

## PHYSICS 1710

### Mechanics

Fall 2019

Lecture Section 4, PHYS 102, MWF 10:00 am - 10:50 am

Recitation Section 216, MW, 12:00 pm – 12:50 pm PHYS 115

Recitation Section 217, TR, 1:30 pm – 2:20 pm PHYS 116

Recitation Section 218, M 12:00 pm – 1:50 am PHYS 115

Recitation Section 219, MW 1:00 pm – 1:50 pm PHYS 115

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**Professor:** Vincent Lopes  
**Office:** Physics Bldg., Room 209C  
**Telephone:** (940) 565-4726  
**E-mail:** Vincent.Lopes@unt.edu  
**Office Hours:** Monday 2:00 pm – 3:00 pm, Thursday 12:30 pm – 2:00 pm, and by appointment

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### Course Materials:

The recommended text is *University Physics*, 13<sup>th</sup>, 14<sup>th</sup>, or 15<sup>th</sup> Edition, by Young and Freedman (Pearson). Other calculus-based introductory physics texts are acceptable; ***the successful student will have a text.*** You are required to obtain access to the Mastering Physics online homework system.

### Topics:

This course will introduce fundamental concepts from classical mechanics including velocity, acceleration, inertia, force, the laws of motion, work and energy, linear momentum, angular momentum, mechanical conservation laws, rotational and oscillatory motion, waves, fluids; gravity, periodic motion, and mechanical waves.

### Physics 1710 Core Objectives:

This course satisfies the core course requirement by fostering skills associated with four core objectives:

- 1) **Critical thinking** - analysis, evaluation, and synthesis of information.
- 2) **Effective communication** - development, interpretation, and expression of ideas through written, oral, and graphical means.
- 3) **Quantitative skills** - the ability to compute and manipulate quantitative data and to reach meaningful conclusions.
- 4) **Teamwork** - the ability to consider different points of view and to work effectively as a team.

### Class Policies

- 1) Students are to attend class and recitations regularly as scheduled.
- 2) Students are to be prepared for class (read/review assigned chapters prior to lecture).
- 3) **This is a professional environment.** Students are to be respectful of the instructor and other students. No vulgar language or rude behavior will be tolerated.
- 4) Pertinent questions should be directed to the instructor. Patience with other student's questions is expected behavior.
- 5) *Classes will start at the assigned time. Students who arrive late should enter quietly and sit down. Do not walk between the instructor and class across the front of the room as it is disruptive and disrespectful to the instructor and fellow students. Tardy students will not be given any additional time on Exam or Final Exam days.*
- 6) Students are expected to **participate** by answering in-class questions, and taking weekly written recitation quizzes.
- 7) **Silence mobile phones prior to attending class. Put mobile phones away.**

**Exams:**

- 1) There will be three 90-minute exams during the semester, to be given starting at 4:00 pm on Friday afternoons, and a comprehensive final exam, to be given at **8:00 AM on Saturday, December 7<sup>th</sup>**. Exam questions will be based on lecture material, material contained in the text and in the homework assignments. You must show all of your work on your exam papers for full credit. Questions pertaining to the grading of exam questions and problems must be directed to the instructor in writing within two weeks after the exams are returned.
- 2) There will be no makeup exams.
- 3) Students are to provide their own pencil, eraser, ink pen and calculator. Phone calculators CANNOT be used.
- 4) Students CANNOT share pencils, erasers, pens or calculators during any exam.
- 5) Multiple answers to the same question will be marked wrong automatically.
- 6) Answers / work deemed to be illegible by the instructor will be marked wrong.
- 7) **Any student caught cheating will be given a grade of zero for that exam or final exam.**
- 8) Questions pertaining to the grading of tests questions and problems must be directed to the instructor in writing **within two weeks** after the tests are returned to the class.

**Homework:**

- 1) All homework will be posted, collected, and graded via the internet.
- 2) You must access your assignment each week online through the Mastering Physics website, work the problems, and submit your solutions to the server by the due date indicated online.
- 3) Homework grading policy: Your homework grade is determined from your Mastering Physics web-based homework score.

**Grades:**

The course grades will be calculated as follows:

|                       |      |
|-----------------------|------|
| Exam 1.....           | 17 % |
| Exam 2.....           | 17 % |
| Exam 3.....           | 17 % |
| Final Exam.....       | 30 % |
| Home Work.....        | 15 % |
| Class/Recitation..... | 4 %  |

Letter grades will be assigned on the basis of the following numerical scores:

90 —100 = A

80 – 89 = B

70 - 79 = C

60 - 69 = D

Grades will NOT be rounded or scaled.

89.99 = B

69.99 = D

**Lab Credit:**

You must enroll separately in Physics 1730 for laboratory science credit.

**Topic Schedule – the instructor reserves the right to amend the topic schedule.**

|              |               |          |                                                                 |
|--------------|---------------|----------|-----------------------------------------------------------------|
| 1            | 26-Aug        | M        | Introduction; Ch. 1, Units, Physical Quantities                 |
| 2            | 28-Aug        | W        | Ch. 1, Vectors                                                  |
| 3            | 30-Aug        | F        | Ch. 1, Vectors and Chap 2, Motion along a Straight Line         |
| -            | 2-Sep         | M        | <i>No class Monday, Sept. 4 – Labor Day Holiday</i>             |
| 4            | 4-Sep         | W        | Ch. 2, continued                                                |
| 5            | 6-Sep         | F        | Ch. 2, continued                                                |
| 6            | 9-Sep         | M        | Ch. 3, Motion in Two Dimensions                                 |
| 7            | 11-Sep        | W        | Ch. 3, continued                                                |
| 8            | 13-Sep        | F        | Ch. 3, continued                                                |
| 9            | 16-Sep        | M        | Ch. 4, Newton's Laws of Motion                                  |
| 10           | 18-Sep        | W        | Ch. 4, continued                                                |
| 11           | 20-Sep        | F        | Ch. 4, continued                                                |
|              | <b>20-Sep</b> | <b>F</b> | <b>Exam # 1 in PHYS 102</b>                                     |
| 12           | 23-Sep        | M        | Ch. 5, Applications of Newton's Laws                            |
| 13           | 25-Sep        | W        | Ch. 5, continued                                                |
| 14           | 27-Sep        | F        | Ch. 5, continued                                                |
| 15           | 30-Sep        | M        | Ch. 6, Work                                                     |
| 16           | 2-Oct         | W        | Ch. 6, continued                                                |
| 17           | 4-Oct         | F        | Ch. 6, continued                                                |
| 18           | 7-Oct         | M        | Ch. 7, Potential Energy & Energy Conservation                   |
| 19           | 9-Oct         | W        | Ch. 7, continued                                                |
| 20           | 11-Oct        | F        | Ch. 7, continued                                                |
| 21           | 14-Oct        | M        | Ch. 8, Collisions                                               |
| 22           | 16-Oct        | W        | Ch. 8, continued                                                |
| 23           | 18-Oct        | F        | Ch. 8, continued                                                |
|              | <b>18-Oct</b> | <b>F</b> | <b>Exam # 2 in PHYS 102</b>                                     |
| 24           | 21-Oct        | M        | Ch. 9, Rotation of Rigid Bodies                                 |
| 25           | 23-Oct        | W        | Ch. 9, continued                                                |
| 26           | 25-Oct        | F        | Ch. 9, continued                                                |
| 27           | 28-Oct        | M        | Ch. 10, Dynamics of Rotational Motion                           |
| 28           | 30-Oct        | W        | Ch. 10, continued                                               |
| 29           | 1-Nov         | F        | Ch. 10, continued                                               |
| 30           | 4-Nov         | M        | Ch. 10, continued                                               |
| 31           | 6-Nov         | W        | Ch. 11, Statics                                                 |
| 32           | 8-Nov         | F        | Ch. 11, continued                                               |
| 33           | 11-Nov        | M        | Ch. 11, continued                                               |
| 34           | 13-Nov        | W        | Ch. 14, Periodic Motion                                         |
| 35           | 15-Nov        | F        | Ch. 14, continued                                               |
| 36           | 18-Nov        | M        | Ch. 14, continued                                               |
| 37           | 20-Nov        | W        | Ch. 15, Mechanical Waves                                        |
| 38           | 22-Nov        | F        | Ch. 15, continued                                               |
|              | <b>22-Nov</b> | <b>F</b> | <b>Exam # 3 in PHYS 102</b>                                     |
| 39           | 25-Nov        | M        | Ch. 15, continued                                               |
| 40           | 27-Nov        | W        | Ch. 15, continued                                               |
| -            | 29-Nov        | F        | <i>No class Friday, Nov. 23 – Thanksgiving Holiday</i>          |
| 41           | 2-Dec         | M        | Ch. 15, continued                                               |
| 42           | 4-Dec         | W        | Open                                                            |
| -            | 6-Dec         | F        | Reading Day                                                     |
| <b>Final</b> | <b>7-Dec</b>  | <b>S</b> | <b>FINAL EXAM —Comprehensive— 8:00 AM to 10:00 AM, PHYS 102</b> |

## **Physics 1710 Goals and Learning Strategies:**

The goals of instruction in Physics 1710 are to lead and to guide you to master the fundamentals of elementary classical mechanics and thermodynamics, to construct for yourself a fundamental understanding of these topics, to develop your skills of analysis using the mathematical tools of algebra and calculus, and to cultivate an interest in and an appreciation for physics in nature and in the human experience To help in achieving these goals you are requested to pursue the following strategies:

- 1) **Read the text chapter within the forty-eight hours prior to the class.** You should bring your questions to class or e-mail to the instructor prior to the morning of the class.
- 2) During class, **listen, observe, take notes, analyze, discuss with peers, answer questions, solve in-class problems.** (Again, **silence your mobile phone and put it away.**)
- 3) **Review your textbook chapter summary and your notes** within twenty-four hours after class.
- 4) **Work the assigned problems** only after you have read and reviewed the material of the chapter. If you get stuck on a problem (for instance, after 3 unsuccessful attempts, or 20 minutes of effort), move on to the next problem and bring your questions to recitation, the Physics Instructional Center help room, or your instructor.
- 5) **Communicate with your instructor** via e-mail at [Vincent.Lopes@unt.edu](mailto:Vincent.Lopes@unt.edu) or during office hours whenever you have an observation or question. **Be specific with your questions.**
- 6) **Come to class prepared!**
- 7) **Work extra practice problems**, such as from the text's end-of-chapter problems.

To learn more about campus resources and information on how you can achieve success, go to [succeed.unt.edu](http://succeed.unt.edu).

## **Ancillary Information**

### ***Academic Accommodations***

*The University of North Texas makes reasonable academic accommodation for students with disabilities. Students seeking reasonable accommodation must first register with the Office of Disability Accommodation (ODA) to verify their eligibility. If a disability is verified, the ODA will provide you with a reasonable accommodation letter to be delivered to faculty to begin a private discussion regarding your specific needs in a course. You may request reasonable accommodations at any time, however, ODA notices of reasonable accommodation should be provided as early as possible in the semester to avoid any delay in implementation. Note that students must obtain a new letter of reasonable accommodation for every semester and must meet with each faculty member prior to implementation in each class. Students are strongly encouraged to deliver letters of reasonable accommodation during faculty office hours or by appointment. Faculty members have the authority to ask students to discuss such letters during their designated office hours to protect the privacy of the student. For additional information see the Office of Disability Accommodation website at <http://www.unt.edu/oda>. You may also contact them by phone at [940.565.4323](tel:940.565.4323).*

**Drop/withdrawal dates** is available in the schedule of classes at:

<https://registrar.unt.edu/registration/fall-registration-guide>

**Last day for a student to drop a class with a W:** Monday November 4<sup>th</sup>, 2019

UNT's policy on **Academic Dishonesty** can be found at:

<http://www.vpaa.unt.edu/academic-integrity.htm>

**Canvas** will be used to post some useful course materials and your grades. To get to this resource, go to <https://unt.instructure.com/login/canvas> and follow the UNT link to log on. (You will log on using your UNT EUID and password.) Once logged on, select this course. You will find an electronic copy of this syllabus, copies of the PowerPoint presentations from lecture, test expectations and equation sheets.

**Tutors** are available in Physics Room 209 Monday through Friday to assist you with questions related to solving homework problems.

Mon 10 am to 6 pm

Tues 10 am to 6 pm

Wed 10 am to 8 pm

Thurs 10 am to 8 pm

Fri 10 am to 4 pm

## Course Evaluation

*The Student Perceptions of Teaching (SPOT) is a requirement for all organized classes at UNT. This short survey will be made available to you on-line at the end of the semester and will provide you with an opportunity to provide feedback to your course instructor. SPOT is considered to be an important part of your participation in this class. In addition to SPOT, there will be a brief in-class course survey during the last two weeks of the semester.*

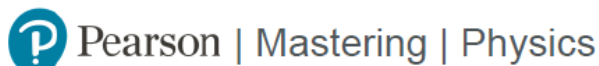
For the Fall 2019 semester you will receive an email from "UNT SPOT Course Evaluations via IASystem Notification" ([no-reply@iasystem.org](mailto:no-reply@iasystem.org)) with the survey link. Please look for the email in your UNT email inbox. Simply click on the link and complete your survey.

After logging in to the [my.unt.edu](http://my.unt.edu) portal, students can access the SPOT survey site by clicking on the SPOT icon. A list of their currently enrolled courses will appear. Students complete each course evaluation independently. During the long terms, the SPOT is open for students to complete two weeks prior to final exams. During the Spring term, the SPOT is open for students to complete six days preceding their final exam. See [SPOT Calendar](#) for specific dates and deadlines.

## Homework Information

In this course you will be using MasteringPhysics®, an online tutorial and homework program.

*If you had access to MasteringPhysics in a previous semester, skip to the 'Log In' step below.*



## Student Registration Instructions

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### To register for **UNTPHYS1710MWFLOPESFALL2019**:

1. Go to [www.pearson.com/mastering](http://www.pearson.com/mastering).
2. Under Register, select **Student**.
3. Confirm you have the information needed, then select **OK! Register now**.
4. Enter your instructor's course ID: **lopes24679**, and **Continue**.
5. Enter your existing Pearson account **username** and **password** to **Sign In**.  
You have an account if you have ever used a MyLab or Mastering product.
  - » If you don't have an account, select **Create** and complete the required fields.
6. Select an access option.
  - » Enter the access code that came with your textbook or that you purchased separately from the bookstore.
  - » If available for your course,
    - Buy access using a credit card or PayPal.
    - Get temporary access.

If you're taking another semester of a course, you skip this step.
7. From the You're Done! page, select **Go To My Courses**.
8. On the My Courses page, select the course name **UNTPHYS1710MWFLOPESFALL2019** to start your work.

### To sign in later:

1. Go to [www.pearson.com/mastering](http://www.pearson.com/mastering).
2. Select **Sign In**.
3. Enter your Pearson account **username** and **password**, and **Sign In**.
4. Select the course name **UNTPHYS1710MWFLOPESFALL2019** to start your work.

### To upgrade temporary access to full access:

1. Go to [www.pearson.com/mastering](http://www.pearson.com/mastering).
2. Select **Sign In**.
3. Enter your Pearson account **username** and **password**, and **Sign In**.
4. Select **Upgrade access** for **UNTPHYS1710MWFLOPESFALL2019**.
5. Enter an access code or buy access with a credit card or PayPal.