Physics is “The mystery of being!”

“We each exist for but a short time, and in that time explore but a small part of the whole universe. But humans are a curious species. We wonder, we seek answers. Living in this vast world that is by turns kind and cruel, and gazing at the immense heavens above, people have always asked a multitude of questions: How does the universe behave? What is the nature of reality? Where did all this come from? Did the universe need a creator? Most of us do not spend most of our time worrying about these questions, but almost all of us worry about them some of the time.

Why is there something rather than nothing? Why do we exist?

Why this particular set of laws and not some other?”

- Stephen Hawking

Course Description (Lecture):
The first semester of an algebra and trigonometry - based fundamentals of physics sequence. The principles and applications of classical mechanics and thermodynamics, including harmonic motion, mechanical waves and sound, physical systems, Newton’s Laws of Motion, and gravitation and other fundamental forces are studied with emphasis on problem solving. Laboratory experiments supporting the topics are included. (3 Lec., 3 Lab.)
**Prerequisite:** MATH 1314 and Math 1316 or MATH 2412. DREA 0093 or English as a Second Language (ESOL) 0044 or have met the Texas Success Initiative (TSI) standard in Reading

**Course Description (Laboratory):**
This laboratory-based course accompanies PHYS 1401, College Physics I. Laboratory activities will reinforce fundamental principles of physics, using algebra and trigonometry; the principles and applications of classical mechanics and thermodynamics, including harmonic motion, mechanical waves and sound, physical systems, Newton’s Laws of Motion, and gravitation and other fundamental forces; emphasis will be on problem solving.

**Co-requisite:**
PHYS 1401 College Physics I (lecture)

**Student Learning Outcomes (Lecture):**

**Upon successful completion of this course, students will:**
Determine the components of linear motion (displacement, velocity, and acceleration), and especially motion under conditions of constant acceleration.

Apply Newton’s laws to physical problems including gravity. Solve problems using principles of energy.

Use principles of impulse and linear momentum to solve problems.

Solve problems in rotational kinematics and dynamics, including the determination of the location of the center of mass and center of rotation for rigid bodies in motion.

Solve problems involving rotational and linear motion.

Describe the components of a wave and relate those components to mechanical vibrations, sound, and decibel level.

Demonstrate an understanding of equilibrium, including the different types of equilibrium.

Discuss simple harmonic motion and its application to quantitative problems or qualitative questions.

Solve problems using the principles of heat and thermodynamics. Solve basic fluid mechanics problems.

**Students Learning Outcomes (Lab):**

**Upon successful completion of this course, students will:**
Demonstrate techniques to set up and perform experiments, collect data from those experiments, and formulate conclusions from an experiment.

Record experimental work completely and accurately in laboratory notebooks, and communicate Experimental results clearly in written reports.

Determine the components of linear motion (displacement, velocity, and acceleration), and especially motion under conditions of constant acceleration.

Apply Newton’s laws to physical problems including gravity. Solve problems using principles of energy.

Describe the components of a wave and relate those components to mechanical vibrations, sound, and decibel level.

Use principles of impulse and linear momentum to solve problems.
Solve problems in rotational kinematics and dynamics, including the determination of the location of the center of mass and center of rotation for rigid bodies in motion.

Solve problems involving rotational and linear motion.

Demonstrate an understanding of equilibrium, including the different types of equilibrium.

Discuss simple harmonic motion and its application to quantitative problems or qualitative questions.

Solve problems using the principles of heat and thermodynamics. Solve basic fluid mechanics problems.

Course procedure

Lectures and assignments will be delivered to you through ecampus portal: the blackboard on the DCCD district ecampus server (ecampus.dcccd.edu). For many of you, this may be your first online (or Internet) course. You do not need to be a computer whiz to be successful in this course. From a computer standpoint, absolutely everything is simple. By the time you review all the documents posted on (ecampus.dcccd.edu) you'll know almost everything needed to be successful in this course. (It is critical that you read and review all the folders under all the tabs on ecampus.)

How to login on ecampus.dcccd.edu:

Go to http://ecampus.dcccd.edu and click on “Access Courses.” If you are logging in for the first time, enter your student ID number with a lowercase “e” in front of the number. This number is used as both the user name and the temporary password. Please change your password after your initial login. Example: user name: e3456789; password: e3456789.

- Use an updated browser
- Have all Javascript settings enabled in your browser
- Tip: If one browser does not perform well, try another.
- Set your browser to accept all cookies.

Click on Password guide or copy and paste the link “dcccd.edu/password-update” for guides and more information about the password.

Course Material:

1. **Access key to Mastering:** You are required to purchase the access key for the following textbook. The image of the textbook helps you to select the right access key.

2. Please note that you can use any physical Science textbook for your own reading. The following image helps you to know we use the mastering physics associated with textbook.

Please read part 3.
3. There is a button on eCampus (blackboard) called Mastering Physics that takes you to the Mastering web site and assignments. You will be able to purchase the access key on once you click on “Mastering physics” Button on campus. You do NOT need an ID number for the class on Mastering.

4. You will find a handout about how to obtain an access key in the syllabus folder on ecampus.

5. There is a FREE text book available on the following link:

   https://openstax.org/details/books/college-physics

6. You can download the book in pdf format or view it online free of charge. I have also posted the pdf file under the “Reading Material” tab on ecampus.

7. You can also order the book.

8. Homework assignments: these will be posted on Mastering Physics. You can have 3 attempts for each question. You will be able to view your grades after your third submission. Your grade should be refreshed on eCampus. Please do not worry if you see any discrepancies between the grades on eCampus and Mastering. They will be synchronized later on. You do not need to email me about this.

9. Lab Assignments: Lab instruction will be posted under the Lab Assignments folder for each unit of lessons. There will be virtual labs, practical labs, and short project activities. I will give you a list of items for practical labs that you should be able to easily find in local stores, such as Walmart, Radio Shack or any hardware or electronics store.

10. Project Assignment: You will right 2 to 3 pages about a topic (you will find about the topic in the project folder in one month). Present your paper, record your presentation. You will copy and paste your video presentation Link on your paper next to your name and also in the textbox of the folder on ecampus.

11. Exam: There will be one exam at the end of class. You are required to learn how to scan a document before the exam.
12. **Homework on paper:** There will be a few HW problems that you need to show the complete solution on paper, scan, and upload it to its folder.

Please ensure you have Java and Adobe Flash Player installed on your computer, and you are using the latest version of your browser.

**Course Outline:**
- Motion and Force
- Conservation Laws
- Properties of Matter
- Oscillations and Waves

**Core Objectives:** I will assess all the core objectives through the assigned project.
- **Teamwork** - to include the ability to consider different points of view and to work effectively with others to support a shared purpose or goal.
- **Critical Thinking Skills** - to include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information
- **Communication Skills** - to include effective development, interpretation and expression of ideas through written, oral and visual communication
- **Empirical and Quantitative Skills** - to include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions.

Please read the content of this folder very carefully! This is the calendar, evaluation, and the summary of rules for the course.

Add a short introduction about yourself in “Virtual Classroom” to receive credit for one homework grade by Monday May 20th. You can post your introduction after Monday May 20th but you will not receive any credit.

**Introduction to class due dates:** All the due dates are by 11:59PM

<table>
<thead>
<tr>
<th>Class Start Day Assignments</th>
<th>Due dates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Virtual classroom introduction and the link to a 2 minutes introduction.</td>
<td>Thursday, June 06</td>
</tr>
<tr>
<td>Making groups</td>
<td>Friday, June 07</td>
</tr>
</tbody>
</table>

**Course Calendar:**
Sunday June 16

<table>
<thead>
<tr>
<th>Units</th>
<th>Subject</th>
<th>Due dates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit 1</td>
<td>Math background</td>
<td>Sunday June 16</td>
</tr>
<tr>
<td>Unit 2</td>
<td>Motions in One and Two Dimensions</td>
<td>Sunday June 16</td>
</tr>
<tr>
<td>Unit 3</td>
<td>Newton's Laws of Motion</td>
<td>Sunday June 16</td>
</tr>
</tbody>
</table>
Course Evaluation:

<table>
<thead>
<tr>
<th>Category of the assignments</th>
<th>Weight for each category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Home work on paper and mastering</td>
<td>30%</td>
</tr>
<tr>
<td>Lab experiments</td>
<td>25%</td>
</tr>
<tr>
<td>Projects</td>
<td>15%</td>
</tr>
<tr>
<td>Exams on mastering and on paper</td>
<td>30%</td>
</tr>
</tbody>
</table>

**The instruction for each category is in the corresponding folder on ecampus**

Late Work Policy: Late assignments will be penalized 10% per day, **NO exceptions.** I understand it is summer and you might be traveling and a lot of other issues and commitments.

**Please Note there will be NO grade for any assignment submitted after July 03.**

Grading Scale: 90 and above = A, 80-89 = B, 70-79 = C, 60-69 = D, 59 and below = F

Lessons and Assignments - units on ecampus:

Assignments that you will turn in are: homework on paper and on mastering, virtual & practical labs and activities, project, and exam. All these assignments are listed under each unit with a due date. As you read each unit and open the various links under the unit, you will learn about all these assignments. It is straightforward, and you can always email your questions to me or you also can contact your classmates through the discussion board, by email, by phone, or by meeting in person.

You must accomplish the following reading and preparation assignments on a regular basis before attempting to tackle your weekly assignments: Read the assigned contents in any physical science textbook.

- Study and review the instructor’s video lecture and PowerPoint slides posted for each unit on ecampus.
- Watch, observe, review, and study the videos, animations, and interactive figures in the study area for each chapter on Mastering Physics.
- Complete and submit homework for each chapter (or unit) in the “Assignment” folder on Mastering Physics. Your final grades will be transferred to the ecampus gradebook at the end of the semester.
• Perform a practical lab, virtual lab, or short activities for each unit and complete the lab report. For a few labs and the project, you are required to purchase a few lab materials, which are relatively cheap.
• Project – the topic for the project will be announced one month after the semester starts.

Group work opportunity:
• Working on assignments is easier if you work in groups. However, every person is required to submit her or his own work. You can make only groups of two.
• Introduce yourself in the virtual classroom and add a photo of yourself.
• Email your classmates as many times as possible until you find a partner to work with. Do not give up easily!
• You are required to record a presentation for your project. It is recommended that you find someone with whom you can meet on the recording day. Otherwise you will need to work on your project individually.
• Each person is accountable. When one member of the group experiences a lack of cooperation from their partner, she or he can work individually.

Virtual classroom:
To help you find someone you would like to work with, please introduce yourself and provide relevant contact information. You are also required to provide a link to a 2 minutes video recording of your introduction/
Please read the instruction in the virtual classroom on ecampus.
You can post this information under the “introduction” forum in the Virtual Classroom folder by creating and editing your own threads. Please note that all communication and posts must follow proper academic classroom etiquette.

The due date for the introduction is by 11:59 PM of the first day of class. The introduction will be counted towards your class attendance for financial aid purposes, and will also earn one homework grade only if your post is submitted by the due date.

Your post should include the following:
• First and last name
• Email address
• Telephone (optional)
• Major
• Any other information you would like to share with the instructor and classmates, such as your preferred time for working on assignments, etc.
• Attach a photo of yourself (optional)

Responsibility of College Learner:
As a student in this college course, it is your responsibility to have necessary course materials and to locate a computer with reliable internet access. Computer and internet problems not associated with the eCampus and Mastering websites, technical problems, or downtime, will not be considered exceptions to the late work and makeup exam policies. It is also your responsibility to have the necessary course materials to complete the assignments. **You will not receive extensions on assignments or tests due to financial problems, not receiving Mastering Physics by the start of class, or personal computer problems.** Please plan ahead and do not wait until the last minute to complete assignments or tests.

**Institution Policies:**
For a complete list of institutional policies (Stop Before You Drop; Withdrawal Policy; Repeating a Course; Financial Aid; Academic Honesty; Americans with Disabilities Act Statement; Harassment, Discrimination and Sexual Misconduct, Religious Holidays; and Campus Emergency Operation Plan and Contingency Plan.

Please visit:
[Institutional Policies](www.mountainviewcollege.edu/syllabipolicies)