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**Spring 2017 Syllabus**  
**Course Code:PHY-130-01-1**

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**I. Instructor Information**

**Name:** Eric Dodson, M.S.  
**Office:** 110 Wesselkamper  
**Phone:** 739-8363  
**email:** [eric.dodson@chaminade.edu](mailto:eric.dodson@chaminade.edu)  
**Office Hours:** Monday-Friday 12:30-1:20 and by appointment

**II. Course Information**

**Meets:** MWF 1:30-2:20PM  
**Location:** Ching Hall Room 254

**III. Required Text**

None (to be purchased), Readings from the World Wide Web will be assigned

**IV. Course Title: Physics of Human Motion**

**V. Course Description:** Introduction to physical principles of mechanics, thermodynamics and electricity using the motion and physiology of the human body as a model. Application of physical principles to real-world examples found in exercise physiology, kinesiology and healthcare. *Concurrent registration on PHY 130L required. Satisfies natural science requirement for non-science majors when taken in combination with PHY 130L*

**VI. Learning Outcomes:** At the conclusion of the course the student will be able to:

- Demonstrate an understanding of and the ability to recognize and use the scientific method (Corresponds to general education- natural sciences learning outcome #1)
- Numerical skills that extend to fundamental units of measurement and their interconversion
- An understanding of the principles of basic mechanics, thermodynamics and electricity
- Demonstrate the ability to think critically by applying the appropriate laws of physics (correctly) to a given physical situation

**VII. Course Elements**

Introduction to the fundamentals of physics (mechanics, thermodynamics and electricity) through the analysis of human motion. Shown below is the proposed schedule of topics to be covered.

<b>Week of</b>	<b>Topics</b>
1/16-1/20	Introduction, Powers of 10, Scientific Notation, Metric System, Unit Conversions, Density
1/23-1/27	Coordinate Systems, Vectors, Position Displacement Velocity and Acceleration
1/30-2/03	Free-Fall in One-Dimension (1-D), Graphical Analysis of 1-D Motion, 2-D Projectile Motion, Trajectories
2/6-2/10	Newton's Laws, Weight, Normal Forces, Free-Body-Diagrams, Applications of Newton's Laws, Circular Motion
2/13-2/17	Friction, Air Resistance, Terminal Velocity, MIDTERM 1
2/20-2/24	Energy & its Units, Kinetic Energy, Potential Energy, Work, 1st Law of Thermodynamics, Energy Conversions
2/27-3/03	Human Energy Systems, Human Power in Sports, V02Max, Impulse & Momentum, Collisions, Center of Mass
3/06-3/10	Torque and Rotation, Levers, Levers in the Human Body, Rotational Inertia
3/13-3/17	Muscles and Torque production in the human body, Biomechanical Description of Human Motion, Muscles and Motion
3/20-3/24	<b>Spring Break</b>
3/28-3/31	Human Bones, Stress & Strain, Tension and Compression, Elasticity, MIDTERM 2
4/3-4/7	Pressure and Temperature, The Ideal Gas Law, Intro to Thermodynamics
4/10-4/13	Buoyancy, Introduction to Waves, Sound and Human Hearing
4/17-4/21	Electromagnetic Waves & Spectrum, Light, Color and Human Vision, Reflection and Refraction, Optics
4/24-4/28	Electric Forces and Fields, Magnetic Forces and Fields
5/1-5/5	The Scientific method, Review for Final
5/8-5/12	<b>Finals Week</b>

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## VIII. Grading Scale

A= 90% and up

B= 80-89%

C= 70-79%

D= 60-69%

F= less than 60%

## IX. Assignments and Grading

Final grades will be based on the following

Attendance and Participation 10%

Quizzes 10%

Class Notebooks 10%

Midterms (2) 45%

Final Exam 25%

### Quizzes:

A two to ten minute quiz will be given at the beginning of every class on Friday. The material to be covered on the quiz will be presented the previous class and practice problems will be given. No make-up quizzes will be given.

### Class Notebooks:

Essentially all exam material will come from concepts and examples that have been presented in class on the board. It is essential that you take good notes during class. To encourage this practice I will collect your class notebooks and evaluate them once every two weeks. The notebook will be graded based on completeness and effort. Each page of the notebook should be numbered and dated at the top.

### Midterms:

Two midterms will be given during the semester. They will consist of a mixture of multiple choice questions and problems. A calculator may be used. The tentative dates are shown below.

Midterm 1                      Friday, February 17

Midterm 2                      Friday, March 31

## X. Additional Departmental and University Policies

### 1. Electronic Devices

**Use of music devices and cell phones is prohibited during all Natural Science and Mathematics classes at Chaminade, unless specifically permitted by your instructor. Use of cellphones and music devices in laboratories is a safety issue. In addition, use of cellphones and music devices in any class is discourteous and may lead to suspicion of academic misconduct. Students who cannot comply with this rule will be asked to leave class and may be subject to laboratory safety violation fines. You will be asked to leave class and marked absent if you do not comply. This will negatively affect your grade. Please refer any questions to the Dean of Natural Sciences and Mathematics.**

### 2. ADA Statement

2.1 Pursuant to several federal and state laws, including the Americans with Disabilities Act of 1990, as amended by the ADA Amendments Act of 2008, and Section 504 of the Rehabilitation Act of 1973, all qualified students with disabilities are protected from discrimination on basis of disability and are eligible for reasonable accommodations

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or modifications in the academic environment to enable them to enjoy equal access to academic programs, services, or activities. If a student would like to determine if they meet the criteria for accommodations, they should contact the Counseling Center at 808-735-4845 for further information.

### 3. Attendance & Tardiness

3.1 Students are expected to attend regularly all courses for which they are registered. Students should notify their instructors when illness or other extenuating circumstances prevents them from attending class and make arrangements to complete missed assignments. Notification may be done by emailing the instructor's Chaminade email address, calling the instructor's campus extension or by leaving a message with the instructor's division office (Natural Science and Math 1 (808) 440-4204). It is the instructor's prerogative to modify deadlines of course requirements accordingly. Any student who stops attending a course without officially **withdrawing** may receive a failing grade.

3.2 Unexcused absences equivalent to more than a week of classes may lead to a grade reduction for the course. Any unexcused absence of two consecutive weeks or more may result in being **withdrawn** from the course by the instructor, although the instructor is not required to **withdraw** students in that scenario. Repeated absences put students at risk of failing grades.

3.3. Tardiness: Quizzes will begin promptly at the beginning of class. Show up on time and you will get the full amount of time to complete your quiz

### 4. Policy on Make-Up Tests

Make-ups will only be allowed with a valid excuse.

### 5. Policy on Communication

5.1 The University provides a Chaminade email address for all students. Official Chaminade communications will be sent to the students' Chaminade email address and instructors will use only this email to communicate with students. It is the responsibility of the student to check their email frequently. Report email-related problems to the Helpdesk at 808-735-4855 or helpdesk@chaminade.edu.

### 6. Laboratory Safety Information

The following guidelines are established to provide instructions in maintaining safety for students, staff, and faculty while using any of the science laboratories at Chaminade University. The Division of Natural Sciences and Mathematics (NSM), along with the University Environmental Safety Office are responsible for enforcing the regulations set forth in the current Student Handbook. Queries should be addressed to: Dean of Natural Sciences and Mathematics (808) 440-4204; Environmental Safety Officer (808) 739-4811

### 7. Title IX Declaration

Chaminade University of Honolulu recognizes the inherent dignity of all individuals and promotes respect for all people. Sexual misconduct, physical and/or psychological abuse will NOT be tolerated at CUH. If you have been the victim of sexual misconduct, physical and/or psychological abuse, we encourage you to report this matter promptly. As a faculty member, I am interested in promoting a safe and healthy environment, and should I learn of any sexual misconduct, physical and/or psychological abuse, I must report the matter to the Title IX Coordinator. Should you want to speak to a confidential source you may contact the following:

- Chaminade Counseling Center| 808 735-4845.
- Any priest serving as a sacramental confessor or any ordained religious leader serving in the sacred confidence role.

**8. Academic Honesty: Students are expected to have read and to abide by the "Student Rules of Conduct" which are available in your copy of Chaminade University's Student Handbook. Cheating in the form of plagiarism, collusion, deception and will not be tolerated and will negatively affect your grade.**

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