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**Spring 2017 Syllabus**  
**Course Code: ENV-202-01-1**

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**I. Instructor Information**

**Name:** Eric Dodson, M.S.

**Office:** 110 Wesselkamper

**Phone:** 739-8363

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**Office Hours:** Monday-Friday 12:30-1:20 and by appointment

**II. Course Information**

**Meets:** MWF 9:30-10:20PM

**Location:** Henry Hall Room 121

**III. Required Text:** The Blue Planet, An Introduction to Earth System Science, 3<sup>rd</sup> Edition

**IV. Course Title: Environmental Physics**

**V. Course Description:** A detailed study of matter and energy in our environment and the transformations that they undergo. Thermodynamics and the sources of energy; the uses of energy and the consequences of such uses. Particular emphasis on the environments of island ecosystems such as Hawai'i. Cross-listed with PHY 111.

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

- Demonstrate the ability to use Scientific Notation
- Demonstrate the ability to use the proper units for the physical parameters covered in class
- Demonstrate the ability to convert units of physical parameters
- Demonstrate the ability to analyze and interpret graphical data
- Demonstrate an understanding of and the ability to apply the fundamental concepts of physics important to environmental processes
- Understand the scientific method and how to apply it to real environmental issues
- Understand Earth Systems Science
- Be familiar with the process of conflict resolution
- Know the difference between fact and opinion
- Take a balanced outlook
- Be aware of the perspectives and value systems of others
- Be able to arrive at creative solutions
- Know the major material causes of environmental degradation
- Know the benefits of recycling
- Be able to assess the veracity of information
- Have experience reading the primary scientific literature
- Understand the role science plays in environmental problem-solving
- Be able to put science into common written or spoken language
- Be familiar with some of the proposed solutions to each of the major global and local environmental issues

**VII. Course Elements:** The goal of the class is to give the student a conceptual understanding of the fundamental concepts of physics that underlie the dynamics of the global environmental system. The main focus will be in the following areas:

- Energy and its transformations
  - The laws of thermodynamics
  - Earth's energy balance and climate change
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- The physics of energy production and its effects on the global environment
- The physics of the atmosphere (weather and climate) and oceans

Shown below is the proposed schedule of topics to be covered.

<b><u>Week of</u></b>	<b><u>Topics</u></b>
1/16-1/20	Introduction, Powers of 10, Scientific Notation, Metric System
1/23-1/27	Unit Conversions, Earth System Science
1/30-2/03	Work, Energy and Power, Types of Energy
2/6-2/10	Laws of Thermodynamics
2/13-2/17	Physics of Waves, Sound, Electromagnetic Radiation
2/20-2/24	Latitude and Longitude, GPS, Gravity, The tides, The Seasons
2/27-3/03	Our Sun and the Earth's energy balance. Physics of the Greenhouse effect
3/06-3/10	The Hydrosphere, The Water Cycle, Glaciers and Polar Ice Caps, Human water Usage past and present
3/13-3/17	Physics of the Oceans, Pressure, Density, Salinity and Buoyancy, Global Ocean Circulation
3/20-3/24	<b><u>Spring Break</u></b>
3/28-3/31	Physics of the Atmosphere, Weather and Climate
4/3-4/7	Physics of Energy Production
4/10-4/13	History of Human Energy Usage, Effects of Human Energy Usage
4/17-4/21	Climate Change
4/24-4/28	Island Ecosystems
5/1-5/5	Review for Final
5/8-5/12	<b><u>Finals Week</u></b>

### 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:

- Quizzes 10%
- Attendance, Participation, Homework 10%
- Midterms (2) 50%
- Final Exam 30%

#### Quizzes:

A five 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 cl. No make-up quizzes will be given.

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### Midterms:

Two midterms will be given during the semester. They will consist of a mixture of multiple choice questions, matching, true or false and short answer. 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. ADAA 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 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](mailto:helpdesk@chaminade.edu).

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#### 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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