Mechanics and Heat  
PHY 131.001

James T. Adams, Ph.D.  
Assistant Professor, Department of Physics, Engineering and Astronomy  
207O STEM Building, (936) 468-2064, adamsjt4@sfasu.edu  
Office Hours: Tuesday thru Thursday, 1pm-3pm, or by appointment.  
Class meeting time and place: 103 STEM Building, TTH, 8:00-9:15 AM

Course Description:  
Study of the fundamental principles of mechanics and heat. Lecture and laboratory grades are computed into one grade, and the same grade is recorded for both lecture and lab. Prerequisites: MTH 138, or permission from the department chair. Corequisite: PHY 131L

Text and Materials:  
College Physics, Sears & Zemansky’s (Young, Adams, & Chastain), ISBN – 10 0134172531  
PHY 131 Lab Manual (produced by the Department of Physics, Engineering and Astronomy)

Grading Policy:  
The laboratory and lecture grades will be combined to form a single grade for both PHY131 and PHY131L as follows:

<table>
<thead>
<tr>
<th>Component</th>
<th>Weight</th>
<th>Grade Range</th>
<th>Grade</th>
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</thead>
<tbody>
<tr>
<td>Lab Portion</td>
<td>25 %</td>
<td>90-100 %</td>
<td>A</td>
</tr>
<tr>
<td>Exam 1, Chapters 1-3</td>
<td>15 %</td>
<td>80-89 %</td>
<td>B</td>
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<tr>
<td>Exam 2, Chapters 4-6</td>
<td>15 %</td>
<td>70-79 %</td>
<td>C</td>
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<td>Exam 3, Chapters 7-10</td>
<td>15 %</td>
<td>60-69 %</td>
<td>D</td>
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<tr>
<td>Final Exam, Comp, Chapters 11 &amp; 13-16</td>
<td>18 %</td>
<td>&lt; 60 %</td>
<td>F</td>
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<tr>
<td>Homework</td>
<td>12 %</td>
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Attendance Policy:  
If you are going to miss class for a university excused absence you should notify the instructor in advance in writing. It is your responsibility to make arrangements to make up any missed work. If you are sick it is your responsibility to abide by university guidelines in dealing with your absence. The final grade of any student will be dropped a letter grade for each unexcused absence over three. It is the responsibility of the student to provide documentation of any excused absence to Dr. Adams within one week of the absence. Failure to provide the documentation within one week of the absence will result in the absence being considered unexcused.

Course Requirements:  
♦ Students are required to study chapters 1-11 & 13-16 from the course text.  
♦ Students will complete 12 laboratory exercises in the co-requisite lab and take a final exam over them at the end of the semester. Labs will begin the week of Feb. 4th.  
♦ Homework assignments (math oriented problems that involve learned physics principles) will be given to illustrate the principles covered in lecture. Due dates will be provided with the assignments, and no late work will be accepted.  
♦ There will be four major tests including the final. All exams will be night exams, except for the final exam. Students should become familiar with the policies on cheating and plagiarism.
## Course Calendar:

<table>
<thead>
<tr>
<th></th>
<th>Physics 131</th>
<th></th>
<th>TR: 8:00-9:15</th>
<th>STEM103</th>
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<tbody>
<tr>
<td><strong>M</strong></td>
<td>131</td>
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<td>8:00-9:15</td>
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### January
- **JAN 21**: MLK
- **JAN 22**: Ch 1
- **JAN 23**: Ch 1
- **JAN 24**: Ch 1
- **JAN 25**: Ch 1

### February
- **FEB 28**: Ch 2
- **FEB 29**: Ch 2
- **FEB 30**: Ch 2
- **FEB 31**: Ch 2
- **FEB 01**: Ch 2
- **FEB 04**: Ch 3
- **FEB 05**: Ch 3
- **FEB 06**: Ch 3
- **FEB 07**: Ch 3
- **FEB 08**: Ch 3
- **FEB 11**: Ch 4
- **FEB 12**: Ch 4
- **FEB 13**: Ch 4
- **FEB 14**: Ch 4
- **FEB 15**: Ch 4
- **FEB 18**: Exam 1
- **FEB 19**: Ch 5
- **FEB 20**: Ch 5
- **FEB 21**: Ch 5
- **FEB 22**: Ch 5

### March
- **MAR 25**: Ch 6
- **MAR 26**: Ch 6
- **MAR 27**: Ch 6
- **MAR 28**: Ch 6
- **MAR 29**: Ch 6
- **MAR 30**: Ch 6
- **MAR 31**: Ch 6
- **MAR 01**: Ch 6
- **MAR 04**: Ch 7
- **MAR 05**: Ch 7
- **MAR 06**: Ch 7
- **MAR 07**: Ch 7
- **MAR 08**: Ch 7
- **MAR 11**: Ch 8
- **MAR 12**: Ch 8
- **MAR 13**: Ch 8
- **MAR 14**: Ch 8
- **MAR 15**: Ch 8
- **MAR 18**: Exam 2
- **MAR 19**: Ch 8
- **MAR 20**: Ch 8
- **MAR 21**: Ch 8
- **MAR 22**: Ch 8

### April
- **APR 01**: Ch 9
- **APR 02**: Ch 9
- **APR 03**: Ch 9
- **APR 04**: Ch 9
- **APR 05**: Ch 9
- **APR 08**: Ch 10
- **APR 09**: Ch 10
- **APR 10**: Ch 10
- **APR 11**: Ch 10
- **APR 12**: Ch 10
- **APR 15**: Exam 3
- **APR 16**: Ch 14
- **APR 17**: Ch 14
- **APR 18**: Ch 14
- **APR 19**: Ch 14
- **APR 22**: Ch 15
- **APR 23**: Ch 15
- **APR 24**: Ch 15
- **APR 25**: Ch 15
- **APR 26**: Ch 15

### May
- **MAY 29**: Ch 16
- **MAY 30**: Ch 16
- **MAY 31**: Ch 16
- **MAY 01**: Ch 16
- **MAY 02**: Ch 16
- **MAY 03**: Ch 16
- **MAY 06**: Ch 16
- **MAY 07**: Ch 16
- **MAY 08**: Ch 16
- **MAY 09**: Ch 16
- **MAY 10**: Ch 16
- **MAY 13**: Ch 16
- **MAY 14**: Ch 16
- **MAY 15**: Ch 16
- **MAY 16**: Ch 16
- **MAY 17**: Ch 16
- **MAY 18**: Ch 16
- **MAY 19**: Ch 16
- **MAY 22**: Ch 16
- **MAY 23**: Ch 16
- **MAY 24**: Ch 16
- **MAY 25**: Ch 16
- **MAY 26**: Ch 16

### Dates and Events
- **MLK**: Ch 1
- **Ch 1**: Models, Measurements and Vectors
- **Ch 2**: Motion Along a Straight Line
- **Ch 3**: Motion in a plane
- **Ch 4**: Newton's Laws of Motion
- **Exam 1**: Chs 1-3, 6-8 pm
- **Exam 2**: Chs 4-6, 6-8 pm
- **Ch 6**: Circular Motion and Gravitation
- **Ch 7**: Work and Energy
- **Easter**: Chs 7-10, 6-8 pm
- **Ch 8**: Momentum
- **Ch 9**: Rotational Motion
- **Ch 10**: Dynamics of Rotational Motion
- **Ch 13**: Fluid Mechanics
- **Ch 14**: Temperature and Heat
- **Ch 15**: Thermal Properties of Matter
- **Finals**: 8-10 am
Program Learning Outcomes:
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.

General Education Core Curriculum Objectives/Outcomes:

<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>
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<tr>
<td>Communication Skills (CO 2)</td>
<td>To include effective development, interpretation and expression of ideas though written, oral, and visual communication.</td>
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<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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<td>Teamwork (CO 4)</td>
<td>To include the ability to consider different points of view and to work</td>
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<tr>
<td>Personal Responsibility</td>
<td>To include the ability to connect choices, actions and consequences to ethical decision-making.</td>
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<tr>
<td>Social Responsibility</td>
<td>To include intercultural competence, knowledge of civic responsibility, and the ability to engage effectively in regional, national, and global communities.</td>
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</table>

Student Learning Outcomes:
By the end of the course, successful students will be able to:
1. Demonstrate the ability to apply Newton’s laws to the study of mechanical systems
2. Describe the laws of thermodynamics
3. Solve mechanics and thermodynamics problems using conservation principles
4. Demonstrate skills developed in critical thinking, communication (written and visual), empirical and quantitative analysis, and teamwork.
If you have any questions, please see your instructor or contact the Institutional Effectiveness Office at (936) 468-1130.

**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.