

Physics 1408-001 and -004: Principles of Physics I (Winter 2016)

- Instructor:** Dr. P. W. Mengyan **Office:** SC 019
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[Begin subject line with either *PHYS 1408-001*: or *PHYS 1408-004*:, as applicable to you]
- Office Hours:** MWF, 45 min after class, in Science Building Room 019. Other times by appointment
- Class Meetings** **PHYS 1408-001** [CRN: 45473]: M,W,F 08:00 to 08:50
PHYS 1408-004 [CRN: 54556]: M,W,F 13:00 to 13:50
- Webpage:** <http://www.phys.ttu.edu/~pmengyan> ; www.webassign.net
- Required Text:** Serway & Jewett. Physics for Scientists and Engineers.
For lecture 9th ed. (Brooks/Cole, 2014). [**With Enhanced Web Assign Access**]
- Required Text:** The lab manual for Physics 1 is sold exclusively by Texas Tech Society of Physics students outside of Science Room 004 during the first full week of class. You must have your lab manual before *Friday 29 Jan 2016*. After *Friday 29 Jan 2016* you will not be admitted to lab without your manual, in-hand.

Course Description (outline and expected outcomes): This calculus based introductory Physics course will cover the basics of classical Newtonian mechanics, encourage critical thinking and general problem solving skills. Progress towards these outcomes will be assessed through in-class exams, homework assignments, quizzes, laboratory and discussion exercises. More information is available via the teaching section of the instructor's webpage.

Homework: Assigned periodically via www.webassign.net. Due date and time will be indicated on each assignment. Assignments are typically made available before the material is covered in class. Late assignments are *not* typically accepted.

The homework will take time and effort to work and may be difficult. Do yourself a favor and start the homework as soon as it is available and allow enough time to work through each question.

In order to access the homework and other course materials, every student must register for the appropriate course on webassign.net. You must self-register yourself for the correct section using the webassign 'Class Key' [shown below]. Upon registration, you will need to report your full legal name [as on record with TTU], create a username, associate an email address and include an ID number. If you would like to receive credit for any activity completed via webassign, please use the following conventions.

- **Class Key:** ttu 7047 5582
- **Name:** Should be your *full legal name*, as on record with TTU (So I know who you are)
- **Username:** Should be your *eraider* name [i.e.: Raider Red would use "*rred*"]
- **Email Address:** Should be your *official* @ttu.edu address [i.e.: Raider Red's would be "*raider.red@ttu.edu*"]
- **Student ID Number:** MUST be your *complete* R number [i.e.: *R12345678*]

Note that the student ID number is the *only* way I can uniquely identify students; without it you will NOT receive any credit for work completed via webassign. No exceptions.

Exams: There will be three (3) scheduled exams during the semester plus a final exam. Each in-class exam is equally weighted. If the final exam score is higher than the lowest in-class exam score, the final exam score will replace this lowest in-class exam score. Exams 1, 2 and 3 will be administered in the normal lecture room and at the normal meeting time. The final exam will be administered in the same

room as lecture and at a time pre-determined by TTU. **Make up exams will not be administered.** If an exam is to be missed due to extenuating circumstances, contact me via email BEFORE the scheduled exam time to see about making the appropriate arrangements. Use of notes, books or electronic gizmos of any sort will NOT be permitted on the exams unless otherwise specified by the instructor.

Tentative Exam Schedule:

Exam 1:	Normal class time	Mon	~15 Feb 2016	Ch 1 – 4
Exam 2:	Normal class time	Wed	~09 Mar 2016	Ch 5 – 9
Exam 3:	Normal class time	Fri	~22 Apr 2016	Ch 10 – 14
Final Exam:				All material
1408-001	07:30 to 10:00	Sat	14 May 2016	covered in class
Final Exam:				All material
1408-004	13:30 to 16:00	Thurs	12 May 2016	covered in class

Exam times and content coverage may be adjusted to accommodate the course schedule. Deviations from this tentative schedule will be discussed, in class, as they become relevant.

The final exam time is predetermined by TTU and will *not* be modified by the instructor.

Grades:

Lab*/Discussion**, Quizzes, Homework, etc:	30%		A: ≥ 90%; B: ≥ 80%
Exams (1, 2, 3, Final, Final; Best 4 of 5):	70%		C: ≥ 70%; D: ≥ 60%
<u>Total:</u>	<u>100%</u>		F: < 60%

*Minimum grade of 60% in the laboratory component, in addition to appropriate performance in the rest of the course, is *required* to earn an overall passing grade in this course.

**Minimum grade of 60% in the discussion component, in addition to appropriate performance in the rest of the course, is *required* to earn an overall passing grade in this course.

Lab:

Lab is a separate course (PHYS 1408-5XX) in which you must be enrolled. A minimum score of 60% is *required* in order to qualify for a passing score in the lecture. To be clear, that means if your score is any less than 60.0%, you will have earned a FAILING grade in your lecture section. Your final grades from your laboratory course will be folded into your lecture score and is likely to be weighted at ~10%. The laboratory section of this course has been designed to give you some hands on experience with the topics covered in lecture.

Discussion:

Discussion (PHYS 1408-7XX) is a separate course in which you must be enrolled. A minimum score of 60% is *required* in order to qualify for a passing score in the lecture. To be clear, that means if your score is any less than 60.0%, you will have earned a FAILING grade in your lecture section. Your final grade from your discussion course will be folded into your lecture score and is likely to be weighted at ~10%. Discussion has been designed to give you an opportunity to have a more in-depth look at working Physics questions and problems; reviewing concepts covered in lecture and allowing you an additional opportunity to ask questions relating to any aspect of the course that you may desire more clarification.

Important Notes:

- **ADA Statement:**

In compliance with the ADA, [TTU OP 34.22](#) and [TTU OP 10.08](#)

“Any student who, because of a disability, may require special arrangements in order to meet the course requirements should contact the instructor as possible to make necessary arrangements. Students must present appropriate verification from Student Disability Services during the instructor’s office hours. Please note that instructors are not allowed to provide classroom accommodation to a student until appropriate verification from Student Disability Services has been provided. For additional information, please contact Student Disability Services office in 335 West Hall or call 806-742-2405.”

- **Religious Holidays:**

Pursuant of [TTU OP 34.19](#), a student who intends to observe a religious holy day should make that intention known, in writing, to the instructor prior to an absence. A student who is absent from a class, exam or exercise for the observance of a religious holy day shall be allowed to complete an assignment or exam scheduled for that day within a reasonable time around that absence.

- **Academic Integrity:**

[TTU OP 34.12](#) outlines grading policy as well as the definitions of scholastic dishonesty; all of which will be followed in all aspects of this course.

Excerpt: “It is the aim of the faculty of Texas Tech University to foster a spirit of complete honesty and high standard of integrity. The attempt of students to present as their own any work not honestly performed is regarded by the faculty and administration as a most serious offense and renders the offenders liable to serious consequences, possibly suspension. ‘Scholastic dishonesty’ includes, but [is] not limited to, cheating, plagiarism, collusion, falsifying academic records, misrepresenting facts and any act designed to give unfair academic advantage to the student [...]”.

- **Appropriate behavior:**

I expect students to behave in a respectful, considerate and courteous fashion in any activity related to this course (e.g. Lecture, lab, discussion, office hours etc).

Rude, disrespectful or disruptive behavior will *never* be tolerated.

Final Notes and Suggestions to Succeed:

- **Course Assistance:** A plethora of options are available to support your success in this course (i.e. Lecture [Dr. Mengyan], lab and discussion via class, office hours, email or special appointment), your textbook, the library, SI sessions and physics department tutors. **DO NOT HESITATE TO ASK QUESTIONS AS THEY ARISE** and take advantage of the available resources!

- Preparation is the key!

- o Read your book material before AND after we cover it in class
- o Study your notes
- o Take advantage of available resources (i.e. actually attend class, read the book!)

- Start your homework assignments as soon as possible. Give yourself plenty of time to complete the assignments as you will likely need to think carefully about the questions, review the relevant sections of the text or your notes and then work towards a solution.
- Use a dedicated notebook to fully work out homework questions and supplemental work
- Studying for any exam should be an ongoing exercise – structured reviews of relevant materials built into your schedule will promote a better long-term retention and higher understanding of the material
- As always, **ASK QUESTIONS WHEN YOU HAVE THEM!** [This is listed more than once for a reason!]
- Lastly, *Quando omni flunkus morituri*

Tentative Schedule of Course Content:

Cl #	Wk	Day	Date	Chapter[s]	Content / Additional Detail
1	1	Fri	22-Jan-16	Intro, 1	Syllabus, expectations, WebAssign access; Measurement, General Introduction
2	2	Mon	25-Jan-16	1,2	Scientific method; Problem solving proc; 1-D Motion
3	2	Wed	27-Jan-16	2	1-D Motion
4	2	Fri	29-Jan-16	2,3	1-D Motion, Vectors
5	3	Mon	1-Feb-16	3,4	2-D Motion; Laws of motion
6	3	Wed	3-Feb-16	3,4	2-D Motion; Laws of motion
7	3	Fri	5-Feb-16	3,4,5	2-D Motion/Laws of motion/Forces/FBD's
8	4	Mon	8-Feb-16	5	Laws of motion/Forces/FBD's
9	4	Wed	10-Feb-16	5	Laws of motion/Forces/FBD's
10	4	Fri	12-Feb-16	Review 1-5; 6	Review for Exam 1; Circular Motion
11	5	Mon	15-Feb-16	Exam 1	
12	5	Wed	17-Feb-16	Review Exam 1; 6	Review Exam 1; Circular motion & Other Applications of Newton's Laws
13	5	Fri	19-Feb-16	6	Circular Motion & Other App. of Newton's Laws
14	6	Mon	22-Feb-16	7,8	Work and Energy
15	6	Wed	24-Feb-16	7,8	Conservation of Energy; Linear momentum
16	6	Fri	26-Feb-16	7,8,9	Energy, Momentum, Collisions
17	7	Mon	29-Feb-16	8,9	Collisions, Center of mass, rockets
18	7	Wed	2-Mar-16	8,9	Collisions, Center of mass, rockets
19	7	Fri	4-Mar-16	Review 5-9; 10	Review for exam 2; Rotation of rigid objects
20	8	Mon	7-Mar-16	10, 11	Rotation of Rigid Objects; Torque
21	8	Wed	9-Mar-16	Exam 2	
22	8	Fri	11-Mar-16	Review Exam 2; 11	Review Exam 2; Torque/Newton's 2nd law, Moment of inertia, Kinetic energy, Rolling, etc
		Mon	14-Mar-16	** No Class **	Spring Break
		Wed	16-Mar-16	** No Class **	Spring Break
		Fri	18-Mar-16	** No Class **	Spring Break
23	9	Mon	21-Mar-16	11	Torque/Newton's 2nd law, Moment of inertia
24	9	Wed	23-Mar-16	11	Kinetic energy, Rolling, etc
25	9	Fri	25-Mar-16	11	Angular momentum; Collisions
	10	Mon	28-Mar-16	** No Class **	Student Holiday
26	10	Wed	30-Mar-16	12	Torque - Rotational equilibrium
27	10	Fri	1-Apr-16	12	Torque - Rotational equilibrium
28	11	Mon	4-Apr-16	12	Torque - Rot Equilib; Universal law of gravitation
29	11	Wed	6-Apr-16	13	Gravitation, Grav Potential, Orbits, Kepler
30	11	Fri	8-Apr-16	13	Orbits, Kepler
31	12	Mon	11-Apr-16	13, 14	Fluids
32	12	Wed	13-Apr-16	14	Fluids
33	12	Fri	15-Apr-16	14	Fluids
34	13	Mon	18-Apr-16	14, Rev for Ex 3	Fluids; Review for Exam 3
35	13	Wed	20-Apr-16	15	Oscillatory motion; SHOs
36	13	Fri	22-Apr-16	Exam 3	
37	14	Mon	25-Apr-16	Review Exam 3; 15	Review Exam 3; Oscillatory motion; SHOs
38	14	Wed	27-Apr-16	15	Oscillatory motion; SHOs
39	14	Fri	29-Apr-16	16,17,18,39	Select topics from 16,17,18 and 39 [as time permits]
40	15	Mon	2-May-16	16,17,18,39	Select topics from 16,17,18 and 39 [as time permits]
41	15	Wed	4-May-16	16,17,18,39	Select topics from 16,17,18 and 39 [as time permits]
42	15	Fri	6-May-16	16,17,18,39	Select topics from 16,17,18 and 39 / Overall review
43	16	Mon	9-May-16	Last day of lecture	Overall Review; Course/Instructor Evaluation
		Thurs	12-May-16	PHYS 1408-004 Final Exam	13:30 to 16:00 in SC 010
		Sat	14-May-16	PHYS 1408-001 Final Exam	07:30 to 10:00 in SC 007