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, Cole STEM Building
Student/Office Hours: 2-3 M&R, 10-11 T, 3-4 W&F,
or by appointment/207M Cole STEM Bldg (Make an Appointment)
Phone/Fax/E-mail: 468-2290 or 468-3001/Fax: 468-4448/hdowning@sfasu.edu
Class Meeting Times and Place/Modality: 11-11:50 MWF, STEM 103/HYLVF
Physics Homepage: http://www.sfasu.edu/academics/colleges/sciences-math/physics-engineering-astronomy/academics/physics
Texts and Accessories/Materials: Conceptual Physics 13th Edition by Paul G. Hewitt and
PHYS 1105 Lab Manual (sold only in local bookstores)

Course 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
(except for students majoring in Computer Information Systems, Data Analytics, or Information
Technology). Lecture and laboratory grades are computed into one grade and the same grade is recorded for
both lecture and lab. Co-requisite: PHYS 1105L.

The material covered and the associated laboratory exercises warrant this lecture and lab as being worthy of
4 semester hours credit according to SFA Policy 5.4. See below.

Program Learning Outcomes (PLOs)
This is a general education core curriculum course and no specific program learning outcomes for this major
are addressed in this course.

Student Learning Outcomes (SLOs):
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.)
Course Requirements:
♦ Students are required to study the following chapters from the course text: 19-21 (Exam 1), 26, 30, 27-29 (Exam 2), 2-6 (Exam 3), 7-10 (Final Exam). (SLOs 1-3 supported here.)
♦ Students will complete at most 12 laboratory exercises in the co-requisite lab and take a final exam over them at the end of the semester. (SLOs 1-4 supported here [4 includes COs 1-4].)
♦ Homework assignments might be given during the semester and, if assigned, each will be due prior to a major exam. These assignments will reinforce the material to be covered on each exam and will serve as bonus points in the course. Other exercises to be named will provide bonus points as well. (SLOs 1-3 supported here.)
♦ There will be four major tests including the final (50 multiple choice questions per exam). These exams will be given face to face. Students should become familiar with the policies on cheating and plagiarism (Policy 4.1) at http://www.sfasu.edu/policies/student-academic-dishonesty-4.1.pdf.
♦ Make-up of major exams will be available to those students who have excused absences as defined by Policy 6.7, http://www.sfasu.edu/policies/class-attendance-6.7.pdf.
♦ For each student, lecture and lab scores will be combined to determine the overall grades in PHYS 1305 and 1105. Each student will then receive this overall grade for both lecture and lab.
♦ A maximum of 40 bonus points will come from the homework, other assigned exercises, and attendance.
♦ PHYS 1105 lab is a co-requisite to PHYS 1305. (New editions of the lab manual are available in local bookstores.)

Attendance/Participation Policy:
Students are expected to view any lectures placed on D2L and perform all laboratory exercises as instructed. In general, absences, such as missing an exam, or failures to submit assignments on time can be excused for reasons including illness, family emergency or participation in certain university-sponsored events. Absences from exams and laboratory exercises are the only absences that require documentation. Bonus points are used to encourage class participation in class assignments. Make-up exams will be given to those who have excused absences.

Grading Policy:
Each student’s grade is based on an 800-point scale. These points come from four major exams worth 150 points each for a total of 600 points. The lab experiment average is worth 100 points. The lab final (given with the lecture final) is worth 100 points. This gives a total of 800 points possible in the course. (For each student, lecture and lab scores will be combined to determine an overall grade in PHYS 1305. Each student will then receive this overall grade for both lecture and lab.) The homework, class attendance and participation combine for a total of 40 bonus points. The grading scale is

720-800 – A
640-719 – B
560-639 – C
480-559 – D
0-479 – F
Academic Integrity
The Code of Student Conduct and Academic Integrity outlines the prohibited conduct by any student enrolled in a course at SFA. It is the responsibility of all members of all faculty, staff, and students to adhere to and uphold this policy.

Articles IV, VI, and VII of the new Code of Student Conduct and Academic Integrity outline the violations and procedures concerning academic conduct, including cheating, plagiarism, collusion, and misrepresentation. Cheating includes, but is not limited to: (1) Copying from the test paper (or other assignment) of another student, (2) Possession and/or use during a test of materials that are not authorized by the person giving the test, (3) Using, obtaining, or attempting to obtain by any means the whole or any part of a non-administered test, test key, homework solution, or computer program, or using a test that has been administered in prior classes or semesters without permission of the Faculty member, (4) Substituting for another person, or permitting another person to substitute for one’s self, to take a test, (5) Falsifying research data, laboratory reports, and/or other records or academic work offered for credit, (6) Using any sort of unauthorized resources or technology in completion of educational activities.

Plagiarism is the appropriation of material that is attributable in whole or in part to another source or the use of one’s own previous work in another context without citing that it was used previously, without any indication of the original source, including words, ideas, illustrations, structure, computer code, and other expression or media, and presenting that material as one’s own academic work being offered for credit or in conjunction with a program course or degree requirements.

Collusion is the unauthorized collaboration with another person in preparing academic assignments offered for credit or collaboration with another person to commit a violation of any provision of the rules on academic dishonesty, including disclosing and/or distributing the contents of an exam.

Misrepresentation is providing false grades or résumés; providing false or misleading information in an effort to receive a postponement or an extension on a test, quiz, or other assignment for the purpose of obtaining an academic or financial benefit for oneself or another individual or to injure another student academically or financially.

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 coursework 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 to compute the grade point average. For additional information, go to https://www.sfasu.edu/policies/course-grades-5.5.pdf.

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 promptly may delay your accommodations. For additional information, go to http://www.sfasu.edu/disabilityservices/.
Student Wellness and Well-Being
SFA values students’ overall well-being, mental health and the role it plays in academic and overall student success. Students may experience stressors that can impact both their academic experience and their personal well-being. These may include academic pressure and challenges associated with relationships, emotional well-being, alcohol and other drugs, identities, finances, etc.

If you are experiencing concerns, seeking help, 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:
The Dean of Students Office (Rusk Building, 3rd floor lobby)
www.sfasu.edu/deanofstudents
936.468.7249
dos@sfasu.edu

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

The Health and Wellness Hub “The Hub”
Location: corner of E. College and Raguet St.

To support the health and well-being of every Lumberjack, the Health and Wellness Hub offers comprehensive services that treat the whole person – mind, body and spirit. Services include:

- Health Services
- Counseling Services
- Student Outreach and Support
- Food Pantry
- Wellness Coaching
- Alcohol and Other Drug Education

www.sfasu.edu/thehub
936.468.4008
thehub@sfasu.edu

Crisis Resources:
- Burke 24-hour crisis line: 1.800.392.8343
- National Suicide Crisis Prevention: 9-8-8
- Suicide Prevention Lifeline: 1.800.273.TALK (8255)
- johCrisis Text Line: Text HELLO to 741-741
Course Contact Hours and Study Hours
Physics 1305 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 earn you 3 hours of credit and the co-requisite lab will
earn 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 video and lab
(literature and concepts), attend lab hours (conduct experiments/analyze data provided), 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.

General Education Core Curriculum
The Texas Higher Education Coordinating Board has identified six core learning objectives: Critical
Thinking Skills (CO 1), Communication Skills (CO 2), Empirical and Quantitative Skills (CO 3),
Teamwork (CO 4), 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 1305.001 you are also enrolling in a Core Curriculum Course that fulfills the
objectives listed in the following chart.
The chart below indicates: (a) The core objectives that are required to be taught in this course per the Texas
Higher Education Coordinating Board (THECB), (b) How the required core objectives will be addressed.
Include only the core objectives that must be addressed by this course in the first column. Examples of the
things that can be included in the final column are: Specific assignments, class module(s), chapter(s),
strategies, activities, and/or techniques that address the core objectives.
### Core Curriculum Objective Table

<table>
<thead>
<tr>
<th>Core Objective</th>
<th>Definition</th>
<th>How the Core Objective Will be Addressed.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Critical Thinking Skills</td>
<td>To include creative thinking, innovation, inquiry, and analysis, evaluation, and synthesis of information.</td>
<td>See next table</td>
</tr>
<tr>
<td>Communication Skills</td>
<td>To include effective development, interpretation, and expression of ideas through written, oral, and visual communication.</td>
<td>See next table</td>
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<tr>
<td>Empirical and Quantitative Skills</td>
<td>To include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions.</td>
<td>See next table</td>
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<tr>
<td>Teamwork</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>See next table</td>
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</table>
**Course Calendar (Lecture)** (All text material covered relates to SLOs 1-3) (COs are individually noted):

<table>
<thead>
<tr>
<th>Week</th>
<th>Topics Covered</th>
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</table>
| Week 1 | Course Introduction  
Lecture and assigned reading on critical thinking in physics (CO 1)  
Vibrations and Waves  
Instructor led discussion on critical thinking (CO 1) |
| Week 2 | Vibrations and Waves  
Sound |
| Week 3 | Sound  
Lecture and instructor led discussion on written and visual communications (CO 2)  
Musical Sounds |
| Week 4 | Musical Sounds  
Homework Assignment 1 Due  
Exam 1 |
| Week 5 | Properties of Light  
Light Emission |
| Week 6 | Light Emission  
Lecture and assigned reading on teamwork (CO 4)  
Color  
Instructor led discussion on teamwork (CO 4) |
| Week 7 | Reflection and Refraction |
| Week 8 | Light Waves  
Exam 2 |
| Week 9 | Homework Assignment 2 Due  
Newton's First Law of Motion - Inertia |
| Week 10 | Linear Motion  
Newton’s Second Law of Motion  
The Vibrating String Project begins in lab (SLO 4 and COs 1, 2, 3, 4) |
| Week 11 | Newton's Second Law of Motion  
Newton’s Third Law of Motion  
Momentum |
| Week 12 | Momentum  
Energy  
Homework Assignment 3 Due  
Exam 3 |
| Week 13 | Energy |
| Week 14 | Rotational Motion |
| Week 15 | Gravity  
Homework Assignment 4 Due  
Projectile and Satellite Motion |
| Week 16 | Final Exam Week – Exam 4 |

Each week you should spend about 6 hours reading the text before the livestream lecture or viewing the video lectures, taking notes in class and improving those notes by reading the text again. You should also study the review questions and exercises at the end of each chapter. A general “rule of thumb” is to study two hours outside of class for every hour spent in class.
Course Calendar (Laboratory):

LABORATORY COURSE CALENDAR
(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>Sep 4</td>
<td>Superposition of Waves</td>
<td>Oct 16</td>
<td>Telescopes</td>
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<tr>
<td>11</td>
<td>The Vibrating String</td>
<td>23</td>
<td>Graphing</td>
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<tr>
<td>18</td>
<td>The Organ Pipe</td>
<td>30</td>
<td>The Simple Pendulum</td>
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<tr>
<td>25</td>
<td>Types of Spectra</td>
<td>Nov 6</td>
<td>Addition of Vectors</td>
</tr>
<tr>
<td>Oct 2</td>
<td>The Ray Box: Part One</td>
<td>13</td>
<td>Linear Momentum</td>
</tr>
<tr>
<td>9</td>
<td>The Ray Box: Part Two</td>
<td>27</td>
<td>Centripetal Force</td>
</tr>
</tbody>
</table>

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

CLASSROOM POLICIES (when face-to-face)

For the benefit of your fellow students and your instructor, you are expected to practice common courtesy with regard to all course interactions.

For example:

- Be considerate toward your classmates and instructor and arrive to class on time.
- Do not leave class early and do not rustle papers in preparation to leave before class is dismissed.
- Avoid classroom distractions. Be attentive in class, stay awake, and do not read newspapers, etc.
- If you are late to class or must leave early, please inform your instructor in advance (enter or leave quietly, don’t walk across the front of the classroom (use the side aisles) and don’t walk in front of the projector).
- Cell phones and other communication devices must be turned off during class. Failure to do so could result in confiscation and loss of bonus points.
- Be kind and respectful to your fellow students and your teachers.

EMAIL COMMUNICATIONS

Make sure you always use your SFA e-mail account for network correspondence. Messages from your instructor will be sent to your SFA email account periodically. You may forward e-mail from your SFA e-mail address to another address of your choice. To do this, use this link: http://development.sfasu.edu/mysfa/o365/student/forwarding-email/

Variations Across Different Sections

Only minor variations exist across different sections of PHYS 1305. Some sections:

- Cover Chapter 2 and Chapter 10 together.
- Vary in the number of bonus points possible. The variation is from 40-60.
Student Code of Conduct: Policy 10.4 (when face-to-face)
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.

Hints for Success in Physics 1305 (when taken face-to-face)
✓ You will benefit much more from lecture if you read the text material before coming to class.
✓ Attend class and take notes. Don’t try to copy everything I say, write on the board, or show in slides or video. Leave enough space in your notes to complement them through a thorough reading of the text material. I generally present material in class in the same order as the text. This makes it easier for you to augment your notes.
✓ Make use of the material at the end of each chapter.
✓ As a test draws near, read the applicable chapters again a few days prior to the exam. On the night before an exam rely on your notes and the material at the ends of the chapters and try to attend the review session that I normally conduct.
✓ If you have problems trying to comprehend this material, please do not hesitate to come and visit with me. (During the pandemic, this can be done safely via Zoom.) I have truly enjoyed working with students, and often I have found that I am most effective with them when they have brought their questions and problems to me in my office.

✓ The most important things you can do are read the book and attend class and be attentive. Bring a copy of this syllabus to every class meeting.
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<th>MON</th>
<th>TUE</th>
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<tr>
<td>Aug. 22</td>
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<td>Intro &amp; Ch. 19</td>
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<td>Aug. 25</td>
<td>Ch. 19</td>
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<td>Sep. 4</td>
<td>Aug. 26</td>
<td>Aug. 27</td>
<td>Aug. 28</td>
<td>Aug. 29</td>
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<td>Ch. 20</td>
<td>Sep. 4</td>
<td>Sep. 5</td>
<td>Sep. 6</td>
<td>Sep. 7</td>
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<td>TEST 1</td>
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<td>Sep. 11</td>
<td>Sep. 12</td>
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<td>Chapter 19</td>
<td>Vibrations and Waves</td>
<td>Ch. 21</td>
<td>Ch. 22</td>
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<td>Sep. 18</td>
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<td>Sep. 20</td>
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<td>Sep. 26</td>
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<td>Oct. 30</td>
<td>Oct. 31</td>
<td>Nov. 1</td>
<td>Nov. 2</td>
<td>Nov. 3</td>
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<td>Nov. 6</td>
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<td>Nov. 8</td>
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<td>Dec. 13</td>
<td>Dec. 14</td>
<td>Dec. 15</td>
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<tr>
<td>Ch. 9</td>
<td>Final 10:30 - 12:30</td>
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**TEST 3**
- Chapter 2: Newton's First Law of Motion - Inertia
- Chapter 3: Linear Motion
- Chapter 4: Newton's Second Law of Motion
- Chapter 5: Newton's Third Law of Motion
- Chapter 6: Momentum
- Thanksgiving Break
- Thanksgiving Break
- Thanksgiving Break
- Thanksgiving Break

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**FINAL EXAM**
- Chapter 7: Energy
- Chapter 8: Rotational Motion
- Chapter 9: Gravity
- Chapter 10: Projectile and Satellite Motion