

## PHYSICS 1710.002

### Mechanics

### Spring 2022

Lecture Section 002, Physics Room 102, TuTh 8:00AM - 9:20AM

Recitation-206, TuTh 2:00pm - 2:50pm, Art 219, TA Sinto Varghese (starts 1/19)

Recitation-207, TuTh 10:00am - 10:50am, Peb 219, TA Jacob Baxley (starts 1/19)

Recitation-208, TuTh 11:00am - 11:50am, Phys 112, TA Sinto Varghese (starts 1/19)

Recitation-209, TuTh 12:00pm - 12:50pm, Env 190, TA Sinto Varghese (starts 1/19)

Recitation-210, TuTh 1:00pm - 1:50pm, Phys 116, TA Sinto Varghese (starts 1/19)

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**Professor:** Yuankun Lin

**Office:** Physics Bldg., Room 323

**Telephone:** (940) 565-4548

**E-mail:** The best way to reach me with questions or concerns is via UNT email: [yuankun.lin@unt.edu](mailto:yuankun.lin@unt.edu). In most cases, you can expect to receive my response to emails within 24 hours.

**Office Hours:** TuTh 9:20-11:00 am, and by appointment. I can offer students the choice of in-person or virtual office hours based on your preference, and may hold office hours in my office, or other open spaces as needed.

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**Welcome to UNT!** As members of the UNT community, we have all made a commitment to be part of an institution that respects and values the identities of the students and employees with whom we interact. UNT does not tolerate identity-based discrimination, harassment, and retaliation. UNT's full Non-Discrimination Policy can be found in the UNT Policies section of the syllabus.

#### **Textbook and Online homework system:**

The recommended textbook is *University Physics*, 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.

#### **Options with Young/Freedman textbook that include Mastering access:**

- o Hardcover text with MasteringPhysics access
- o 3-hole punched edition with MasteringPhysics access
- o MasteringPhysics access including e-book for Young/Freedman

#### **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, and gravitation.

#### **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.

#### **Exams:**

- 1) There will be **four exams**. Exam questions will be based on lecture material, material contained in the text and in the homework assignments. Exams will be comprised of multiple-choice questions (or + problems).
- 2) There will be no makeup exams.
- 3) Any student caught cheating will be given a grade of zero for that exam.
- 4) Questions pertaining to the grading of exam questions and problems must be directed to the instructor in writing **within one week** after the exams were administered.

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**Homework:**

- 1) All homework will be posted, collected, and graded via the internet.
- 2) You must access your assignment online through Canvas, work the problems, and submit your solutions to the server by the due date indicated online.
- 3) If you have not registered yet, go to Canvas, click MyLab and Mastering, then open MyLab and Mastering. If you have already paid for an access, use the same username and password for the access to MyLab and Mastering through Canvas (Browser Settings: Pop-ups must be enabled; Cookies must be enabled. I usually use the browser of “**Microsoft Edge**”):
  - a) Go to UNT Canvas
  - b) Click “Mylab and Mastering”
  - c) Click “Get started”
  - d) Then create an account and make a payment

After you setup your account,

- a) Go to UNT Canvas
- b) Go to Assignment
- c) Then click HW XY

- 4) 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 .....	18%
Exam 2 .....	18%
Exam 3 .....	18%
Final Exam .....	18%
Home Work .....	18%
Class/Recitation .....	5%/5%

Letter grades will be assigned on the basis of the numerical scores: A = 90 and above; B = 80-89; C = 70-79; D = 60-69

**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/ldap> 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, and exam expectations.

**Lab Credit:**

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

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

1	17-Jan	Tu	Introduction; Ch. 1, Units, Physical Quantities
2	19-Jan	Th	Ch. 1, Vectors
3	24-Jan	Tu	Ch. 1, Ch. 2, Motion along a Straight Line
4	26-Jan	Th	Ch. 2, continued
5	31-Jan	Tu	Ch. 2, Ch. 3, Motion in Two Dimensions
6	2-Feb	Th	Ch. 3, continued
7	7-Feb	Tu	Ch. 3, continued
8	9-Feb	Th	Ch. 4 Newton’s Laws of Motion – Forces
9	14-Feb	Tu	Ch. 4, continued
<b>10</b>	<b>16-Feb</b>	<b>Th</b>	<b>Exam-1</b>
11	21-Feb	Tu	Ch. 5, Application of Newton’s law
12	23-Feb	Th	Ch. 5, continued
13	28-Feb	Tu	Ch. 5, continued
14	2-Mar	Th	Ch. 6, Work and Kinetic Energy

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15	7-Mar	Tu	Ch. 6, continued
16	9-Mar	Th	Ch. 7, Potential Energy
17	14-Mar	Tu	Spring break
18	16-Mar	Th	Spring break
19	21-Mar	Tu	Ch. 7, continued
20	23-Mar	Th	Exam-2
21	28-Mar	Tu	Ch. 8, Momentum, Impulse and Collisions
22	30-Mar	Th	Ch. 8, continued
23	4-Apr	Tu	Ch. 9, Rotation of Rigid Bodies
24	6-Apr	Th	Ch. 9, continued
25	11-Apr	Tu	Ch. 10, Dynamics of Rotational Motion
26	13-Apr	Th	Ch. 10, Dynamics of Rotational Motion
27	18-Apr	Tu	Ch. 10, Dynamics of Rotational Motion
28	20-Apr	Th	Exam-3
29	25-Apr	Tu	Ch. 13, Gravitation
30	27-Apr	Th	Ch. 13, continued
31	2-May	Tu	Ch. 14, Periodic motion
32	4-May	Th	Last Class Day
-	5-May	F	Reading Day
<b>TBD</b>		<b>Final Exam, Physics 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 or your instructor.
- 5) **Communicate with your instructor** via e-mail at [Yuankun.lin@unt.edu](mailto:Yuankun.lin@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).

### UNT Policies

#### Academic Integrity Policy

Academic Integrity Standards and Consequences. According to UNT Policy 06.003, Student Academic Integrity, academic dishonesty occurs when students engage in behaviors including, but not limited to cheating, fabrication, facilitating academic dishonesty, forgery, plagiarism, and sabotage. A finding of academic dishonesty may result in a range of academic penalties or sanctions ranging from admonition to expulsion from the University. [Insert specific sanction or academic penalty for specific academic integrity violation.

#### ADA Policy

UNT makes reasonable academic accommodation for students with disabilities. Students seeking accommodation must first register with the Office of Disability Accommodation (ODA) to verify their eligibility. If a disability is verified, the ODA will provide a student with an accommodation letter to be delivered to faculty to begin a private discussion regarding one's specific course needs. Students may request accommodations at any time, however, ODA notices of accommodation should be provided as early as possible in the semester to avoid any delay in

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implementation. Note that students must obtain a new letter of accommodation for every semester and must meet with each faculty member prior to implementation in each class. For additional information see the [ODA website \(https://disability.unt.edu/\)](https://disability.unt.edu/).

### **Prohibition of Discrimination, Harassment, and Retaliation (Policy 16.004)**

The University of North Texas (UNT) prohibits discrimination and harassment because of race, color, national origin, religion, sex, sexual orientation, gender identity, gender expression, age, disability, genetic information, veteran status, or any other characteristic protected under applicable federal or state law in its application and admission processes; educational programs and activities; employment policies, procedures, and processes; and university facilities. The University takes active measures to prevent such conduct and investigates and takes remedial action when appropriate.

#### **Emergency Notification & Procedures**

UNT uses a system called Eagle Alert to quickly notify students with critical information in the event of an emergency (i.e., severe weather, campus closing, and health and public safety emergencies like chemical spills, fires, or violence). In the event of a university closure, please refer to Canvas for contingency plans for covering course materials.

### **Retention of Student Records**

Student records pertaining to this course are maintained in a secure location by the instructor of record. All records such as exams, answer sheets (with keys), and written papers submitted during the duration of the course are kept for at least one calendar year after course completion. Course work completed via the Canvas online system, including grading information and comments, is also stored in a safe electronic environment for one year. Students have the right to view their individual record; however, information about student's records will not be divulged to other individuals without proper written consent. Students are encouraged to review the Public Information Policy and the Family Educational Rights and Privacy Act (FERPA) laws and the University's policy. See UNT Policy 10.10, Records Management and Retention for additional information.

### **Acceptable Student Behavior**

Student behavior that interferes with an instructor's ability to conduct a class or other students' opportunity to learn is unacceptable and disruptive and will not be tolerated in any instructional forum at UNT. Students engaging in unacceptable behavior will be directed to leave the classroom and the instructor may refer the student to the Dean of Students to consider whether the student's conduct violated the Code of Student Conduct. The University's expectations for student conduct apply to all instructional forums, including University and electronic classroom, labs, discussion groups, field trips, etc. Visit UNT's [Code of Student Conduct \(https://deanofstudents.unt.edu/conduct\)](https://deanofstudents.unt.edu/conduct) to learn more.

### **Student Evaluation Administration Dates**

Student feedback is important and an essential part of participation in this course. The student evaluation of instruction is a requirement for all organized classes at UNT. The survey will be made available during weeks 13, 14 and 15 [insert administration dates] of the long semesters to provide students with an opportunity to evaluate how this course is taught. Students 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. Students should look for the email in their UNT email inbox. Simply click on the link and complete the survey. Once students complete the survey they will receive a confirmation email that the survey has been submitted. For additional information, please visit the [SPOT website \(http://spot.unt.edu/\)](http://spot.unt.edu/) or email [spot@unt.edu](mailto:spot@unt.edu).

### **Survivor Advocacy**

UNT is committed to providing a safe learning environment free of all forms of sexual misconduct. Federal laws and UNT policies prohibit discrimination on the basis of sex as well as sexual misconduct. If you or someone you know is experiencing sexual harassment, relationship violence, stalking and/or sexual assault, there are campus resources available to provide support and assistance. The Survivor Advocates can be reached at [SurvivorAdvocate@unt.edu](mailto:SurvivorAdvocate@unt.edu) or by calling the Dean of Students Office at 940-5652648.

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