General Physics I Laboratory  
PHYSICS 1105L – Fall 2021  
Laboratory Syllabus

GENERAL COURSE INFORMATION

Name and Department: Dr. Harry D. Downing, Professor of Physics and Regents Scholar, Department of Physics, Engineering and Astronomy

Instructor Homepage: http://faculty.sfasu.edu/downingharry/downing.htm

Office: Room 207M, Ed and Gwen Cole STEM Building

Student/Office Hours: M(11-12), T(1:00-2:00), W(12:30-1:30), R(11-11:50), F(12-1) or by appt.

Phone/Fax/E-mail: 468-2290 or 468-3001/Fax: 468-4448/hdowning@sfasu.edu

Laboratory Instructor/Supervisor: Mr. Collin Timmons, PHY, EGR & AST Dept.


Student/Office Hours/Office: M 3-6 pm, TR 2-4 pm, W 3-4 pm, or by appointment

Class Meeting Times and Place/Modality: 9:30-10:45 TR F2F

Physics Homepage: http://www.sfasu.edu/academics/colleges/sciences-math/physics-engineering-astronomy/academics/physics

Text: PHY 101 Laboratory Manual (only sold in local bookstores)

Lab meets in Room 214 Ed and Gwen Cole STEM Bldg. at the following times:

Mondays – Sec 21 (12:00-1:50), Sec 22 (2:00-3:50), Sec 23 (4:00-5:50)

Tuesdays – Sec 25 (12:30-2:20)

Wednesdays – Sec 30 (2:00-3:50)

Thursdays – Sec 33 (12:30-2:20), Sec 34 (2:30-4:20)

COURSE DESCRIPTION

1 semester hour, 2 hours lab per week. Lecture and laboratory grades are computed into one grade and the same grade is recorded for both lecture and lab. Co-requisite: PHYS 1305. Lab fee required.

The laboratory exercises and material covered in the associated lectures warrant this lecture and lab as being worthy of 4 semester hours credit.

PROGRAM LEARNING OUTCOMES

This is a general education core curriculum course and no specific program learning outcomes for the physics program are addressed in this course.

GENERAL EDUCATION CORE CURRICULUM

The Texas Higher Education Coordinating Board has identified six core learning objectives: Critical Thinking Skills, Communication Skills, Empirical and Quantitative Skills, Teamwork, Personal Responsibility, and Social Responsibility. SFA is committed to the improvement of its general education core curriculum by regular assessment of student performance on these six objectives.

By enrolling in PHYS 1105 Lab you are also enrolling in a Core Curriculum Course that fulfills the Empirical and Quantitative Skills requirement. You will see this course on your D2L list.

At one point during the semester, you will receive an assignment that fulfills both the requirements of this course and the needs of Stephen F. Austin State University’s Core Curriculum Assessment Plan with the Texas Higher Education Coordinating Board. When you complete this one assignment, you need to upload the assignment to both your standard course dropbox determined by your Instructor and the “Core Curriculum” dropbox. The Core Curriculum dropbox will be identified by the Objective for which work is being collected. (Examples: Critical
Thinking, Teamwork, Social Responsibility Empirical & Quantitative Skills, Personal Responsibility, Communication Skills-Written, Communication Skills-Written & Visual, and Communication Skills-Oral & Visual.) Please note that this only applies to the approved assignment. All other assignments should be submitted according to regular class operations. If you have any questions, please see your Instructor or the Office of Student Learning and Institutional Assessment.

When you complete the assignment mentioned above (if required), you will upload the assignment to both the PHYS 1105 Lab dropbox and the Empirical and Quantitative Skills dropbox.

Please note that this only applies to the specific assignment listed in the matrix below. All other assignments should be submitted according to regular class operations.

If you have any questions, please see your instructor or contact the Institutional Effectiveness Office at (936) 468-1130.

The chart below indicates the core objectives addressed by this course, the assignment(s) that will be used to assess the objectives in this course and uploaded to the D2L Empirical and Quantitative Skills dropbox this semester, and the date the assignment(s) should be uploaded to the D2L Empirical and Quantitative Skills dropbox. Not every assignment will be submitted for core assessment every semester. Your instructor will notify you which assignment(s) must be submitted for assessment in the D2L Empirical and Quantitative Skills dropbox.

<table>
<thead>
<tr>
<th>Core Objective</th>
<th>Definition</th>
<th>Course Assignment Title</th>
<th>Date Due in D2L</th>
</tr>
</thead>
<tbody>
<tr>
<td>Critical Thinking Skills (CO 1)</td>
<td>To include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information.</td>
<td>The Simple Pendulum Project</td>
<td></td>
</tr>
<tr>
<td>Communication Skills (CO 2)</td>
<td>To include effective development, interpretation and expression of ideas through written, oral, and visual communication.</td>
<td>The Simple Pendulum Project</td>
<td></td>
</tr>
<tr>
<td>Empirical and Quantitative Skills (CO 3)</td>
<td>To include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions.</td>
<td>The Simple Pendulum Project</td>
<td>For Fall 2021 No University Assessment</td>
</tr>
<tr>
<td>Teamwork (CO 4)</td>
<td>To include the ability to consider different points of view and to work effectively with others to support a shared purpose or goal.</td>
<td>The Simple Pendulum Project</td>
<td></td>
</tr>
</tbody>
</table>

The following core objectives will be covered periodically in PHYS 1105 laboratory:

**Critical Thinking:** to include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information, (CO 1)

**Communication Skills:** to include effective development, interpretation and expression of ideas through written, oral and visual communication, (CO 2)
Empirical and Quantitative Skills: to include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions, (CO 3)

Teamwork: to include the ability to consider different points of view and to work effectively with others to support a shared purpose or goal, (CO 4)

STUDENT LEARNING OUTCOMES:
By the end of the course, successful students will be able to:
1. Recognize that the world in which they exist can be described by a few natural laws, (SLO 1)
2. Demonstrate a basic familiarity with concepts of waves, sound, light, and mechanics, (SLO 2)
3. Describe natural phenomena in a conceptual manner rather than mathematically, (SLO 3)
4. Demonstrate skills developed in critical thinking, communication (written and visual), empirical and quantitative analysis, and teamwork, (SLO 4. Includes COs 1, 2, 3, 4)

TEXT: PHYS 1105 Laboratory Manual (only sold in local bookstores)

MATERIALS
Each student MUST bring the following supplies to every lab session.
1. Pencil and eraser
2. Laboratory Manual (PHYS 1105 only sold in local bookstores)
3. Calculator (bring to every lab!)
(If you do not bring the required supplies for a particular lab, you will not be able to complete the lab. Please don’t forget to bring them!)

COURSE REQUIREMENTS AND GRADING POLICY
1. As mentioned in the General Bulletin and in your lecture syllabus, your lecture and laboratory grades are computed into one grade, and the same grade is recorded both for your lecture credit (3 hours) and for your lab credit (1 hour). The lab accounts for 25% of this overall grade. Half of this 25% will come from the average of 10-12 lab exercises. The other half of this 25% will come from your lab final which you will take with your lecture final. This lab final constitutes a major portion of your overall grade in PHYS 1305 and 1105. (See lecture syllabus for further information.)
2. Graded lab reports will be returned to you either in person or via D2L. It is your responsibility to check your grades in order to identify errors. Upon the return of your graded reports, you have 10 days (2 days in the summer) from then to bring any errors noted to the attention of your laboratory assistant.
3. If you have obtained a permit from the chair of the Department of Physics, Engineering and Astronomy to take the lab only, then your PHYS 1105 lab grade (for one hour credit) will be determined thusly: 50% of the grade will be based on the lab experiment average and 50% of the grade will come from the lab final. (To qualify for taking the lab without the co-requisite lecture, one must already have credit for the lecture and permission of the department chair.)

ATTENDANCE POLICY/LAB ABSENCES
We realize that occasionally there are legitimate reasons for failing to submit reports on time such as illness, family emergency and participation in certain university-sponsored events. Please read the following absence policy carefully.
1. If you will be submitting a lab report late because of an approved university-sponsored event, you must inform the laboratory supervisor at least one week before the absence.
2. Students are responsible for providing timely documentation satisfactory to the laboratory supervisor for each report that is turned in late. You have one week after missing a deadline to submit an excuse to Mr. Timmons (Room 207H, Ed and Gwen Cole STEM Building, timmonscj@sfasu.edu) or Dr. Harry Downing (Room 207M, Ed and Gwen Cole STEM Building, hdowning@sfasu.edu). If you do not submit an excuse within one week, the late lab report cannot be accepted.
3. Students will receive a grade of zero for each UNEXCUSED late lab report. Students with five unexcused late lab reports or more will receive a WH or F in both the lecture course and the lab course.

4. A student is responsible for all course content whether they do all the experiments or not.

**Academic Integrity (4.1)**
Academic integrity is a responsibility of all university faculty and students. Faculty members promote academic integrity in multiple ways including instruction on the components of academic honesty, as well as abiding by university policy on penalties for cheating and plagiarism.

**Definition of Academic Dishonesty**
Academic dishonesty includes both cheating and plagiarism. Cheating includes but is not limited to (1) using or attempting to use unauthorized materials to aid in achieving a better grade on a component of a class; (2) the falsification or invention of any information, including citations, on an assigned exercise; and/or (3) helping or attempting to help another in an act of cheating or plagiarism. Plagiarism is presenting the words or ideas of another person as if they were your own. Examples of plagiarism are (1) submitting an assignment as if it were one's own work when, in fact, it is at least partly the work of another; (2) submitting a work that has been purchased or otherwise obtained from an Internet source or another source; and (3) incorporating the words or ideas of an author into one's paper without giving the author due credit.

Please read the complete policy at [http://www.sfasu.edu/policies/student-academic-dishonesty-4.1.pdf](http://www.sfasu.edu/policies/student-academic-dishonesty-4.1.pdf)

**Withheld Grades Semester Grades Policy (5.5)**
Ordinarily, at the discretion of the instructor of record and with the approval of the academic chair/director, a grade of WH will be assigned only if the student cannot complete the course work because of unavoidable circumstances. Students must complete the work within one calendar year from the end of the semester in which they receive a WH, or the grade automatically becomes an F. If students register for the same course in future terms the WH will automatically become an F and will be counted as a repeated course for the purpose of computing the grade point average.

**Students with Disabilities**
To obtain disability related accommodations, alternate formats and/or auxiliary aids, students with disabilities must contact the Office of Disability Services (ODS), Human Services Building, and Room 325, 468-3004 / 468-1004 (TDD) as early as possible in the semester. Once verified, ODS will notify the course instructor and outline the accommodation and/or auxiliary aids to be provided. Failure to request services in a timely manner may delay your accommodations. For additional information, go to [http://www.sfasu.edu/disabilityservices/](http://www.sfasu.edu/disabilityservices/).

**Student Code of Conduct: Policy 10.4**
Classroom behavior should not interfere with the instructor’s ability to conduct the class or the ability of other students to learn from the instructional program. Unacceptable or disruptive behavior will not be tolerated. Students who disrupt the learning environment may be asked to leave class and may be subject to judicial, academic or other penalties. This policy applies to all instructional forums, including electronic, classroom, labs, discussion groups, field trips, etc. The instructor shall have full discretion over what behavior is appropriate/inappropriate in the classroom. Students who do not attend class regularly or who perform poorly on class projects/exams may be referred to the iCare: Early Alert Program at SFA. Information regarding the iCare program is found at [http://www.sfasu.edu/judicial/earlyalert.asp](http://www.sfasu.edu/judicial/earlyalert.asp) or call the office at 936-468-2703.
Mental Health and Wellness
SFA values students’ mental health and the role it plays in academic and overall student success. SFA provides a variety of resources to support students' mental health and wellness. Many of these resources are free, and all of them are confidential.

On-campus Resources:
SFA Counseling Services
www.sfasu.edu/counselingservices
Rusk Building, 3rd Floor
936.468.2401

SFA Human Services Counseling Clinic
www.sfasu.edu/humanservices/139.asp
Human Services, Room 202
936.468.1041

Crisis Resources:
Burke 24-hour crisis line: 1.800.392.8343
Suicide Prevention Lifeline: 1.800.273.TALK (8255)
Crisis Text Line: Text HELLO to 741-741

Credit Hour Justification
Physics 1305 lecture part carries 3 credits and meets for 115 minutes 4 days each week for 5 weeks. The co-requisite laboratory part of the lecture meets 1 hour and 50 minutes 3 days each week for 4 weeks. The lecture portion will receive 3 hours of credit and the co-requisite lab will receive 1 hour of credit. The grades for the lecture and lab portions of the course are combined as one grade and the same grade is recorded for the lecture credit (3 hours) and the lab credit (1 hour). To enhance their critical thinking and quantitative reasoning, students are provided with the list of the reading materials which include outside assignments and a number of problems from each chapter throughout the semester. At the conclusion of each chapter (every week), every problem will be presented with feedback from students. Four exams (including final) are given to the students during the semester in order to measure their understanding of the covered materials. Students are expected to prepare prior to each lecture and lab (literature and concepts), conduct assigned lab experiments), and provide a finished lab report. These activities, inclusive of lab expectations, average at a minimum 30 hours of work each week beyond classroom lecture and laboratory hours.
LABORATORY COURSE CALENDAR

(PowerPoint Introductions to all labs are in D2L)
(All experiments relate to SLOs 1-4)

<table>
<thead>
<tr>
<th>Week of</th>
<th>Experiment</th>
<th>Week of</th>
<th>Experiment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aug 30</td>
<td>Superposition of Waves (CO 3)*</td>
<td>Oct 11</td>
<td>Telescopes</td>
</tr>
<tr>
<td>Sep 6</td>
<td>The Vibrating String</td>
<td>18</td>
<td>Graphing</td>
</tr>
<tr>
<td>13</td>
<td>The Organ Pipe</td>
<td>25</td>
<td>The Simple Pendulum Project†</td>
</tr>
<tr>
<td>20</td>
<td>Types of Spectra</td>
<td>Nov 1</td>
<td>Addition of Vectors</td>
</tr>
<tr>
<td>27</td>
<td>The Ray Box: Part One</td>
<td>8</td>
<td>Linear Momentum</td>
</tr>
<tr>
<td>Oct 4</td>
<td>The Ray Box: Part Two</td>
<td>15</td>
<td>Centripetal Force</td>
</tr>
</tbody>
</table>

*Instruction on how to correctly collect and analyze scientific data will begin here and will continue throughout the laboratory experience. By the time you get to The Simple Pendulum Project you will have adequate development of empirical and quantitative skills to satisfactorily complete the project.

†This experiment is more comprehensive than the others and may count as 25% of the lab experiment grade (your lab assistant will provide more information). It is designed to allow students to demonstrate their skills in critical thinking, communication, empirical and quantitative analyses, and teamwork. Students will have two weeks to complete a formal report using word processors and spreadsheets, and the formal report (hardcopy) must submitted to the lab assistant for grading. More instructions will be given by the laboratory assistant. This project will not be done this semester.

Note: Your lab final exam will be given during your lecture final exam.

CLASSROOM/COURSE POLICIES
CLASSROOM POLICIES (when face-to-face)
Masks (cloth face coverings) must be worn over the nose and mouth at all times in this class and appropriate physical distancing must be observed. Students not wearing a mask and/or not observing appropriate physical distancing will be asked to leave the class. All incidents of not wearing a mask and/or not observing appropriate physical distancing will be reported to the Office of Student Rights and Responsibilities. Students who are reported for multiple infractions of not wearing a mask and/or not observing appropriate physical distancing may be subject to disciplinary actions.
There are PowerPoint video explanations of each lab in D2L and should be viewed prior to beginning an experiment. Important instructions, theory, and procedures for completing the lab exercise are given in those shows. A lab assistant can be accessed by email. Since students will be doing the experiments at different times, don’t expect immediate assistance by email. Lab reports will be due in a D2L Dropbox the day after the experiment is listed in the calendar above. No late reports will be accepted without the consent of the lab supervisor, Mr. Timmons or Dr. Downing.
Student Code of Conduct: Policy 10.4
Classroom behavior should not interfere with the instructor’s ability to conduct the class or the ability of other students to learn from the instructional program. Unacceptable or disruptive behavior will not be tolerated. Students who disrupt the learning environment may be asked to leave class and may be subject to judicial, academic or other penalties. This policy applies to all instructional forums, including electronic, classroom, labs, discussion groups, field trips, etc. The instructor shall have full discretion over what behavior is appropriate/inappropriate in the classroom. Students who do not attend class regularly or who perform poorly on class projects/exams may be referred to the iCare: Early Alert Program at SFA. Information regarding the iCare program is found at http://www.sfasu.edu/judicial/earlyalert.asp or call the office at 936-468-2703.