

# University of North Texas at Dallas

## Spring 2015

### SYLLABUS

<b>PHYS 1410D, General Physics I, 3hrs</b>	
<b>Department of</b>	Life and Health Sciences
<b>Division of</b>	Liberal Arts and Life Sciences
<b>Instructor Name:</b>	Dr. Eric Strong
<b>Office Location:</b>	
<b>Office Phone:</b>	972.238.8911
<b>Email Address:</b>	Eric.Strong@untdallas.edu
<b>Office Hours:</b>	Tuesday, 7- 8pm
<b>Virtual Office Hours:</b>	
<b>Classroom Location:</b>	DAL2, Room 213 for Lecture, DAL2, Room 248 for Laboratory Exercises
<b>Class Meeting Days &amp; Times:</b>	TR 5:30-6:50 PM for Lecture, Th 7-9:50pm for Laboratory Exercises
<b>Course Catalog Description:</b>	Non-calculus based physics sequence suitable for life sciences majors and preprofessional students. Principles and applications of mechanics, sound and heat.
<b>Prerequisites:</b>	Proficiency in algebra and trigonometry
<b>Co-requisites:</b>	None.
<b>Required Text:</b>	Knight, Jones, & Field; College Physics, A Strategic Approach (3rd edition); Published Jan 2014; ISBN-13: 978-0321879721; Addison-Wesley (Pearson)
<b>Recommended Text and References:</b>	
<b>Access to Learning Resources:</b>	UNT Dallas Library: phone: (972) 780-3625; web: <a href="http://www.unt.edu/unt-dallas/library.htm">http://www.unt.edu/unt-dallas/library.htm</a>
<b>Course Goals or Overview:</b>	
	The goal of this course is to provide students with understanding of basic physics concepts and laws.
<b>Learning Objectives/Outcomes:</b> At the end of this course, the student will	
1	Demonstrate good understanding of physics concepts <ul style="list-style-type: none"> <li>• Be able to accurately define basic physics concepts and laws.</li> <li>• Have a solid understanding of the relationship between the mathematical representations and the associated physical concepts and principles</li> <li>• Demonstrate the ability to use those physics law and concepts in solving problems.</li> <li>• Demonstrate the ability to combine concepts in solving multiple-step problems.</li> </ul>
2	Students should develop effective problem-solving skills <ul style="list-style-type: none"> <li>• Satisfactorily solve standard textbook problem</li> <li>• Develop the ability to solve multi-step or multi-concept problems</li> </ul>
3	Develop student cognitive attitudes: <ul style="list-style-type: none"> <li>• See physics as a coherent framework of ideas that can be used to understand the world around us.</li> <li>• See what they are learning in the classroom as useful and strongly connected to the real world</li> <li>• Have the laboratory skills for the analysis of physical systems including data and error analysis, instrumentation, statistics and dimensional analysis.</li> </ul>
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 25Aug15	<b>Course Introduction Representing Motion</b> (Chapter 1)	<b>Chapter 1: p23-25 Q: 21, 22, 24; P: 9, 24, 28, 32</b>	Lab Safety
	Thursday 27Aug	<b>Motion in One Dimension</b> (Chapter 2)	<b>Chapter 2: p56-60, Q: 13, 20, 22, 26; P: 5, 18, 38, 40, 42</b>	
Week 2	Tuesday 1Sep	<b>Vectors and Motion in 2-D</b> (Chapter 3)	<b>Chapter 3: p91-95, Q: 22, 24, 28; P: 22, 28, 32, 40, 66</b>	Measurement Skills
	Thursday 3 Sep	<b>Forces and Newton's Laws</b> (Chapter 4)	<b>Chapter 4: p119-122, Q: 9, 13, 23; P: 10, 15, 20, 36, 40</b>	
Week 3	Tuesday 8Sep	<b>Applying Newton's Laws</b> (Sections 5.1 – 5.6)	<b>Chapter 5: p 153-156, Q: 4, 22, 23, 24; P: 2, 6, 12, 16, 24, 28,</b>	Vector Addition
	Thursday 10Sep	<b>Applying Newton's Laws, continued</b> (Sections 5.7, 5.8)	<b>Chapter 5: p154-157, Q: 30; P: 40, 44, 48, 57</b>	
Week 4	Tuesday 15Sep	<b>Exam #1 (Chapters 1-5)</b>	None.	Atwood Machine
	Thursday 17Sep	<b>Circular Motion, Orbits, and Gravity</b> (Chapter 6)	<b>Chapter 6: p183-186</b>	
Week 5	Tuesday 22Sep	<b>Rotational Motion</b> (Sections 7.1 – 7.5)	<b>Chapter 7: p218-221</b>	Simple Machine
	Thursday 24Sep	<b>Rotational Motion, continued</b> (Sections 7.6, 7.7)	<b>Chapter 7: p219-223</b>	
Week 6	Tuesday 29Sep	<b>Equilibrium and Elasticity</b> (Chapter 8)	<b>Chapter 8: p241-245</b>	Projectile Motion
	Thursday 1Oct	<b>Momentum</b> (Sections 9.1-9.5)	<b>Chapter 9: p276-279</b>	
Week 7	Tuesday 6Oct	<b>Momentum, continued</b> (Sections 9.6, 9.7)	<b>Chapter 9: p 277-280</b>	Uniform Circular Motion
	Thursday 8Oct	<b>Review, Chapter 6-9</b>	<b>Prepare for Exam #2</b>	
Week 8	Tuesday 13Oct	<b>Exam #2 (Chapter 6-9)</b>	None.	Torque, Center of Gravity
	Thursday 15Oct	<b>Energy and Work</b> (Chapter 10)	<b>Chapter 10, p311-314</b>	

	<u>Date</u>	<u>Lecture Preparation</u>	<u>Homework Assigned</u>	<u>La b</u>
Week 9	Tuesday 20Oct	<b>Using Energy</b> (Sections 11.1-11.5)	Chapter 11: p344-347	Simple Harmonic Motion
	Thursday 22Oct	<b>Using Energy, continued</b> (Sections 11.6-11.8)	Chapter 11: p345-348	
Week 10	Tuesday 27Oct	<b>Thermal Properties of Matter</b> (Chapter 12)	Chapter 12: p390-395	Archimedes' Principle
	Thursday 29Oct	<b>Fluids</b> (Sections 13.1-13.4)	Chapter 13: p425-428	
Week 11	Tuesday 3Nov	<b>Fluids, continued</b> (Sections 13.5-13.6)	Chapter 13: p426-429	Expansion of Solids
	Thursday 5Nov	<b>Review, Chapter 10-13</b>	Prepare for Exam #3	
Week 12	Tuesday 10Nov	<b>Exam #3 (Chapters 10-13)</b>	None.	Standing WAVes
	Thursday 12Nov	<b>Oscillations</b> (Chapter 14)	Chapter 14: p463-467	
Week 13	Tuesday 17Nov	<b>Traveling Waves and Sound</b> (Chapter 15)	Chapter 15: p494- 497	Speed of Sound
	Thursday 19Nov	<b>Superposition and Standing Waves</b> (Chapter 16)	Chapter 16: p524-527	
Week 14	Tuesday 24Nov	<b>Wave Optics</b> (Sections 17.1-17.3)	Chapter 17: p559-562	No Lab (Pre-Finals Week)
	Thursday 26Nov	<b>Thanksgiving Day Holiday</b>	None.	
Week 15	Tuesday 1Dec	<b>Wave Optics, continued</b> (Sections 17.4, 17.5)	Chapter 17: p560-562	No Lab (Finals Week)
	Thursday 3Dec15	<b>Course Review</b>	Prepare for Final Examination	
<b>FINAL EXAMINATION (Comprehensive)</b>				

## 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:

<b>Instrument</b>	<b>Value (points or percentages)</b>	<b>Total</b>
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 %
<b>Total:</b>		<b>100</b>

### 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](http://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.