PHYS 2320 Introductory Mechanics (CRN 26088)

CRN: 26088  Term: Spring 2023  Prerequisite: MATH 1411 (may be taken concurrently with PHYS2320)

Lecture
Lecture hours: MW 9:00 am – 10:20 am  Location: PSCI 115
Instructor: Prof. Yun-Pil Shim  Office: PSCI 121A
E-mail: yshim@utep.edu
Office hours: By appointment

Course Description and Objectives
In this course, you will learn basic concepts of mechanics, dynamics of particles and rigid bodies using vectors and calculus, conservation of energy and momentum, and kinetic theory. These concepts form the foundation of the physical sciences and engineering branches.

1) Learn to reason qualitatively and logically about physics phenomena.
2) Learn physical concepts from concrete real-world examples.
3) Learn how to set up and solve problems applying concepts and mathematical tools learned in class.

Communication
The main communication method is the Blackboard announcement and email. Do NOT use the Course Messages in Blackboard. I am not checking it.
When you email me, include the following:
  Your name and UTEP ID
  The course name and CRN

Seminars (Workshops)
You need to sign up for one of the seminar courses.

<table>
<thead>
<tr>
<th>CRN</th>
<th>Day</th>
<th>Time</th>
<th>Location</th>
<th>TA</th>
</tr>
</thead>
<tbody>
<tr>
<td>26089</td>
<td>M</td>
<td>3:30pm-4:20pm</td>
<td>Education 318</td>
<td>TBA</td>
</tr>
<tr>
<td>26090</td>
<td>W</td>
<td>2:30pm-3:20pm</td>
<td>PSCI 222A</td>
<td>TBA</td>
</tr>
<tr>
<td>26107</td>
<td>T</td>
<td>2:30pm-3:20pm</td>
<td>Education 312</td>
<td>TBA</td>
</tr>
<tr>
<td>26108</td>
<td>R</td>
<td>12:30pm-1:20pm</td>
<td>Psychology 307</td>
<td>TBA</td>
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<tr>
<td>27415</td>
<td>R</td>
<td>3:30pm-4:20pm</td>
<td>Education 318</td>
<td>TBA</td>
</tr>
</tbody>
</table>

Seminars will begin in week 2 (week of January 23).

Lab for PHYS2320
If you signed up for the associated lab course (PHYS2120), the lab is managed independently. Any questions about the lab should be sent to the lab coordinator, Karla Carmona (kcarmona@utep.edu).
Miner Learning Center Tutoring Service

This course is supported by the Miner Learning Center (MLC) with complimentary tutoring services. Our tutor is Nick Lopez (nalopez8@miners.utep.edu). Watch for announcements on Blackboard for details.

Grade

Grading Policy:

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Syllabus exam</td>
<td>5%</td>
</tr>
<tr>
<td>Attendance</td>
<td>10%</td>
</tr>
<tr>
<td>Mid-term exam</td>
<td>20%</td>
</tr>
<tr>
<td>Final exam</td>
<td>25%</td>
</tr>
<tr>
<td>Homework</td>
<td>30%</td>
</tr>
<tr>
<td>Seminars</td>
<td>10%</td>
</tr>
</tbody>
</table>

(Lab is a separate course and you will get a separate grade for the lab.)

The final grade will be determined by your score and the overall performance of the class. If your final score is:
- 90 or above: your grade will be A.
- 80 or above and below 90: your grade will be B or better.
- 70 or above and below 80: your grade will be C or better.
- 60 or above and below 70: your grade will be D or better.

There is no extra credit in this course. DO NOT ASK FOR ANY EXTRA CREDIT. Make-up exams will be granted only in extraordinary circumstances.

Exams: Syllabus exam + Midterm exam + Final exam

Syllabus exam (5%):
The syllabus exam will be on Blackboard. Finish it by Feb. 5th.

Midterm exams (20%):
Midterm exams will be taken during class hours. Midterm exam will be on Wednesday, March 8 (9:00am-10:20am).
It covers chapters 1-6.

Final exam (25%):
The final exam is on Wednesday, May 10, 10:00 am – 12:45 pm.
It will be a comprehensive exam (covering chapters 1-12).

More details about midterm and final exams will be announced before each exam.

Attendance

Attendance will be checked during the class at random. If you can’t attend the class due to a legitimate reason, inform me before the class and get approval. If you miss a class without preapproval due to an emergency, you need to provide documents to prove the emergent situation as soon as possible.
Textbook and Homework

Textbook:
Physics for Scientists & Engineers: A Strategic Approach (By Randall D. Knight, 5th Edition)

Online homework: Mastering Physics, Pearson
Course name: PHYS2320_Shim_Spring2023
Course ID: shim33402
Student Registration Instruction for Mastering Physics is on the Blackboard.

The class will follow the textbook, and homework problems will come from the problems at the end of the chapters. Renting or buying the textbook is strongly encouraged, and full access to the Mastering Physics website is required.

Homework will typically be available each Wednesday and the due date is next Sunday, but it will vary depending on the course progress.
(You will have about 11 days to finish each homework.)
Pay attention to the deadline. Late Homework submissions will be penalized by 10%/day.

Technology Requirements

Lectures are given person-to-person in the classroom unless there is a change in the COVID19 situation and the class is turned into online.

Lecture slides will be available on Blackboard after lectures.

The format for the exams will be announced later before each exams.

Course communication will be via email and Blackboard.
Ensure your UTEP email account is working.
Check the Blackboard for announcements.

When having technical difficulties, update your browser, clear your cache, or try switching to another browser.

Homework is online at the Mastering Physics website.
You will have to get access to Mastering Physics and register for the course.
See the Registration Instruction on the course Blackboard page.

**IMPORTANT:** If you encounter technical difficulties beyond your scope of troubleshooting, please contact the UTEP Help Desk (https://www.utep.edu/technologysupport/) as they are trained specifically in assisting with the technological needs of students. Please do not contact me for this type of assistance. The Help Desk is much better equipped than I am to assist you!

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**Course Policies**

**COVID-19 Precautions:**

Please stay home if you have been diagnosed with COVID-19 or are experiencing COVID-19 symptoms. If you are feeling unwell, please let me know as soon as possible, so that we can work on appropriate accommodations. If you have tested positive for COVID-19, you are encouraged to report your results to covidaction@utep.edu, so that the Dean of Students Office can provide you with support and help with communication with your professors. The Student Health Center is equipped to provide COVID 19 testing.

The Center for Disease Control and Prevention recommends that people in areas of substantial or high COVID-19 transmission wear face masks when indoors in groups of people. The best way that Miners can take care of Miners is to get the vaccine. If you still need the vaccine, it is widely available in the El Paso area, and will be available at no charge on campus during the first week of classes. For more information about the current rates, testing, and vaccinations, please visit epstrong.org

**Students with Disabilities:**

If you have a disability and need classroom accommodations, please contact The Center for Accommodations and Support Services (CASS) at 747-5148, or by email to cass@utep.edu, or visit their office located in UTEP Union East, Room 106. For additional information, please visit the CASS website at https://www.utep.edu/student-affairs/cass/. Accommodations might include but are not limited to note takers, readers, or extended time on exams and assignments. Please take care of this as soon as possible and before the first exam.

**Scholastic Integrity:**

Academic dishonesty is prohibited and is considered a violation of the UTEP Handbook of Operating Procedures. It includes, but is not limited to, cheating, plagiarism, and collusion. Cheating may involve copying from or providing information to another student, possessing unauthorized materials during a test, or falsifying research data on laboratory reports. Plagiarism occurs when someone intentionally or knowingly represents the words or ideas of another as ones’ own. Collusion involves collaborating with another person to commit any academically dishonest act. Any act of academic dishonesty attempted by a UTEP student is unacceptable and will not be tolerated. All suspected violations of academic integrity at The University of Texas at El Paso must be reported to the Office of Student Conduct and Conflict Resolution (OSCCR) for possible disciplinary action. To learn more, please visit HOOP: Student Conduct and Discipline.
Course Overview and Weekly Schedule

Course overview

Ch. 1 Concepts of Motion  
Ch. 2 Kinematics in One Dimension  
Ch. 3 Vectors and Coordinate Systems  
Ch. 4 Kinematics in Two Dimensions  
Ch. 5 Force and Motion  
Ch. 6 Dynamics I: Motion Along a Line  
Ch. 7 Newton’s Third Law  
Ch. 8 Dynamics II: Motion in a Plane  
Ch. 9 Work and Kinetic Energy  
Ch. 10 Interactions and Potential Energy  
Ch. 11 Impulse and Momentum  
Ch. 12 Rotation of a Rigid Body

Weekly Course Schedule (subject to change)

<table>
<thead>
<tr>
<th>Week</th>
<th>Dates</th>
<th>Lecture</th>
<th>Homework</th>
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</thead>
<tbody>
<tr>
<td>Week1</td>
<td>Jan 16 &amp; Jan 18</td>
<td>MLK day, Intro/Chapter 1</td>
<td>Homework #0</td>
</tr>
<tr>
<td>Week2</td>
<td>Jan 23 &amp; Jan 25</td>
<td>Chapter 1, Chapter 2</td>
<td>Homework #1</td>
</tr>
<tr>
<td>Week3</td>
<td>Jan 30 &amp; Feb 1</td>
<td>Chapter 2, Chapter 3</td>
<td>Homework #2</td>
</tr>
<tr>
<td>Week4</td>
<td>Feb 6 &amp; Feb 8</td>
<td>Chapter 3, Chapter 4</td>
<td>Homework #3</td>
</tr>
<tr>
<td>Week5</td>
<td>Feb 13 &amp; Feb 15</td>
<td>Chapter 4</td>
<td>Homework #4</td>
</tr>
<tr>
<td>Week6</td>
<td>Feb 20 &amp; Feb 22</td>
<td>Chapter 5</td>
<td>Homework #5</td>
</tr>
<tr>
<td>Week7</td>
<td>Feb 27 &amp; Mar 1</td>
<td>Chapter 6</td>
<td>Homework #6</td>
</tr>
<tr>
<td>Week8</td>
<td>Mar 6 &amp; Mar 8</td>
<td>Review, <strong>Midterm Exam</strong></td>
<td></td>
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<tr>
<td>Week9</td>
<td>Mar 13 &amp; Mar 15</td>
<td>Spring Break</td>
<td></td>
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<tr>
<td>Week10</td>
<td>Mar 20 &amp; Mar 22</td>
<td>Chapter 7</td>
<td>Homework #7</td>
</tr>
<tr>
<td>Week11</td>
<td>Mar 27 &amp; Mar 29</td>
<td>Chapter 8</td>
<td>Homework #8</td>
</tr>
<tr>
<td>Week12</td>
<td>Apr 3 &amp; Apr 5</td>
<td>Chapter 9</td>
<td>Homework #9</td>
</tr>
<tr>
<td>Week13</td>
<td>Apr 10 &amp; Apr 12</td>
<td>Chapter 10</td>
<td>Homework #10</td>
</tr>
<tr>
<td>Week14</td>
<td>Apr 17 &amp; Apr 19</td>
<td>Chapter 11</td>
<td>Homework #11</td>
</tr>
<tr>
<td>Week15</td>
<td>Apr 24 &amp; Apr 26</td>
<td>Chapter 12</td>
<td>Homework #12</td>
</tr>
<tr>
<td>Week16</td>
<td>May 1 &amp; May 3</td>
<td>Review</td>
<td></td>
</tr>
<tr>
<td>Week17</td>
<td>May 10</td>
<td><strong>Final Exam</strong></td>
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