



HOUSTON COMMUNITY COLLEGE NORTHWEST
SYLLABUS FOR PHYS 2125 Lab
SUMMER I 2012
Class Number 85615

Course Identification: PHYS 2125 - 2 Physics Laboratory I, CRN 85615

Time and location

3:00 – 7:25 PM TTH Spring Branch Campus, room 610.

Instructor

Office Hours: by appointment.

E-mail: g.brown@hccs.edu

Web site: Eagle Online (EO) web site for the course, available through the Online Courses link in the Connections menu on the HCC home page. Also, the Learning Web at <http://learning.hccs.edu/faculty/g.brown>.

Online Tutoring Link www.askonline.net.

Laboratory Manual: Individual experiment manuals are posted on the EO web site.

Course Catalog Description: For science and engineering majors. Selected experiments in technical physics. Core curriculum course. Credit 1 (lab 3)

Course Prerequisites/Co requisite: Physics 2325

Course Intent: This course is intended for students majoring in engineering, physical or life sciences, or for those who are intent on preparing themselves for higher level science courses in their chosen curricula. Experiments have been selected to reinforce the material presented in Physics 2325, which may be taken concurrently.

Course Content: Laboratory exercises (experiments) are performed as listed in the tentative schedule below. These experiments cover topics associated with Physics 2325. Topics covered are: motion, force, work, energy, impulse, momentum, gravity, rotational dynamics, oscillations, waves & sound. The purpose of the lab course is to support the topics covered in the corresponding lecture course. Labs on these topics may be conducted before being addressed in the lecture classroom. Most labs are “verification” labs – a few are “discovery” types. Students may not all do the same set of labs.

Student Learning Outcomes

Upon successful completion of this course the student should be able to

1. Design and perform experiments, collect and analyze data, and interpret results obtained in a laboratory setting.
2. Analyze, evaluate, and test a model or scientific hypothesis by comparing with experimental data.
3. Use scientific language to demonstrate an understanding of the difference between scientific and non-scientific interpretations of phenomena observed

Course Learning Outcomes

Upon successful completion of this course the student should be able to

- 1.1 Identify appropriate sources of information for conducting laboratory experiments.
 - 1.2 Design and/or conduct basic experiments involving principles of motion (mechanics).
 - 1.3 Demonstrate competency in the use of laboratory instrumentation, including computer tools for data collection.
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- 2.1 Relate physical observations and measurements involving mechanics to theoretical principles.
 - 2.3 Evaluate the precision of physical measurements and the uncertainties in measurements and calculations.
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- 3.1 Prepare laboratory reports that clearly communicate experimental information in a logical and scientific manner.

The laboratory course grade is determined by the average of all grades on laboratory reports. Each submitted laboratory report receives a grade between 0 to 100%. Missing laboratory reports receive a grade of 0%.

Letter Grading Scale:

A = 90 – 100% B = 80 – 89% C = 70 – 79% D = 60 – 69% F < 60%

Attendance: The HCCS attendance policy is stated in the HCC Schedule of Classes. A fast paced curriculum should be expected. Accordingly, regular class attendance is required; you cannot get credit for an experiment you did not perform during the class meeting time. Should a student miss a class for any reason, that student is responsible for all the materials covered during her/his absence. The instructor checks class attendance at each meeting. Although it is the student's responsibility to drop a course for non-attendance, the instructor has full authority to drop a student for excessive absences. (Dr. Brown will *not* administratively drop any student from this class.) For this course, absences are limited to two class-periods.

Other Information: Free physics tutoring may be made available. If so, a tutoring schedule will be posted in the laboratory room, and also posted the course Eagle Online web site.

Last Day for Administrative and Student Withdrawals: The last day for withdrawals is June 25, 2012. Please contact the instructor prior to

withdrawal. Jointly we may be able to arrive at a plan to help you succeed in the course.

NOTICE: Students who repeat a course three or more times may soon face significant tuition/fee increases at HCC and other Texas public colleges and universities. If you are considering course withdrawal because you are not earning passing grades, confer with your instructor/counselor as early as possible about your study habits, reading and writing homework, test-taking skills, attendance, course participation, and opportunities for tutoring or other assistance that might be available.

Disability Support Services (DSS): The HCCS is committed to compliance with the Americans with Disabilities Act and the Rehabilitation Act of 1973 (section 504). If you have any special needs or disabilities, which may affect your ability to succeed in college classes or participate in college programs/activities, please contact the office of disability support at the college. Upon documentation, you will be provided reasonable accommodations and/or modifications. Please contact the DDS office as soon as you begin the term.

Academic Honesty: Students are expected to conduct themselves with honor and integrity in fulfilling course requirements. The college may initiate Penalties and/or disciplinary proceedings against students accused of scholastic dishonesty. Possible punishments may include a grade of "0" on the particular assignment, failure in the course, and/or recommendation for probation or dismissal from the college system. "Scholastic dishonesty" includes, but is not limited to, cheating on a test, plagiarism, and collusion. The biggest temptation in this course will be copying other student's lab results. This practice results in penalties for both students.

HCCS Sexual Harassment Policy

HCC shall provide an educational, employment, and business environment free of sexual harassment. Sexual harassment is a form of sex discrimination that is not tolerated at HCC. Any student who feels that he or she is the victim of sexual harassment has the right to seek redress of the grievance. HCC provides procedures for reviewing and resolving such complaints through its Grievance Policy. Substantiated accusations may result in disciplinary action against the offender, up to and including termination of the employee or suspension of the student. In addition, complainants who make accusations of sexual harassment in bad faith may be subject to equivalent disciplinary action.

Important Dates:

Classes begin/system	June 4, 2012
Last date to Drop/Add/Swap	June 5, 2012
Official day of record	June 7, 2012

Last date for administrative and student withdrawals	June 25, 2012
Instruction Ends	July 3, 2012
Independence Day Holiday	July 4, 2012
Final Examination	July 5, 2012, 12:00 – 3:00 pm
Grades Due	July 9, 2012
Grades Available to Students	July 13, 2012

Laboratory Policy: The instructor will review General laboratory rules and safety instructions. Experiments are performed by teams of 2 to 4 students, with 3 team members being the optimal number. Each lab-report is due one week following the experiment period. Each report is graded on a 100-point (percentage) basis. Come on time and be prepared. Read the experiment before coming to class and complete any pre-lab questions. If you follow this practice, you will be much better organized when doing the experiments and your lab experience will be much more rewarding.

Lab Report Submissions:

Lab reports are due one week after completion of the laboratory period in which the experiment was performed. Any special report requirements particular to a specific experiment will be announced by the instructor at the beginning of the experiment.

Lab reports must be neat, well organized and readable. Online submission is encouraged, but not required. See instructions for online submission below. Printed or handwritten reports, with pages neatly stapled in order, are acceptable. **Neatness, literate expression and readability count.**

Online submissions must be in the form of a **single editable electronic file**, in one of the following formats: MS Word, Open Office Writer, Rich Text Format, or Mathematica. Tables or graphs may be created in other software (for example a spreadsheet) and imported into the report file. Multiple files for a single report are not acceptable. Image or PDF files are not acceptable. Online submissions must be attachments to EO email messages to the instructor.

Required Lab Report Format:

Cover Information – State the name of the experiment, the date of submission of the report, the name of the principal author of the report, and the names of all other team members.

Introduction - Describe the purpose of the lab. Include a short synopsis of the theory or phenomena being observed including relevant equations and definition of symbols. Derive the working equations for the experiment from the relevant basic general equations.

Procedure – Describe what your lab team actually did to set up and perform the experiment. (Your report is not a lab manual; do not state instructions for someone else to perform the experiment. Tell what *you* actually did.)

Data – Display the measurements that you obtained, usually in tabular form. Recorded data must make full advantage of the precision of the measuring instrument, must display the units of measurement, and display an estimated uncertainty for any quantities measured only once. *No calculated results can appear in the Data section of the report.* All calculations belong in the following section of the report.

Calculated Results – Describe the calculations performed to reach results, and display your calculations. For repeated calculations, show only a single representative sample calculation. Display the calculated uncertainty in all results, derived from the measurement uncertainties involved in the calculation. Make certain that all calculations are correctly performed in your report. Present your results in an appropriate form; the appropriate form may be a prose paragraph, it may be a table of calculated results, or it may be a graph, depending on the experiment.

Conclusions – Discuss your results, with particular attention to meeting the purpose of the laboratory experiment. Do your results agree or disagree with standard values or theoretical results? Identify and analyze any systematic errors you think may have existed in your experiment. Include answers to lab manual questions only as directed by your instructor.

Tentative Schedule of Laboratory Experiments:

(This schedule is subject to change to meet contingencies that may arise during the term.

The instructor often adds or changes questions to those printed in the lab manuals. Make certain you get any additional questions that need be addressed in the lab report.

Laboratory class time begins with a discussion by the instructor of the experiment. Teams are then formed, the Principal Author (PA) of the lab report chosen by the team, and the team member names reported to the instructor. The remainder of the class meeting is used to assemble the apparatus, perform the procedures and record data, and perform sample calculations for checking by the instructor.

Lab Reports are due one week after performance of the experiment. The PA leads the team in generating the report. All team members listed on the submitted report without asterisk receive the same grade for the report. Team members are responsible for adequate communication in analyzing and completing the report. The PA has the authority to asterisk the name of a member whose contribution was inadequate with a note justifying the asterisk. Coming late to the class meeting will automatically earn an

asterisk.)

Date	Exp. Name	Exp. Manual Location
June 5	Lab 1: Error Analysis <i>and</i> Lab 2: Measurements with Error Analysis	Physics-I-Lab-Manual.pdf
June 7	Lab 3: Adding and Resolving Vectors: the Force Table	Physics-I-Lab-Manual.pdf
June 12	Lab 4: Projectile Motion	Physics-I-Lab-Manual.pdf
June 14	Lab P07: Acceleration of Gravity	Pasco Lab Manual P07
June 19	Lab P10: Atwood Machine	Pasco Lab Manual P10
June 21	Lab P21: Kinetic Friction	Pasco Lab Manual P21
June 26	Lab P19: Work Energy Theorem	Pasco Lab Manual P19
June 28	Lab P26: Centripetal Force on a Pendulum Bob	Pasco Lab Manual P26
July 3	Lab P19 Due	Quiz on Conservation of Energy
July 5	Lab P26 Due	