing assistance in Mathematics (basic Math through Calculus), Chemistry, Physics, Statistics, Spanish, and Writing. For login instructions, please refer to the [Smarthinking page](#) located within Course Resources or access Smarthinking directly using the  icon from the course navigation bar.

Grading, Standards and Evaluation

Grade Breakdown

| GRADED ACTIVITY | WEIGHT | PROCTORED? | BRIEF DESCRIPTION |
|----------------------------------|--------|------------|---|
| Discussions/Participation | 10% | | The quality of participation is evaluated according to the criteria established in the discussion guidelines. Participation is required in all guided and group discussions. |
| Homework | 25% | | There are ten homework assignments for the fourteen lessons; some assignments are per Lesson, others are per Unit. |
| Labs | 20% | | The lab grade will be based on the information supplied on the activity Report Sheet. The Report sheet should include complete and accurate measured data, complete and accurate calculations, reasonable responses to any questions asked as part of the activity, and logical conclusions based on data collected and physics principles. |
| Quizzes | 20% | | The quizzes at the end of each lesson are an excellent tool for self-assessment and extra practice and count as a percentage of the final grade. |
| Midterm Exam | 10% | Yes | The midterm exam will be proctored. You will be required to make arrangements to take the exam at a proctored site. Expect an announcement from your instructor concerning the exam and carefully review the Exams and Testing information on the eCore website. |
| Final Exam | 15% | Yes | The final exam will be proctored. You will be required to make arrangements to take the exam at a proctored site. Expect an announcement from your instructor concerning the exam and carefully review the Exams and Testing information on the eCore website. |

Proctored Exams

A proctored experience is required for successful completion of an eCore course. In courses requiring only one proctored exam, failure to take that exam will result in a failing grade for the course regardless of average of other grades.

Proctored exams are password protected exams taken at an approved testing center or testing service. Students are responsible for scheduling and taking their exams by the posted deadline. Students are also responsible for being aware of the conditions and policies under which the exam will be proctored and administered. Each testing center or service sets its own proctor cost.



On the Course Homepage, use the **Proctored Exam Setup Widget** to view available proctored exams for the course, register for an exam, view an exam's duration, and view the list of allowed proctored material.

Grade Turnaround

All assignments and assessments will be graded within one week's time. The instructor will provide comments along with your grade as necessary for feedback. All emails will be answered within 24 hours during the week and within 48 hours during the weekend.

Grade Scale

Grades are based on student performance and capability. Simply turning in all the assignments does not guarantee that the student will receive a "good grade." To receive a higher grade, a student must demonstrate proficiency in the material. For different students, gaining that proficiency requires different levels of work, because not all students walk into the class with the same aptitude for the course content. The standards for the respective grades are as follows:

- A: 90-100%
- B: 80-89%
- C: 70-79%
- D: 60-69%
- F: 0-59%

Expectations and Standards

A – To achieve this grade the student must display superior performance in his/her course work. This includes demonstrating the ability to process and comprehend complex ideas, and to be able to convey those ideas to others in a clear, intelligent manner. An "A" student will go beyond simple requirements and seek to excel in his/her preparation for and presentation of assigned work. He/she will demonstrate excellence in communication skills and the ability to contextualize material.

B – To achieve this grade the student needs to display above average performance in his/her course work, including demonstrating the ability to process and comprehend complex ideas, while being able to convey those ideas in a clear, intelligent manner. A "B" student will also go beyond minimum requirements in terms of preparation and presentation of assigned work. He/she will demonstrate above average communication skills and ability to contextualize material.

C – For this grade the student must meet the minimum requirements for the course, displaying adequate performance in his/her course work, and adequately demonstrate the ability to comprehend complex ideas, while also being able to convey those ideas in a like manner. A "C" student demonstrates competence in terms of preparation and presentation of assigned work. He/she will demonstrate adequate communication skills and ability to contextualize materials.

D – A student receiving this grade is performing below the minimum requirements for the course. This could include failure to complete or turn in assignments on a timely basis, or failure to adequately demonstrate the ability to comprehend or convey complex ideas. A "D" student performs below the average in terms of preparation and presentation of assigned work. He/she may not be demonstrating adequate communication skills or ability to contextualize materials.

F – A student receiving this grade has failed to meet the requirements of the course, including failure to complete or turn in assignments, or failure to demonstrate the ability to comprehend or convey complex ideas. An "F" student has not performed in a manner satisfactory to the standards of the class.

Late Policy

Late Assignments: xxxxxxxxxxx xxxxxxxxxxxxxxxxxxx xxxxxxxxxxxxxxxxxxxxxxx

Late Quizzes: xxxxxxxxxxx xxxxxxxxxxxxxxxxxxx xxxxxxxxxxxxxxxxxxxxxxx

Late Discussions: xxxxxxxxxxx xxxxxxxxxxxxxxxxxxx xxxxxxxxxxxxxxxxxxxxxxx

examination (unless specifically approved by the instructor). Other examples include intentionally allowing another student to view one's own examination and forbidden collaboration before or after an examination.

Unauthorized Collaboration

Submission for academic credit of a work product, developed in substantial collaboration with other person or source but represented as one's own effort, is unauthorized. Seeking and providing such assistance is a violation of academic honesty. However, collaborative work specifically authorized by an instructor is allowed.

Falsification

It is a violation of academic honesty to misrepresent material or fabricate information in an academic exercise, assignment or proceeding. Some examples of falsification are

- false or misleading citation of sources
- the falsification of the results of experiments or of computer data
- false or misleading information in an academic context in order to gain an unfair advantage.

Multiple Submissions

It is a violation of academic honesty to submit substantial portions of the same work for credit more than once without the explicit consent of the instructor(s) to whom the material is submitted for additional credit. In cases in which there is a natural development of research or knowledge in a sequence of courses, use of prior work may be desirable, or required. However, the student is responsible for indicating in writing, that the current work submitted for credit is cumulative in nature.

Evidence and Burden of Proof

In determining whether or not academic dishonesty has occurred, guilt must be proven by a preponderance of the evidence. This means that if the evidence that academic dishonesty occurred produces a stronger impression and is more convincing compared to opposing evidence, then academic dishonesty has been proven. In other words, the evidence does not have to be enough to free the mind from a reasonable doubt but must be sufficient to incline a reasonable and impartial mind to one side of the issue rather than to the other. Evidence, as used in this statement, can be any observation, admission, statement, or document that would either directly or circumstantially indicate that academic dishonesty has occurred. Electronic means may be used to monitor student work for the inappropriate use of the work of others.

Consult your eCore Student Guide at <https://ecore.usg.edu/current-students/student-guide/policies-and-procedures#student-academic-dishonesty-procedures> for further details on the eCore Academic Honesty Policy.

Technical Requirements and Assistance

Requirements:

Having a correctly configured computer will help ensure your success in eCore. Check the information at <http://ecore.usg.edu/prospective/techreqs.php> to be sure that your computer meets all the necessary technical requirements for hardware and software. Links to the plug-ins (special free software) that you will need are provided.

IMPORTANT: Please note that the simulations may not display properly on all devices. To confirm that you are using a Flash Certified Device, access the following link: <http://www.adobe.com/devnet-apps/flashruntimes/certified-devices.html>

Assistance:

For technical assistance contact the 24/hour helpline at <https://d2lhelp.view.usg.edu/> (scroll down to the Student Support area).

In addition, please contact the eCore Helpline at 678-839-5300.

Discover an Error?

If you discover a typo, broken image, or other error in your eCore course, use the [eCore Student Change Request Form](#) to report the required change. Once the form is submitted, an eCore staff member will contact you within 48 hours.

Please note that this form is NOT for grade related or instructor related complaints. To report this type of information, please access the [Student Complaint Policy](#) page on the eCore website.