



UNIVERSITY of HAWAII®  
**WINDWARD**  
COMMUNITY COLLEGE

**PHYS 170 General Physics I**

**4 Credits (CRN 62397)**

**Mondays and Wednesdays; 5:30 to 7:10 pm**

**INSTRUCTOR:** Dr Jacob V Hudson Jr  
**OFFICE:** Hale Imiloa 112 (NASA AEL Flight Lab)  
**OFFICE HOURS** (times students may drop in for help): M-W 4:00 to 5:30 pm  
**TELEPHONE:** X9112 **EMAIL:** jacobh@hawaii.edu  
**EFFECTIVE DATE:** **Spring 2024; Jan. 8 to May 10.**

**WINDWARD COMMUNITY COLLEGE MISSION STATEMENT**

*Windward Community College offers innovative programs in the arts and sciences and opportunities to gain knowledge and understanding of Hawai'i and its unique heritage. With a special commitment to support the access and educational needs of Native Hawaiians, we provide the Ko'olau region of O'ahu and beyond with liberal arts, career and lifelong learning in a supportive and challenging environment — inspiring students to excellence.*

**CATALOG DESCRIPTION**

This is the first of a rigorous, calculus-based course in physics for the professional or engineering majors. The study of the concepts of physics including the fundamental principles and theories of mechanics, energy, waves and thermodynamics.

**PRE-REQUISTE**

Credit for Math 205 or higher or consent of the instructor

**STUDENT LEARNING OUTCOMES**

As a result of taking this course, students can expect to attain the following outcomes:

1. Demonstrate a solid conceptual understanding of kinematics, dynamics, wave phenomena, and thermodynamics.
2. Solve applicable problems using differential calculus and vector analysis.
3. Apply the laws of physics to computational problems in kinematics, dynamics, wave phenomena, and thermodynamics.

**CONNECTION WITH GLOs**

- Develop the ability to perceive how people interact with their cultural and natural environments, through their own worldview and through the worldview of others, in order to analyze how individuals and groups function in local and global contexts.

- Identify information needed in a variety of situations, and access, evaluate, and use relevant information effectively and responsibly.
- Make judgements, solve problems, and reach decisions using analytical, critical, and creative thinking skills.
- Use written, visual, and oral communication to discover, develop, and communicate meaning, and to respond respectfully to the ideas of others in multiple environments.

## COURSE PHILOSOPHY

Physics is an interesting and challenging subject. It is also the basic science, the foundation of all other physical sciences. Physics attempts to describe the fundamental nature of the Universe and how it works, striving for the simplest explanations common to its diverse behavior. For example, physics explains why the sky is blue, why rainbows have color, what keeps a satellite in orbit, and what atoms and nuclei are made of. In a rapidly changing environment, the key to success is adaptability. There is no other field of study available which offers the student greater flexibility in this high-tech society of ours. Whether the student is contemplating a career as a scientist, an engineer, a teacher, a physician, a lawyer, or a business person, one can get no better grounding in fundamental, logical and critical thinking than is possible in physics.

## ASSESSMENT

**Grading:** Student assessment will be determined from class participation (~5%), homework (~40%), midterms (~35%) and the Final (~20%). All students are required to take the Final exam.

**Class Participation** – In addition to the class lecture, students are to take part in the problem solving that will be emphasized each class.

**Homework** – A homework assignment will be given each class. The assignment is due at the beginning of the next class period. No *Late* assignments will be collected.

**Exams** – There are three midterm exams, each yielding approximately 12% of the overall point total of the semester grade. The final exam is at the scheduled time, and is worth approximately 20% of the overall point total of the semester grade.

## LEARNING RESOURCES

**Text:** *Fundamentals of Physics (Latest Edition); D. Haliday, R. Resnick, & J. Walker*  
J. Wiley and Sons, Inc.

In addition to the above mentioned text, students will need a straight edged protractor, and a ‘non-QWERTY’ type calculator. A graphing calculator (such as a TI-85) is highly recommended.

## COURSE CONTENT

Tentative Schedule:

Date	Subject	
1/8	Introduction/Scientific Method	
1/10	Measurement	
1/17	Motion Along a Straight Line	
1/24	Vectors	
1/29	Motions in Multiple Dimensions	
1/31	Forces and Motion I	
2/5		EXAM I
2/7	Forces and Motion II	
2/12	Work and Kinetic Energy	
2/14	Potential Energy and Conservation	
2/21	Potential Energy and Conservation	
2/26	Momentum and Systems of Particles	
2/28	Systems of Particles	
3/4		EXAM II
3/6	Collision	
3/11	Rotations	
3/13	Torque and Angular Momentum	
3/27	Gravitation (history)	
4/1	Gravitation	
4/8	Oscillations	
4/15		EXAM III
4/17	Waves I	
4/22	Waves II	
4/29	Heat and Temperature	
5/1	The 1 <sup>st</sup> Law of Thermodynamics	
5/6	Kinetic Theory of Gases	
5/8		FINAL EXAM

## ADDITIONAL INFORMATION

- MySuccess: Students may be referred for extra help or advising through MySuccess. Students can also explore resources at [MySuccess.Hawaii.edu](http://MySuccess.Hawaii.edu) and [windward.hawaii.edu/MySuccess](http://windward.hawaii.edu/MySuccess)

## DISABILITIES ACCOMMODATIONS

If you have a physical, sensory, health, cognitive, or mental health disability that could limit your ability to fully participate in this class, you are encouraged to contact the Disability Specialist Counselor to discuss reasonable accommodations that will help you succeed in this class. Ann Lemke can be reached at 235-7448, [lemke@hawaii.edu](mailto:lemke@hawaii.edu), or you may stop by Hale ‘Ākoakoa 213 for more information.

## **SEX DISCRIMINATION AND GENDER-BASED VIOLENCE RESOURCES (TITLE IX)**

Windward Community College is committed to providing a learning, working, and living environment that promotes personal integrity, civility, and mutual respect and is free of all forms of sex discrimination and gender-based violence, including sexual assault, sexual harassment, gender-based harassment, domestic violence, dating violence, and stalking.

If you or someone you know is experiencing any of these, WCC has staff and resources to support and assist you. To report an incident of sex discrimination or gender-based violence, as well as receive information and support, please contact one of the following:

Kaahu Alo, Student Life Counselor & Designated Confidential\* Advocate for Students

Phone: (808) 235-7354

Email: kaahualo@hawaii.edu

Office: Hale 'Ākoakoa 232

*\*confidentiality is limited*

Desrae Kahale, Mental Health Counselor & Confidential Resource

Phone: (808) 235-7393

Email: dkahale3@hawaii.edu

Office: Hale Kāko'o 101

Karla K. Silva-Park, Title IX Coordinator

Phone: (808) 235-7468

Email: karlas@hawaii.edu

Office: Hale 'Ākoakoa 220

As a member of the University faculty, I am required to immediately report any incident of sex discrimination or gender-based violence to the campus Title IX Coordinator. Although the Title IX Coordinator and I cannot guarantee confidentiality, you will still have options about how your case will be handled. My goal is to make sure you are aware of the range of options available to you and have access to the resources and support you need.

For more information regarding sex discrimination and gender-based violence, the University's Title IX resources and the University's Policy, Interim EP 1.204, go to [manoa.hawaii.edu/titleix/](http://manoa.hawaii.edu/titleix/)

## **ACADEMIC INTEGRITY**

Work submitted by a student must be the student's own work. The work of others should be explicitly marked, such as through use of quotes or summarizing with reference to the original author.

Students can upload papers to <http://www.TurnItIn.com> to have papers checked for authenticity, highlighting where the paper potentially fails to appropriately reference sources.

In this class, students who commit academic dishonesty, cheating or plagiarism will have the following consequence(s):

Students will receive a failing grade for plagiarized assignments.

All cases of academic dishonesty are referred to the Vice Chancellor for Student Affairs.

*Windward Community College is an equal opportunity, affirmative action institution.*

**ALTERNATE CONTACT INFORMATION**

If you are unable to contact the instructor, have questions that your instructor cannot answer, or for any other issues, please contact the Academic Affairs Office:

- Location: Alaka'i 121
- Phone: (808) 235-7422