**GENERAL PHYSICS I (PHYSICS 1305)**

**PHYSICS 101 SEC. 3**

**FALL 2019**

INSTRUCTOR: Ali A. Piran, apiran@sfasu.edu Tel: 468-2391

OFFICE: Room 207 J STEM Building

OFFICE HOURS: 8am-9am, 2pm – 3pm M; 2:30pm-3:30pm T, 9am-10am, 3:00 pm - 4:00 pm W, 8am-9am TH: or by appointment

DEPARTMENT OF Physics, Engineering and Astronomy

MEETING TIME: 11:00 am-12:15 pm T-TH, Miller Science room 334


LAB MANUAL: Phsics 101 lab manual (fall 2019) - STEM Room 214

**COURSE REQUIREMENTS**

The objective of this course is to introduce the basic concepts of sound, light, and mechanics with a minimum of mathematics utilized.

All exams are multiple choices (about 40-50 questions per exam) and require Scantron 882-E.

The total possible points are 800. The Grading Scale is below:

<table>
<thead>
<tr>
<th>Points</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>150</td>
<td>A</td>
</tr>
<tr>
<td>150</td>
<td>B</td>
</tr>
<tr>
<td>150</td>
<td>C</td>
</tr>
<tr>
<td>150</td>
<td>D</td>
</tr>
</tbody>
</table>

800 Total Points + bonus points to determine semester grade

**Physics 101 Laboratory Exam will be given on Dec 5 in lecture room 334 (Miller Science)**

11:00am – 12:15 pm

Lecture and laboratory grades are computed into one grade, and the same grade is recorded for both lecture and laboratory.

The final grade will be assigned according to the following scale:

<table>
<thead>
<tr>
<th>Points</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>720-800</td>
<td>A</td>
</tr>
<tr>
<td>640-719</td>
<td>B</td>
</tr>
<tr>
<td>560-639</td>
<td>C</td>
</tr>
</tbody>
</table>

Possible errors made in examination scoring must be discussed within one week of the date the result of the examination is posted.

No corrections will be made to the examination grade after that period of time.

No make-up exams will be offered; however, with a written excused absence, a make-up exam may be given (with the instructor’s discretion) or the final exam may substitute for one missed exam. You must discuss this method with your instructor within one week of the missed exam.

The date and the time of the Final Exam cannot be altered. The Final Exam must be taken at the Same Date and Same Time as indicated in class Syllabus (University Calendar).

**GOOD LUCK!**
Course Description

GENERAL PHYSICS I – (PHYSICS 1305) OR PHYSICS 101

General Bulletin Description: Presentation with a minimum of mathematics of the basic concepts of mechanics, light, and sound; May not be used to meet graduation requirements by students majoring in the College of Sciences and Mathematics. Computation of lecture and laboratory grades into one grade; same grade recorded for both lecture and laboratory. This course presents a broad survey of the principles of wave motion, sound, light, and mechanics and will illustrate the logic and reasoning upon which these principles are based. A great deal of emphasis is placed on the understanding of these concepts. Students should become more aware of the fantastic natural phenomena that are occurring around them everyday. Co-requisite: PHY 101L.

Course Calendar:

Chapter 19  Vibrations and waves  (one week)
Chapter 20  Sound  (one week)
Chapter 21  Musical Sounds  (one week)

OUTSIDE ASSIGNMENT #1 (Sonic Boom)

Exam I  (Chapters 19, 20, 21)  Sept. 19

Chapter 26  Properties of Light  (one – half week)
Chapter 30  Light Emission  (one week)
Chapter 27  Color  (one week)
Chapter 28  Reflection and Refraction  (one week)
Chapter 29  Light waves  (one week)

OUTSIDE ASSIGNMENT #2 (Electromagnetic Spectrum)

Exam II  (Chapters 26, 27, 28, 29, 30)  Oct. 24

Chapter 2  Newton’s First Law of Motion  (one-half week)
Chapter 3  Linear Motion  (one week)
Chapter 4  Newton’s Second Law of motion  (one week)
Chapter 5  Newton’s Third Law  (one half week)

OUTSIDE ASSIGNMENT #3 (Newton’s laws of Motion)

Exam III  (chapters 2, 3, 4, 5)  Nov. 12

Chapter 6  Momentum  (one -half week)
Chapter 7  Energy  (one- half week)
Chapter 8  Rotational Motion  (one week)
Chapter 9  Gravity  (one half week)

OUTSIDE ASSIGNMENT #4 (Course Evaluation)

Final Exam  (chapters 6, 7, 8, 9)  Dec. 12 (10:45 am-1:15 pm)
Physics 101 lecture part carries 3 credits and meets for 150 minutes each week for 15 weeks. The co-requisite laboratory part of the lecture meets 1 hour and 50 minutes each week for 12 weeks plus meets for a 2-hour final examination. 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), attend lab hours (conduct experiments), and provide a finished lab report. These activities, inclusive of lab expectations, average at a minimum 10 hours of work each week beyond classroom lecture and laboratory hours.

Course Calendar (Lecture) (All text material covered relates to COs are individually noted):

<table>
<thead>
<tr>
<th>Week</th>
<th>Topics Covered</th>
</tr>
</thead>
<tbody>
<tr>
<td>Week 1</td>
<td>Course Introduction&lt;br&gt;<strong>Lecture and assigned reading on critical thinking in physics (CO 1)</strong>&lt;br&gt;Vibrations and Waves&lt;br&gt;<strong>Instructor led discussion on critical thinking (CO 1)</strong></td>
</tr>
<tr>
<td>Week 2</td>
<td>Vibrations and Waves&lt;br&gt;Sound</td>
</tr>
<tr>
<td>Week 3</td>
<td>Sound&lt;br&gt;<strong>Lecture and instructor led discussion on written and visual communications (CO 2)</strong>&lt;br&gt;Musical Sounds</td>
</tr>
<tr>
<td>Week 4</td>
<td>Musical Sounds&lt;br&gt;Homework Assignment 1 Due&lt;br&gt;<strong>Exam 1</strong></td>
</tr>
<tr>
<td>Week 5</td>
<td>Properties of Light&lt;br&gt;Light Emission</td>
</tr>
<tr>
<td>Week 6</td>
<td>Light Emission&lt;br&gt;<strong>Lecture and assigned reading on teamwork (CO 4)</strong>&lt;br&gt;Color-Color Wheel&lt;br&gt;<strong>Instructor led discussion on teamwork (CO 4)</strong></td>
</tr>
<tr>
<td>Week 7</td>
<td>Reflection and Refraction</td>
</tr>
<tr>
<td>Week 8</td>
<td>Light Waves</td>
</tr>
<tr>
<td>Week 9</td>
<td>Homework Assignment 2 Due&lt;br&gt;<strong>Exam 2</strong>&lt;br&gt;Newton’s First Law of Motion - Inertia</td>
</tr>
<tr>
<td>Week 10</td>
<td>Linear Motion&lt;br&gt;Newton’s Second Law of Motion&lt;br&gt;<strong>Instructor led discussion on Empirical and Quantitative Skills (CO 3)</strong></td>
</tr>
<tr>
<td>Week 11</td>
<td>Newton’s Second Law of Motion&lt;br&gt;Newton’s Third Law of Motion</td>
</tr>
</tbody>
</table>
### 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 **General Physics I (PHY 1305) or Physics 101**, you are also enrolling in a Core Curriculum Course that fulfills the **CORE OBJECTIVE** requirement.

The following **Core Objectives** will be covered periodically in Physics 101 Lecture.

**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)

You will see this course on your D2L list.

At one point during the required 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, you will upload the assignment to both the General Physics I (PHY 1305) or Physics 101 dropbox and the Core Curriculum 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. 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 dropbox.

Include only the core objectives taught in this course and indicate which objectives are being formally assessed in this semester.

<table>
<thead>
<tr>
<th>Core Objective</th>
<th>Definition</th>
<th>Course Assignment Title</th>
<th>Date Due in D2L-Dropbox</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>Fall 2019 No University Assessment</td>
</tr>
<tr>
<td>Communication Skills (CO 2)</td>
<td>To include effective development, interpretation and expression of ideas though written, oral, and visual communication.</td>
<td>The Simple Pendulum Project</td>
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</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>
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</tr>
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<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>
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</tr>
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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)

Grading Policy:
All exams are multiple choices (about 40-50 questions per exam) and require Scantron 882-E.
The total possible points are 800. The Grading Scale is below:

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<tr>
<th>Points</th>
<th>Component</th>
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<td>150</td>
<td>Lecture Exam #1</td>
</tr>
<tr>
<td>150</td>
<td>Lecture Exam #2</td>
</tr>
<tr>
<td>150</td>
<td>Lecture Exam #3</td>
</tr>
<tr>
<td>150</td>
<td>Final Lecture Exam</td>
</tr>
<tr>
<td>200</td>
<td>Lab Experiments + Lab Exam final</td>
</tr>
<tr>
<td><strong>800</strong></td>
<td>Total Points + bonus points to determine semester grade</td>
</tr>
</tbody>
</table>

The final grade will be assigned according to the following scale:
720-800 A  640-719 B  560-639 C  480-559 D  000-479 F

Attendance Policy:

The class attendance is the responsibility of each student. All students are expected to attend class regularly. Poor attendance may affect your understanding of the materials and ultimately your grade in course. There is no penalty for those who miss classes; however those who attend each class period will be rewarded one bonus point which is added to the 800 points scale. Those students with a minimum or zero attendance will be seated in front of the classroom on a designated seats provided by the instructor during each examination (exam I, exam II, exam III, and the final exam).
If you are late to class or must leave early, please inform your instructor in advance. Cell phones, pagers and other communication devices must be turned off during class. A simple calculator is needed for the examinations. Calculators that store a fair amount of information are not permitted. Cell Phone can not be used as calculator.
Make sure you always use your SFA e-mail account for network correspondence.

ACADEMIC INTEGRITY (A-9.1)

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/academic_integrity.asp](http://www.sfasu.edu/policies/academic_integrity.asp)

**Withheld Grades Semester Grades Policy (A-54)**

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 [https://www.sfasu.edu/judicial/earlyalert.asp](https://www.sfasu.edu/judicial/earlyalert.asp) or call the office at 936-468-2703.

**Student Counseling Center**

Rusk Building 3rd Floor  
(936) 468 -2401  
Email: counseling@sfasu.edu

The Student Counseling Center is available free of charge to students and is staffed with professional therapists to meet a variety of needs. All interactions with the Student Counseling Center are guaranteed confidential. Licensed Counselors are available from 8:00a.m.-5:00p.m. Monday -Friday. The department is closed on certain holidays, Spring Break and Winter Break when the university is closed. If you are in need of assistance after hours or on the weekend please call: University Police: (936)468-2608 or MHMR Crisis Line: (800)392 -8343. If the situation is life threatening please dial 911.