

University of North Texas at Dallas

Spring 2015

SYLLABUS

PHYS 1210D, Conceptual Physics, 3hrs	
Department of	Life and Health Sciences
Division of	Liberal Arts and Life Sciences
Instructor Name:	Dr. Eric Strong
Office Location:	
Office Phone:	972.238.8911
Email Address:	Eric.Strong@unt.edu
Office Hours:	Tuesday, 7- 8pm
Virtual Office Hours:	
Classroom Location:	DAL2, Room 242 for Lecture, DAL2, Room 248 for Laboratory Exercises
Class Meeting Days & Times:	TR 5:30-6:50 PM for Lecture, Th 7-9:50pm for Laboratory Exercises
Course Catalog Description:	This course will guide you in a study of the basic concepts and principles describing our physical world. We will start with mechanics by studying single particle motion, Newton's laws, and uniform circular motion. The motion of systems of particles and the concepts of conservation of momentum and energy will be then discussed. We continue with topics like electric charge and electric force as well as current and magnetic force. This will lead to the discussion of light as an electromagnetic phenomenon and a discussion of reflection and refraction of light waves. There will be an emphasis on in-class problem solving techniques.
Prerequisites:	Math 1100D or higher and interdisciplinary studies (Elementary Education) major status.
Co-requisites:	None.
Required Text:	Conceptual Physics 12 th edition, Paul G. Hewitt, Addison Wesley
Recommended Text and References:	
Access to Learning Resources:	UNT Dallas Library: phone: (972) 780-3625; web: http://www.unt.edu/unt-dallas/library.htm
Course Goals or Overview:	
	The goal of this course is to provide students with understanding of basic physics concepts and laws.
Learning Objectives/Outcomes: At the end of this course, the student will	
1	Demonstrate good understanding of physics concepts <ul style="list-style-type: none"> • Be able to accurately define basic physics concepts and laws. • Have a solid understanding of the relationship between the mathematical representations and the associated physical concepts and principles • Demonstrate the ability to use those physics law and concepts in solving problems. • Demonstrate the ability to combine concepts in solving multiple-step problems.
2	Students should develop effective problem-solving skills <ul style="list-style-type: none"> • Satisfactorily solve standard textbook problem • Develop the ability to solve multi-step or multi-concept problems
3	Develop student cognitive attitudes: <ul style="list-style-type: none"> • See physics as a coherent framework of ideas that can be used to understand the world around us. • See what they are learning in the classroom as useful and strongly connected to the real world • Have the laboratory skills for the analysis of physical systems including data and error analysis, instrumentation, statistics and dimensional analysis.
4	Have appropriate oral and written communication skills to explain their work to people from a wide variety of backgrounds.

Course Outline

This schedule is subject to change by the instructor

	<u>Date</u>	<u>Lecture</u>	<u>Homework</u>	<u>Lab</u>
Week 1	Tuesday 14Jan14	Course Introduction About Science (Chapter 1)	Chapter 1: p17-18, #2, 20, 11, 23, 30, 27	Lab Safety
	Thursday 16Jan	Newton's 1st Law of Motion (Sections 2.1 – 2.4)	Chapter 2: p35-36, #4, 8, 9, 10, 38, 43	
Week 2	Tuesday 27Jan	Newton's 1st Law of M., cont. (Sections 2.5 – 2.8)	Chapter 2: p 35-37, #27-30, 31, 36, 50, 66	Measurement Skills
	Thursday 28Jan	Linear Motion (Section 3.1 – 3.3)	Chapter 3: p52-55, #3, 8, 29, 41, 41, 43, 44, 48	
Week 3	Tuesday 3Feb	Linear Motion, cont. (Section 3.4 – 3.6)	Chapter 3	Motion
	Thursday 5Feb	Newton's Second Law of Motion (Chapter 4)	Chapter 4 Re 1, 3; Ex 1, 3, 9, 19, 55; Pr 5, 6	
Week 4	Tuesday 10Feb	Newton's Third Law of Motion (Chapter 5)	Chapter 5 Re 1, 4; Ex 2, 10, 13, 24, 28; Pr 3, 4, 6	Momentum
	Thursday 12Feb	Momentum (Chapter 6)	Chapter 6 Re 2, 4; Ex 4, 12, 21, 54; Pr 2, 5	
Week 5	Tuesday 17Feb	Energy (Chapter 7)	Chapter 7 Re 3, 8, 10, 15; PC 5, 7, 11; Ex 15, 24, 29; Pr 1, 4	Center of Mass
	Thursday 19Feb	Review for Examination #1	Prepare for Examination #1	
Week 6	Tuesday 24Feb	Examination # 1: Chapters 1-6		Projectile Motion
	Thursday 26Feb	Rotational Motion (Ch. 8, pages 122-125, 135-139) Gravity (Chapter 9, pages 150-156, 164-166)	Chapter 8 - Re 1, 23, 24; PC 3, 4; Ex 42, 46, 47 Chapter 9 Re 3, 12, 15; PC 2, 5; Rk 1, 3; Ex 3, 11, 12, 15; Pr 5	
Week 7	Tuesday 3Mar	Projectile Motion (Chapter 10, pages 171-177)	Chapter 10 Re 3, 4, 5; Rk 1, 2; Ex 2, 5, 12; Pr 2	Density
	Thursday 5Mar	Atomic Nature of Matter (Ch. 11, pages 195-205) Solids (Chapter 12, Density pages 212-215)	Chapter 11 - Re 1, 9, 11, 12; Ex 5 Chapter 12 - Re 3; Ex 6, 7, 9, 10; Pr 1, 2	
Week 8	Tuesday 10Mar	Liquids – (Pressure & Buoyancy, Ch. 13. p 228-239) Gases – (Pressure, Chapter 14, pages 247-252)	Chapter 13 - Re 2, 3, 7, 17; PC 1, 2; Ex 2, 23, 25 Chapter 14 - Re 3, 16, 17; Ex 1, 9	Heat
	Thursday 12Mar	Temperature, Heat, and Expansion (Chapter 15)	Chapter 15 Re 2, 6, 7, 8, 19, 21, 25; Ex 5, 11, 28, 35	
Assignments codes: Review (Re), Plug and Chug (PC), Ranking (Rk), Exercises (Ex), and Problems (Pr)				

	Date	Lecture Preparation	Homework Assigned	Lab
	16-20Mar	Spring Vacation – Class does not meet		
Week 9	Tuesday 24Mar14	Heat Transfer (Chapter 16) Changes of Phase (Chapter 17)	Chapter 16 - Re 3, 12; Ex 3, 6, 28, 36, 39, 47, 51 Chapter 17 - Re 3, 7, 14, 26, 27; Ex 2, 3, 23, 24, 43	Change of Phase
	Thursday 26Mar	Review for Examination #2	Prepare for Examination #2	
Week 10	Tuesday 31Mar	Examination #2: Chapters 7, 15-17 and assigned selections from Chapters 9 -14		Speed of Sound
	Thursday 2Apr	Vibrations and Waves (Chapter 19, pages 333-344)	Chapter 19 Re 6, 9, 16; Ex 6, 9, 16, 21, 31, 37; Pr 4, 5	
Week 11	Tuesday 7Apr	Sound (Chapter 20) Musical Sounds (Chapter 21, pages 368-373)	Chapter 20 - Re 2, 8, 12; Ex 2, 6, 20, 28; Pr 4, 8 (Use 380 m/s for speed of sound in a damp cave.) Chapter 22 - Re 3, 10, 12; Ex 7, 12, 13	Electric Current
	Thursday 9Apr	Electrostatics (Chapter 22)	Chapter 22 Re 3, 4, 5, 7, 12; Ex 3, 6, 8, 9	
Week 12	Tuesday 14Apr	Electric Current (Chapter 23)	Chapter 23 Re 3, 8, 11; Ex 9; Pr 2	Simple Electric Circuits
	Thursday 16Apr	Electrical Current , continued	Chapter 23 Re 14, 28, 31, 32; Ex 26, 44; Pr 7	
Week 13	Tuesday 21Apr	Magnetism (Chapter 24)	Chapter 24 Re 5, 10; Ex 1, 7, 13, 20	Magnetic Fields
	Thursday 23Apr	Review for Examination #3	Prepare for Examination #3	
Week 14	Tuesday 28pr	Examination #3: Chapters 19-24		Light
	Thursday 30Apr	Properties of Light (Chapter 26)	Chapter 26 Re 9, 20; Ex 5, 13, 19, 21; Pr 5, 7	
Week 15	Tuesday 5May	Reflection and Refraction (Chapter 28)	Chapter 28 Re 15, 16, 21; Ex 1, 5, 7, 15, 21, 29	No Lab
	Thursday 7May	Course Review		
FINAL EXAMINATION, 5:00 - 7:00pm, Thursday, 12May15				
TextHW assignment are from the textbook,				

Course Evaluation Methods

This course will utilize the following instruments to determine student grades and proficiency of the learning outcomes for the course.

Examinations – *written tests to measure knowledge of material presented in lecture and laboratory exercises.*

- *There will be three exams and one comprehensive final exam.*
- *Exams are closed book.*
- *Use of a student supplied calculator is permitted.*
- *You are permitted both sides of one letter size sheet of paper (8.5" by 11") containing written or typed notes.*
- *There are no makeup exams.*

Assignments – *written assignments designed to supplement and reinforce course material*

- *Homework is assigned for lecture and must be turned in at the beginning of the next lecture.*
- *You must show your work explicitly and neatly as answers without work shown will receive no credit.*

Quizzes – *short multiple-choice quiz to measure student's preparation for the lecture*

- *They will be based on the material for that day's lecture.*

Laboratory Exercises

Each week, starting with the second week of classes, there is a lab that illustrates the material covered in lectures. You are responsible to read information from the lab manual and complete the Pre-lab assignment prior to the lab. There are no makeup labs

Grading Matrix:

Instrument	Value (points or percentages)	Total
Homework	10 points for each assignment	15%
Laboratory	25 points for each Lab	20%
Exam 1		15 %
Exam 2		15 %
Exam 3		15 %
Final Examination		20 %
Total:		100

Grade Determination:

- A = 90% or better
- B = 80 – 89 %
- C = 70 – 79 %
- D = 60 – 69 %
- F = less than 60%

University Policies and Procedures

Students with Disabilities (ADA Compliance):

The University of North Texas Dallas faculty is committed to complying with the Americans with Disabilities Act (ADA). Students with documented disabilities are responsible for informing faculty of their needs for reasonable accommodations and providing written authorized documentation. Grades assigned before an accommodation is provided will not be changed as accommodations are not retroactive. For more information, you may visit the Student Life Office, Suite 200, Building 2 or call Laura Smith at 972-780-3632.

Student Evaluation of Teaching Effectiveness Policy:

The Student Evaluation of Teaching Effectiveness (SETE) is a requirement for all organized classes at UNT. This short survey will be made available to you at the end of the semester, providing you a chance to comment on how this class is taught. I am very interested in the feedback I get from students, as I work to continually improve my teaching. I consider the SETE to be an important part of your participation in this class.

Assignment Policy:

Homework assignments are due at the beginning of class.

Exam Policy:

Exams should be taken as scheduled. No makeup examinations will be allowed except for documented emergencies (See Student Handbook).

Academic Integrity:

Academic integrity is a hallmark of higher education. You are expected to abide by the University's code of Academic Integrity policy. Any person suspected of academic dishonesty (i.e., cheating or plagiarism) will be handled in accordance with the University's policies and procedures. Refer to the Student Code of Academic Integrity at <http://www.unt.edu/unt-dallas/policies/Chapter%2007%20Student%20Affairs,%20Education,%20and%20Funding/7.002%20Code%20of%20Academic%20Integrity.pdf> for complete provisions of this code. In addition, all academic work submitted for this class, including exams, papers, and written assignments should include the following statement:

On my honor, I have not given, nor received, nor witnessed any unauthorized assistance that violates the UNTD Academic Integrity Policy.

Bad Weather Policy:

On those days that present severe weather and driving conditions, a decision may be made to close the campus. In case of inclement weather, call UNT Dallas Campuses main voicemail number (972) 780-3600 or search postings on the campus website www.unt.edu/dallas. Students are encouraged to update their Eagle Alert contact information, so they will receive this information automatically.

Attendance and Participation Policy:)

The University attendance policy is in effect for this course. Class attendance and participation is expected because the class is designed as a shared learning experience and because essential information not in the textbook will be discussed in class. The dynamic and intensive nature of this course makes it impossible for students to make-up or to receive credit for missed classes. Attendance and participation in all class meetings is essential to the integration of course material and your ability to demonstrate proficiency. Students are responsible to notify the instructor if they are missing class and for what reason. Students are also responsible to make up any work covered in class. It is recommended that each student coordinate with a student colleague to obtain a copy of the class notes, if they are absent.

Diversity/Tolerance Policy:

Students are encouraged to contribute their perspectives and insights to class discussions. However, offensive & inappropriate language (swearing) and remarks offensive to others of particular nationalities, ethnic groups, sexual preferences, religious groups, genders, or other ascribed statuses will not be tolerated. Disruptions which violate the Code of Student Conduct will be referred to the Office of Student Life as the instructor deems appropriate.