61061  Physics 151
3 Credits
T, Th; 1:00 to 2:15 pm

INSTRUCTOR:  Dr. Jacob Hudson
OFFICE:  Hale Imiloa Rm. 130
OFFICE HOURS:  M, W; 3:00 pm to 5:00 pm
TELEPHONE:  X9112
EFFECTIVE DATE:  Aug 21 to Dec 12, 2017

WINDWARD COMMUNITY COLLEGE MISSION STATEMENT

Windward Community College is committed to excellence in the liberal arts and career development; we support and challenge individuals to develop skills, fulfill their potential, enrich their lives, and become contributing, culturally aware members of our community.

CATALOG DESCRIPTION

A non-calculus one semester course for the professional or non-engineering majors. Study of the basic concepts of physics, including the fundamental principles and theories in mechanics, energy, and waves.

STUDENT LEARNING OUTCOMES

The student learning outcomes for the course are:

1. Demonstrate a solid conceptual understanding of kinematics, dynamics, wave phenomena, and thermodynamics.

2. Solve applicable problems using vector analysis.

3. Apply the laws of physics to computational problems in kinematics, dynamics, wave phenomena, and thermodynamics.

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 then is possible in physics.

**ASSESSMENT TASKS AND GRADING**

**Grading:** Student assessment will be determined from class participation (~4%), homework (~40%), midterms (~36%) and the Final (~20%). All students are required to take the Final exam in May.

**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:*  College Physics (7th Ed); J. D. Wilson, A. J. Buffa, B. Lou

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.

**Additional Information (tentative schedule)**

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<thead>
<tr>
<th>Week</th>
<th>Subject</th>
<th>Chap.</th>
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<tbody>
<tr>
<td>I</td>
<td>Introduction and Scientific Method  Dimensional Analysis</td>
<td>1</td>
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<td>II</td>
<td>Kinematics</td>
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<td>III</td>
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<td>9/7</td>
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<tr>
<td>V</td>
<td>Laws of Force</td>
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<td>Dynamics</td>
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EXAM I
VI  Definition of Work
   Work done by a Variable Force
VII  Energy
   Work Energy Theorem
VIII Momentum

10/5   EXAM II
IX  Collisions
   Center of Mass
X  Circular Motion
   History
XI  Kepler’s Laws of Planetary Motion
   Newton’s Law of Gravitation

11/9   EXAM III
XII Rotations and Torques
   Equilibrium
XIII Rotational Dynamics
XIV States of Matter
   Fluid Flows
XV  Vibrations
   Waves

12/12 (1:00 pm to 3:00 pm)   FINAL EXAM

DISABILITIES ACCOMMODATION STATEMENT

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, or you may stop by Hale ‘Akoakoa 213 for more information.