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January 10, 2022

Physics 91
Conceptual Physics

- **Where:** 104 Thaw Hall (or WEB (Zoom))
- **When:** Monday and Friday: 8:30-9:50 am
- **Textbook: "**Conceptual Physics", 12th edition by Hewitt ISBN 9780321909107
- **Homework:** Several on-line problems assigned every week. The homework will be due approximately one week after problems become open. Late homework will be docked 10% per day.
- **Mid Terms:** There will be two 1.25 hour long mid-terms given during the semester.
  Exams:
  Exams will include on-line multiple choice questions. There will be no make-up midterm examinations under any circumstance. If your situation qualifies as a true medical or family emergency, you may be permitted to take a make-up exam through the testing center. *For each exam, you will be allowed to prepare in advance and use during the exam one 8.5" x 11" sheet of handwritten or typed formulas and diagrams.*
- **Final:** The final is cumulative and on-line.
- **Grade Breakdown:**
  → 2 Mid Term Exams = 50% (25% each)
  → Weekly Homework = 15%
  → Cumulative Final Exam = 35%
- **Office Hours:** Monday and Wednesday 1:30-2:30pm (or by schedule) via Zoom
- **Website:** Standard CANVAS site (2224 PHYS 0091 SEC1020)**:** At this site you'll find all class materials – homework assignment link, exam dates, topic for lecture period, and anything else I think may be useful.

Course Description:

Physics 91 is an introductory classical physics course. The topics will be presented stressing conceptual understanding with less emphasis on mathematical rigor. This course is intended for non-science majors and for students from the School of Health and Rehabilitation Sciences. Topics covered include: kinematics, Newton's Laws of Motion; conservation of total mechanical energy, total linear momentum, and total angular momentum; rotational kinematics and dynamics; simple harmonic motion; behavior of fluids; heat and heat transfer; mechanical waves and sounds.

Course Objectives:
Students successfully completing this course will be able to :

- Describe what physics is, what natural phenomena are explained by the science of physics, and what physicists study.
- Understand the scientific method and explain where scientific knowledge comes from.
- Develop logical reasoning skills, explain or predict diverse phenomena in everyday experience, and become independent thinkers.
- Demonstrate conceptual understanding of the concepts, principles and laws of physics covered in this course.
- Describe a physical situation, as necessary, using multiple representations such as written conceptual statements, mathematical equations, diagrams, and graphs, and be able to translate from one representation to another.
- Perform a conceptual analysis of a problem and identify physical principles required for its solution.
- Translate physical principles to formulate necessary mathematical statements required to solve a problem.

Topics Covered:

• Chapter 1: About Science
• Chapter 2: Newton's First Law of Motion: Inertia
• Chapter 3: Linear Motion
• Chapter 4: Newton's Second Law of Motion: Force and Acceleration
• Chapter 5: Newton's Third Law of Motion: Action and Reaction
• Chapter 6: Momentum
• Chapter 7: Energy
• Chapter 8: Rotational Motion
• Chapter 9: Gravity
• Chapter 10: Projectile and Stellite Motion
• Chapter 12: Solids
• Chapter 13: Liquids
• Chapter 14: Gasses and Plasmas
• Chapter 15: Temperature, Heat, and Expansion
• Chapter 16: Heat Transfer
• Chapter 17: Change of Phase
• Chapter 19: Vibrations and Waves
• Chapter 20: Sound
• Chapter 21: Musical Sounds

Approximate Class Schedule
(The midterm dates are FIXED):

WEEK	TOPIC
January 10	Chapter 1
January 19 (no class Monday (1-17))	Chapter 2-3
January 24	Chapter 4-5
January 31 (Feb. 2,4)	Chapter 5-6
February 7	Chapter 7-8
February 14	***1st Exam*** (Friday, Feb. 18) Chapter 8+Review
February 21	Chapter 9-10
February 28 (Mar. 2,4)	Chapter 11-12
March 7 (No classes, Spring break)	Sleep
March 14	Chapter 13-14
March 21	Chapter 15
March 28 (Apr. 1)	***2nd Exam*** (Friday, April 1) Chapter 15+Review
April 4	Chapter 16-17
April 11	Chapter 18-19
April 18	Chapter 20-21
April 25	Finals Week (Specific Day/Time TBA)

Course Policies:

• Academic Integrity:

Students in this course will be expected to comply with University of Pittsburgh's Policy on Academic Integrity. Any student suspected of violating this obligation for any reason during the semester will be required to participate in the procedural process, initiated at the instructor level, as outlined in the University Guidelines on Academic Integrity. This may include, but is not limited to, the confiscation of the examination of any individual suspected of violating University Policy. Furthermore, no student may bring any unauthorized materials to an exam, including dictionaries and programmable calculators.

Honor Code:

Students are expected to uphold the University's standard of conduct relating to academic honesty. Students assume full responsibility for the content and integrity of the academic work they submit. Students shall be guilty of violating the honor code if they:

1. Represent the work of others as their own
2. Use or obtain unauthorized assistance in any academic work
3. Give unauthorized assistance to other students

4. Modify, without instructor approval, an examination, paper, record, or report for the purpose of obtaining additional credit
5. Misrepresent the content of submitted work

Any student violating the honor code is subject to receive a failing grade for the course and will be reported to the Vice President of Academic Affairs.

• Disabilities:

If you have a disability that requires special testing accommodations or other classroom modifications, you need to notify both the instructor and Disability Resources and Services no later than the second week of the term. You may be asked to provide documentation of your disability to determine the appropriateness of accommodations. To notify Disability Resources and Services, call (412) 648-7890 to schedule an appointment. The Disability Resources and Services office is located at 140 William Pitt Union, and is open Monday-Friday from 8:30AM to 5:00PM.