

Mechanics
PHYSICS 1710-003
Spring 2024 (Face-to-Face)
Lecture Section 003, Terrill Hall 120, Mon, Wed, Fri: 10:00 – 10:50 am
Recitation Sections 211, 212, and 213

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Welcome to UNT and to the Physics department! 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.

Communication Expectations: This face-to-face lecture will be in Terrill Hall 120 for the Spring 2024 semester. All course-related material and announcements will be made available via Canvas. The best way to reach me with questions or concerns is via email at clittler@unt.edu. In most cases, you can expect to receive a response to emails within 24 hours.

Course Objectives: This course will cover topics in mechanics. During the course of this study, you will learn about the laws of motion, inertia, acceleration, force, energy, momentum, angular momentum, conservation laws, rotational and oscillatory motion.

PHYS 1710 contributes to the following core course learning 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:** Ability to compute and manipulate quantitative data and to reach meaningful conclusions.
- 4) **Teamwork.** Able to consider different points of view and to work effectively as a team.

Course Pre-requisites: Students must complete MATH 1710 with a grade of C or better.

Textbook and online homework system: The recommended text is *University Physics*, 15th 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:

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

Class Policies

- 1) Students are required to attend all lectures and recitations for the section in which you are enrolled.
- 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. Please refrain from use of vulgar language or rude behavior.
- 4) Pertinent questions should be directed to the instructor.
- 5) Classes will start at the assigned time. Tardy students will not be given any additional time on Exam. Silence mobile phones prior to attending class.
- 6) Students are expected to participate by answering in-class questions, and taking weekly written recitation quizzes.

Exams

- 1) There will be three 50-minute exams during the semester. The dates are indicated in the tentative lecture schedule. There will be a comprehensive final exam, to be given from 8:00 am to 10 am on May 4th, 2024. Exam questions will be based on lecture material, material contained in the text and in the homework assignments.
- 2) There will be no makeup exams, except for medical reasons.
- 3) Questions pertaining to the grading of exam questions and problems must be directed to the instructor in writing within two days after the graded exams are returned.
- 4) If you have a scheduled course conflict with the exam times, contact your instructor at the earliest.

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**.
- 4) Homework grading policy: Your homework grade is determined from your Mastering Physics web-based homework score.

Grades: All grades will be posted on Canvas, but the course grade will **NOT** be calculated in Canvas.

The course grades will be calculated as follows:

Exam 1	15%
Exam 2	15%
Exam 3	15%
Final Exam	30%
Home Work	15%
Recitation Quiz	10%

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

Spring 2022: Physics 1710.003

Tentative Lecture Schedule

Class	Date	Day	Chapter, Lecture Topic
1	17-Jan	W	Introduction; Ch. 1, Units, Physical Quantities
2	19-Jan	F	Ch. 1: Vectors
3	22-Jan	M	Ch. 1: Vectors
4	24-Jan	W	Ch. 2: Motion along a Straight Line
5	26-Jan	F	Ch. 2: Motion along a Straight Line continued
6	29-Jan	M	Ch. 3: Motion in Two Dimensions
7	31-Jan	W	Ch. 3, Projectile Motion
8	02-Feb	F	Ch. 3: Circular Motion
9	05-Feb	M	Ch. 4: Newton's Laws of Motion - Forces, 1st Law
10	07-Feb	W	Ch. 4: Newton's 2nd and 3rd Laws
11	9-Feb	F	Ch. 5: Applications of Newton's Laws
12	12-Feb	M	Ch. 5: Applications of Newton's Laws
13	14-Feb	W	Ch. 5: Applications of Newton's Laws
14	16-Feb	F	Exam 1; Chapters 1-4, Location: Phys 104
15	19-Feb	M	Ch. 6: Work
16	21-Feb	W	Ch. 6: Kinetic Energy
17	23-Feb	F	Ch.6: Kinetic Energy
18	26-Feb	M	Ch. 7: Potential energy
19	28-Feb	W	Ch. 7: Energy Conservation
20	01-Mar	F	Ch. 7: Applications of Energy Conservation
21	04-Mar	M	Ch. 8: Momentum
22	06-Mar	W	Ch. 8: Impulse
23	08-Mar	F	Ch. 8: Collisions
	11-17 Mar		No classes – Spring break
24	18-Mar	M	Ch. 9: Rotation of rigid bodies
25	20-Mar	W	Ch. 9: Rotation of rigid bodies continued
26	22-Mar	F	Exam 2; Chapters 5-8 , Location: Phys 104
27	25-Mar	M	Ch. 9: Rotation of rigid bodies continued
28	27-Mar	W	Ch. 10: Dynamics of rotational motion
29	29-Mar	F	Ch. 10: Dynamics of rotational motion continued
30	01-Apr	M	Ch. 10: Dynamics of rotational motion continued
31	03-Apr	W	Ch. 13: Gravitation – Newton's laws
32	05-Apr	F	Ch. 13: Gravitational potential energy
33	08-Apr	M	Total Solar Eclipse – no class unless cloudy
34	10-Apr	W	Ch. 13: Kepler's laws
35	12-Apr	F	Ch. 14: Periodic Motion
36	15-Apr	M	Ch. 14: Periodic Motion
37	17-Apr	W	Ch. 14: Periodic motion
38	19-Apr	F	Exam 3; Chapters 9-13, Location: Phys 104

39	22-Apr	M	Ch. 14: Periodic motion continued
40	24-Apr	W	Ch. 14: Periodic motion continued
41	26-Apr	F	Exam Review
42	29-Apr	M	Exam Review
43	01-May	W	Exam Review
44	03-May	F	<i>No class – Reading Day</i>
Final	04-May	S	FINAL EXAM—Comprehensive—8:00 am -10:00 am, Terrill 120

Physics 1710 Goals and Learning Strategies

The goals of instruction in Physics 1710 are to lead and to guide you to understand and master the fundamentals of classical mechanics, and to develop your skills of analysis using the mathematical tools of algebra and calculus. To help in achieving these goals you should consider 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 and respond to questions asked by your instructor.
- (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.
- (5) Respond via e-mail or during office hours at clittler@unt.edu whenever you have an observation or question.
- (6) Come to class prepared: bring a calculator, your text book, participate and take full advantage of the lecture hall learning experience.
- (7) Work extra practice problems, such as from the end-of-chapter problems in the text.

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.

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. For the Spring 2024 semester you will receive an email from "UNT SPOT Course Evaluations via IASystem Notification" (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. During the long terms, the SPOT is open for students to complete two weeks prior to final exams.

Course Policies

Face Coverings

UNT encourages everyone to wear a face covering when indoors, regardless of vaccination status, to protect yourself and others from COVID infection when recommended by current CDC guidelines. Face covering guidelines could change based on community health conditions.

Attendance

Students are expected to attend class meetings regularly and to abide by the attendance policy established for the course. It is important that you communicate with the professor and the instructional team prior to being absent, so you, the professor, and the instructional team can discuss and mitigate the impact of the absence on your attainment of course learning goals. Please inform the professor and instructional team if

you are unable to attend class meetings because you are ill, in mindfulness of the health and safety of everyone in our community. If you are experiencing any [symptoms of COVID-19](https://www.cdc.gov/coronavirus/2019-ncov/symptoms-testing/symptoms.html) (<https://www.cdc.gov/coronavirus/2019-ncov/symptoms-testing/symptoms.html>) please seek medical attention from the Student Health and Wellness Center (940-565-2333 or askSHWC@unt.edu) or your health care provider PRIOR to coming to campus. UNT also requires you to contact the UNT COVID Team at COVID@unt.edu for guidance on actions to take due to symptoms, pending or positive test results, or potential exposure.

UNT Policy Statements

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 Accommodation Statement: 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 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 at disability.unt.edu.

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 Blackboard for contingency plans for covering course materials.

Sexual Assault Prevention: UNT is committed to providing a safe learning environment free of all forms of sexual misconduct, including sexual harassment sexual assault, domestic violence, dating violence, and stalking. Federal laws (Title IX and the Violence Against Women Act) and UNT policies prohibit discrimination on the basis of sex, and therefore prohibit 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. UNT's Survivor Advocates can assist a student who has been impacted by violence by filing protective orders, completing crime victim's compensation applications, contacting professors for absences related to an assault, working with housing to facilitate a room change where appropriate, and connecting students to other resources available both on and off campus. The Survivor Advocates can be reached at SurvivorAdvocate@unt.edu or by calling the Dean of Students Office at 940-565- 2648. Additionally, alleged sexual misconduct can be non-confidentially reported to the Title IX Coordinator at oco@unt.edu or at (940) 565 2759.