Instructor: Jordan Watkins  
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Office Location: K 214  
Office Hours: M-F 8:30 – 9:30 AM  
Office Number: 972-860-4284

Lab Manager: Chaz Hafey  
Email: chazeh@dcccd.edu  
Office Location: K 214  
Office Hours: M-F 8:30 – 9:30 AM  
Office Number: 972-860-4766

Prerequisites: MATH 1314 and MATH 1316 or MATH 2412

Course Description:
The first semester of an algebra and trigonometry-based fundamental principles of physics sequence. The principles and applications of measurements, kinematics, Newton’s Laws, dynamics, gravity, circular motion, rotational motion, momentum, work, energy, temperature, heat and the kinetic theory of gases are studied with emphasis on problem solving. Laboratory experiments supporting the topics are included. (3 Lec., 3 Lab.)

Student Learning Outcomes
1. State the principles and laws of physics as they apply to kinematics, dynamics, circular motion, and rotational motion.
2. Identify and use relevant equations applicable to Newton's laws, gravity, momentum, work, energy, and heat.
3. Apply the concepts learned to solve theoretical problems and explain phenomena in the laboratory and in the outside world.
4. Perform laboratory experiments that illustrate important concepts and analyze the data gathered using scientific principles.
5. Develop skills for analytical thinking that are useful for problem solving in physics and other fields.
6. Participate in enrichment activities that lead to an appreciation of how physics has developed, how physics affects other fields and the relevance of learning physics.

Learning Outcomes for PHYS 1401 from THECB
1. Articulate the fundamental concepts of mechanics and dynamics, including velocity, acceleration, momentum, force, work, and energy.
2. Solve kinematics problems involving projectile motion in two dimensions.
3. Solve problems involving the inter-relationship of mass, force, and acceleration.
5. Apply Newton’s Laws to the analysis of static and dynamic systems.
7. Analyze dynamic systems according to the law of conservation of energy.
8. Analyze systems according to conservation of momentum.
9. Solve problems in rotational motion.
10. Articulate the principles of the kinetic theory of gases and heat.
11. Solve real-world problems involving heat and temperature.
12. Prepare laboratory reports that clearly communicate experimental information in a logical and scientific manner.
13. Conduct basic laboratory experiments involving mechanics and dynamics.
14. Relate physical observations and measurements involving mechanics and dynamics to theoretical principles.
15. Evaluate the accuracy of physical measurements and the potential sources of error in the measurements.
16. Identify appropriate sources of information for conducting laboratory experiments involving mechanics and dynamics.
Core Objectives

(i) Courses in this category focus on describing, explaining, and predicting natural phenomena using the scientific method.

(ii) Courses involve the understanding of interactions among natural phenomena and the implications of scientific principles on the physical world and on human experiences.

(iii) The following four Core Objectives are addressed in this course to fulfill this requirement:

- **Critical Thinking Skills**: to include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information.
- **Communication Skills**: to include effective development, interpretation and expression of ideas through written and visual communication.
- **Empirical and Quantitative Skills**: to include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions.
- **Teamwork**: to include the ability to consider different points of view and to work effectively with others to support a shared purpose or goal.

Textbooks

- **Lab**: Sidhwa, Anahita F: *Physics: 1401/2425 Lab Experiments*

Course Outline – Check Calendar for outline of important dates.

Evaluation

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<th>Exams</th>
<th>Labs</th>
<th>Homework</th>
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<td>110/Exam</td>
<td>25/Lab</td>
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**Exams** will consist of short answer and calculation problems. Reviews will be provided and may also be covered during class. Exams will be given at the end of the class on Friday and they will be turned in the following Monday. Check the attached schedule for any deviations.

**Labs** will consist of short answer and calculations involved with the exploration and understanding of fundamental mechanics, dynamics, and heat. A lab book must be purchased separately that has the listed labs above detailed within.

**Homeworks** will consist of short answer and calculation questions for every chapter. Chapter problem sets for each exam unit will be due on the Friday of the exam. Time permitting, solutions to problems will be gone over in class on Fridays, though solutions will be provided on Blackboard the following Saturday.

Withdrawal Policies

The deadline for withdrawing from this course with a W is June 25th. If you do not file the appropriate forms by that date, you will receive a performance grade which may be an "F."

Financial Aid Statement

Students who are receiving any form of financial aid should check with the Financial Aid Office prior to withdrawing from classes. Withdrawals may affect your eligibility to receive further aid and could cause you to be in a position of repayment for the current semester. Students who fail to attend or participate after the drop date are also subject to this policy.

Special Help

Please come and see me during my office hours if you need help during the semester. You can also schedule a meeting at other times. Mr. Chaz Hafey is available for assistance with problem-solving during open lab times. His hours are posted in lab K-251.

STEM Resource Center

Tutoring is available for physics, mathematics and engineering in room K-137. Feel free to use the facility as a workstation for studying and working on homework problems.
Other Policies

1. Students are expected to attend class and lab regularly and complete tests and assignments on time. Please meet with me following an absence so alternate arrangements can be made for lab.

2. Students receiving financial aid must show participation prior to the certification date. Do not drop or stop attending without consulting with the Financial Aid office to prevent adverse consequences.

3. If you are a student with a disability and/or special needs who requires accommodations, please contact the College Disability Services Office in S-124.

4. If you will be absent due to a religious observance, please let your instructor know at the beginning of the semester to make alternate arrangements.

5. Scholastic dishonesty is a violation of the Code of Student Conduct. Scholastic dishonesty includes, but is not limited to cheating on a test, plagiarism and collusion. As a college student, you are considered a responsible adult. Your enrollment indicates acceptance of the Dallas County Community Colleges Code of Student Conduct published in the college catalog.

6. You will be able to view your grades during the semester on eCampus and your final grade on eConnect after the instructor submits the final grade.

7. Effective Fall 2005, the Dallas County Community Colleges will charge additional tuition to students registering for the same course for a third or subsequent time since Fall 2002.

8. Stop before you drop! If you enrolled in a college level course after Fall 2007, you cannot drop more than 6 courses in your entire undergraduate career unless the drop qualifies as an exemption. Please check with the Advising Office in S-113 for more information.

9. The Family Educational Rights and Privacy Act (FERPA) is a Federal Law that protects students and gives you certain rights. These include the right to inspect and review education records, seek amendment of education records, consent to the disclosure of education records, and file a complaint with the FERPA Office in Washington D.C. Please check the DCCCD website under FERPA for more information.

10. NO CELL PHONES and NO TEXTING in class, lab or in the testing center. Cell phones may not be used as calculators.

11. Laptop computers may be used during class only to take notes or if you have an ebook version of the textbook.

12. The instructor reserves the right to amend the syllabus as necessary.

13. Concealed Carry – Any person who holds a license to carry may carry a concealed handgun on college district property as permitted by law and college district policy. A license holder who carries a handgun on college district property must keep it concealed and on or about their person at all times. The open carry of a handgun (i.e., completely or partially visible) is prohibited on college district property, including any public driveway, street, sidewalk, walkway, parking lot, parking garage or other parking area.

14. Weapons – The use, possession or display of a weapon in violation of law and college district policy is strictly prohibited. This prohibition applies to firearms, knives, clubs, fireworks of any kind, incendiary devices, razors, chains, throwing stars and any other device designed to expel a projectile or to inflict bodily harm. Violations may result in disciplinary action and/or criminal penalties.
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**Module 1:**
- **Chapter 1**: Lec: Introducing measurements
  - Lab: Accel on an Inclined Plane

**Module 2:**
- **Chapter 2**: Lec: Velocity and Acceleration
  - Lab: Velocity and Acceleration

**Module 3:**
- **Chapter 3**: Lec: Projectile Motion
  - Lab: Projectile Motion

**Module 4:**
- **Chapter 4**: Lec: Force, Mass, & Newton’s Laws
  - Lab: Force Table

**Module 5:**
- **Chapter 5**: Lec: Universal Law of Gravity
  - Lab: Torques & Equilibrium

**Module 6:**
- **Chapter 6**: Lec: Kinetic and Potential Energy
  - Lab: Conversions of Energy

**Module 7:**
- **Chapter 7**: Lec: Conservation of Energy / Momentum
  - Lab: Conservation of Momentum

**Module 8:**
- **Chapter 8**: Lec: Angular Momentum
  - Lab: Centripetal

**Module 9:**
- **Chapter 9**: Lec: Temperature
  - Lab: Ideal Gas Law

**Module 10:**
- **Chapter 10**: Lec: Heat Transfer
  - Lab: Latent Heat

**Module 11:**
- **Chapter 11**: Lec: Final Exam
  - Lab: Final Exam – Compr.

**Module 12:**
- **Chapter 12**: Lec: Final Exam
  - Lab: Final Exam – Compr.

**Module 13:**
- **Chapter 13**: Lec: Temperature
  - Lab: Ideal Gas Law

**Module 14:**
- **Chapter 14**: Lec: Heat Transfer
  - Lab: Latent Heat

**Module 15:**
- **Chapter 15**: Lec: Independence Day
  - Lab: Final Exam – Compr.