Course Syllabus
Chaminade University Honolulu
3140 Waialae Avenue - Honolulu, HI 96816
www.chaminade.edu

Course Number: ENV202/L
Course Title: Environmental Physics/Environmental Physics Laboratory
Department: Environmental Studies, Natural Sciences
Term: Spring 2023
Course Credits: 3/1

Lecture Meeting Days: Tuesday and Thursday
Lecture Meeting Hours: 4-5:20 pm
Lecture Location: Clarence T.C. Ching Hall, Room 253

Lab Meeting Days: Friday
Lab Meeting Hours: 2:30-5:20 pm
Lab Location: Henry Hall, Room L4

Instructor Name: Jerelyn Watanabe, Ed.D.
Email: jerelyn.watanabe@chaminade.edu
Office Hours: By appointment

University Course Catalog Description
ENV 202 Environmental Physics (3)
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 Hawaii. Cross-listed with PHY 111. Course must be taken concurrently with ENV 220L.

ENV 202L Environmental Physics Laboratory (1)
One three-hour laboratory period per week to accompany ENV 202. Students investigate matter and energy in our environment and the transformations that they undergo in order to learn firsthand the application of the relevant physical principles to environmental issues and sustainable solutions. Activities are conducted in the laboratory and in the field. Cross-listed with PHY 111L. Course must be taken concurrently with ENV 202.

Environmental Studies Program Mission Statement
Chaminade University is a Marianist Institution committed as an extension of Marianist values to producing local, state, national and international servant-leaders adept at the multidisciplinary acts of understanding, communicating, ameliorating and preserving or developing more harmonious interactions with the environment. The University's major in Environmental Studies produces skilled intellectual pre-professionals considerate of the spiritual, ethical, scientific, economic, political, legal, historical and cultural aspects of environmental issues. Students in the Environmental Studies Program benefit from a learning experience which prepares them for the real world through coursework, fieldwork, research, service and apprenticeship in the community.

Marianist Values

This class represents one component of your education at Chaminade University of Honolulu. An education in the Marianist Tradition in marked by five principles and you should take every opportunity possible to reflect upon the role of these characteristics in your education and development:

1. Education for formation in faith
2. Provide an integral, quality education
3. Educate in family spirit
4. Educate for service, justice and peace
5. Educate for adaptation and change

Native Hawaiian Values

Education is an integral value in both Marianist and Native Hawaiian culture. Both recognize the transformative effect of a well-rounded, value-centered education on society, particularly in seeking justice for the marginalized, the forgotten, and the oppressed, always with an eye toward God (Ke Akua). This is reflected in the ʻOlelo Noʼeau (Hawaiian proverbs) and Marianist core beliefs:

1. Educate for Formation in Faith (Mana) E ola au i ke akua (ʻŌlelo Noʻeau 364) May I live by God
2. Provide an Integral, Quality Education (Naʼauao) Lawe i ka maʻalea a kūʻonoʻono (ʻŌlelo Noʻeau 1957) Acquire skill and make it deep
3. Educate in Family Spirit (ʻOhana) ʻIke aku, ʻike mai, kōkua aku kōkua mai; pela iho la ka nohana ʻohana (ʻŌlelo Noʻeau 1200) Recognize others, be recognized, help others, be helped; such is a family relationship
4. Educate for Service, Justice and Peace (Aloha) Ka lama kū o ka noʻeau (ʻŌlelo Noʻeau 1430) Education is the standing torch of wisdom
5. Educate for Adaptation and Change (Aina) ʻAʻohe pau ka ʻike i ka hālau hoʻokahi (ʻŌlelo Noʻeau 203) All knowledge is not taught in the same school

Environmental Studies Program Objectives and Skills addressed by ENV 202 and 202L

Students graduating with a baccalaureate degree in Environmental Studies will:

Possess problem-solving skills from diverse disciplines for diverse populations

- 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

Possess a solid scientific foundation

- Understand Earth Systems Science (Lab)
- Know the major material causes of environmental degradation (Lab)
- Know the benefits of recycling
- Be able to assess the veracity of information
- Have experience reading the primary scientific literature
- Be able to conduct research (Lab)
- Understand the role science plays in environmental problem-solving (Lab)

Know the roles and importance of laws, politics and economics in environmental issues

- Know the economic challenges of recycling

Possess good written and oral communication skills

- Be able to write a scientific research report (Lab)

Know the major environmental issues and their potential solutions

- Be familiar with some of the proposed solutions to each of the major global and local environmental issues

Required Learning Materials

Selected readings pdf/online including several chapters from:
The Blue Planet: An Introduction to Earth System Science, 3rd ed., by B. J. Skinner & B. W. Murck; John Wiley & Sons, 2011. ISBN: 9780470914021

Lab Notebook, Lab Coat, and covered shoes required.

Course Websites:

ENV202-01-1
ENV202L-01-1

Technical Assistance for Canvas Users:

- Search for help on specific topics at help.instructure.com
- Contact the Chaminade IT&S for technical issues: helpdesk@chaminade.edu, or call (808) 735-4855

Assessment

Discussion Assignments

Initial Post: You will be asked to read article(s) and/or watch videos before writing a response in no more than 200 words. I would like to hear your voice come through (rather than a summary of the information). You may also ask a question in your response. Your post will need to include at least one direct quote from an article with an in-text citation and full reference at the end of the post using APA Style (7th Edition).

Some questions to consider in your response are: What does this information in the article mean to me? Why is this important to know?

Discussion Assignments will be graded according to the Discussion Rubric.

Two Responses: Reply to at least two of your classmates with no more than 100 words by answering their question, adding one of your own, finding common ground, or areas of difference. The important part of your reply will be your explanation and connection to the response.

Discussion Assignments will be graded according to the Discussion Response Rubric.

Conceptual Physics Problem Sets, Labs, and Exams
Problem Sets - Due dates in Class TBA
Exams: TBA
Final Exam: TBA

Completing the physics problem sets and labs will be required for your success and is an extremely important way for you to communicate your understanding of physics concepts to me. Expect to be challenged and feel uncomfortable as you gain understanding, however, we will do most of this in class so that you will be supported by your instructor and your peers during the process.

Exams will consist of several written problems based on the assigned problem sets.

You may use a scientific or graphing calculator on problem sets and exams (but you won't need it).

Grading Scale
Letter grades are given in all courses except those conducted on a credit/no credit basis. Grades are calculated from the student's daily work, class participation, quizzes, tests, term papers, reports and the final examination.

They are interpreted as follows:
A Outstanding scholarship and an unusual degree of intellectual initiative
B Superior work done in a consistent and intellectual manner
C Average grade indicating a competent grasp of subject matter
D Inferior work of the lowest passing grade, not satisfactory for the fulfillment of prerequisite course work
F Failed to grasp the minimum subject matter; no credit given

ENV 202 (3 credits)	**ENV 202L (1 credit)**
Problem Sets (in class) - 30% 90 points	Labs/Field Trip (in class) - 60% 60 points
Dialectical Journal - 25% 75 points	Research Project & Paper - 40% 40 points
3 Exams (in class) - 30% 90 points	
Final Exam - 15% 45 points	
Passing A: 90 – 100% (270-300 points) B: 80 – 89% (240-269 points) C: 70 – 79% (210-239 points) Not Passing *D: 60 – 69% (180-209 points)* *F: below 60%*	Passing Grades A: 90 – 100% (90-100 points) B: 80 – 89% (80-99 points) C: 70 – 79% (70-79 points) Not Passing *D: 60 – 69% (60-69 points)* *F: below 60%*

Advice for success

My hope is that you will consider yourself to be an active agent in designing and implementing creative solutions to environmental challenges that are important to you. Think of each experience, reading, lab, problem set, and discussion as a resource for developing these creative solutions.

> *Again, you can't connect the dots looking forward; you can only connect them looking backward. So you have to **trust** that the dots will somehow connect in your future. Steve Jobs, Apple*

Engage with the readings through your discussion posts. I encourage you to talk with me and your peers about the ideas presented. Some may make more sense than others in terms of science, and you may have a strong emotional reaction to some of the topics. It's important to keep track of your questions and reactions because

they will help you understand yourself better. And the better you understand yourself, the better you are able to communicate and connect with others. This is essential when talking about important issues. To be an agent of change you will need to inspire others through your actions and communication.

Investigate the concepts of physics in class. It may be extremely difficult and uncomfortable, especially if you haven't had positive experiences with math and science in the past. We will do the physics in class where you will be supported by your peers and your instructor. You will choose the level of mathematics that you engage with in the activities without penalty.

Communicate with me – ask questions, share your understanding and frustrations, let me know what's going on in your life. I would like to know if there is anything that I can do to help you learn the physics that impacts your study and stewardship of the environment.

> *"Showing up is half the battle"*
> *Adrianna Tan, CEO and Founder, Wobe*

Please email me if you will be late or miss class. Your presence makes a huge difference to the class dynamic and we will all miss out when you are not in class.

Course Policies

Late Work and Extra Credit Policy
Late work and extra credit may be accepted at the instructor's discretion.

Grades of "Incomplete"
Incomplete grades may be assigned in accordance with Chaminade University policies

Instructor and Student Communication
Questions for this course can be emailed to the instructor at jerelyn.watanabe@chaminade.edu. Online, in-person, and phone conferences can be arranged. Response time will take place up to 48 hours.

Cell Phones, Tablets, and Laptops
Out of consideration for your classmates, please set your cell phone to silent mode during class. Students are encouraged to bring laptops or tablets to class as the instructor will assign online activities and readings that will require the use of a laptop or tablet. Laptops and tablets should not be misused, such as checking distracting websites. Use your best judgment and respect your classmates and instructor.

ADA Accommodations
Effective August 1, 2020, Kōkua ʻIke: Center for Student Learning (Kōkua ʻIke), a unit within the Office of Advising and Career Development, provides academic and other accommodations for students with disabilities. To assist students to be able to participate in the various programs, services, and activities of the institution, Kōkua ʻIke requires the support, cooperation, and partnership of faculty, other teaching staff, and administrators within the University community.

ADA Accommodation Contact Information:
For general inquiries, email: ada@chaminade.edu

Title IX Compliance
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. If you or someone you know has been harassed or assaulted, you can find the appropriate resources by visiting Campus Ministry, the Dean of Students Office, the Counseling Center, or the Office for Compliance and Personnel Services.

Attendance Policy

Students are expected to attend regularly all courses for which they are registered. Student 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 or by leaving a message with the instructor's division office. 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.

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.

Students with disabilities who have obtained accommodations from the Chaminade University of Honolulu ADA Coordinator may be considered for an exception when the accommodation does not materially alter the attainment of the learning outcomes. Federal regulations require continued attendance for continuing payment of financial aid. When illness or personal reasons necessitate continued absence, the student should communicate first with the instructor to review the options. Anyone who stops attending a course without official withdrawal may receive a failing grade or be withdrawn by the instructor at the instructor's discretion.

Academic Conduct Policy

Any community must have a set of rules and standards of conduct by which it operates. At Chaminade, these standards are outlined so as to reflect both the Catholic, Marianist values of the institution and to honor and respect students as responsible adults. All alleged violations of the community standards are handled through an established student conduct process, outlined in the Student Handbook, and operated within the guidelines set to honor both students' rights and campus values.

Students should conduct themselves in a manner that reflects the ideals of the University. This includes knowing and respecting the intent of rules, regulations, and/or policies presented in the Student Handbook, and realizing that students are subject to the University's jurisdiction from the time of their admission until their enrollment has been formally terminated. Please refer to the Student Handbook 22-23 for more details.

Counseling

Counselors will be available to support our campus community using a HIPAA (Health Insurance Portability and Accountability Act) compliant online platform called Zoom HIPAA. Anyone who wants to speak with a counselor should send an email to the counselingcenter@chaminade.edu or call us directly at (808) 735-4845 to arrange an appointment. This email address is monitored daily.

Anyone experiencing a mental health crisis who must have immediate assistance or who needs help outside of business hours is encouraged to access one of these resources:

- Call 911
- Go to the nearest local emergency room (only if deemed necessary with pandemic)

- Call Crisis Line of Hawaii at (808) 832-3100
- The NAMI (National Alliance on Mental Illness) Helpline at (800) 950-6264
- The National Suicide Prevention Line at (800) 273-8255 - for hearing impaired (800) 799-4889
- The Crisis Text Line by texting 741-741
- The Veterans Crisis Line at (800) 273-8255
- LGBTQ Trevor Crisis Line at (866) 488-7386

Please refer to our Counseling Center webpage at Our Services for Counseling Center information for students, faculty, and parents, as well as for COVID-19, self-help, wellness, and crisis resources.

22-23 Lecture and Lab Schedule (subject to change)

	Tuesday Lecture Ching 253	Thursday Lecture Ching 253 101	Friday Lab Henry Lab 4	Discussions and labs assignments due on Fridays
Week 1: Jan 10, 12, 13	Introductions; Course overview	Describing Motion	Measurement and Lab Report Format	Discussion 1 Post Due
Week 2: Jan 17, 19, 20	Describing Motion Pre-Lab	Finish Describing Motion Pre-Lab	Distance, Velocity, and Acceleration Graphs - Lab 1	Discussion Response 1 Due
Week 3: Jan 24, 26, 27	Start Problem Set 1	Complete Problem Set 1	Introduce Research Paper - Write 2 Summaries of Peer-Reviewed Research (Literature Review)	Discussion 2 Post Due; Lab 1 Due
Week 4: Jan 31, Feb 2, 3	Newton's Laws Pre-Lab	Finish Newton's Laws Pre-Lab	Measuring Motion - Lab 2	Discussion 2 Response 2 Due; Research Paper - 2 Summaries of Peer-Reviewed Research Papers Due
Week 5: Feb 7, 9, 10	Measuring Motion - Newton's Laws Pre-Lab	Start Problem Set 2	Site Visit (Tentative) - Lab 3	Discussion 3 Post Due; Lab 2 Due
Week 6: Feb 14, 16, 17	Complete Problem Set 2	Exam 1: Describing motion, Newton's Laws (Forces) - Group	En-ROADS - Lab 4	Discussion 3 Response Due; Lab 3 Due
Week 7: Feb 21, 23, 24	Exam 1: Individual - Closed Book, Closed Notes	Energy Forms and Changes	Introduction, Materials, Method - Research Paper	Teaching and Learning Discussion Posted; Lab 4 Due

Week 8: Feb 28, March 2, 3	Energy Working Definitions - Problem Set 3	Conservation of Energy	Research Project/Paper Individual Meetings	Research Paper Draft Introduction, Materials, Methods Due; Discussion 4 Post Due
Week 9: March 7, 9 , 10	No class	Problem Set 4	Pendulum (Acceleration due to Gravity) - Lab 5	Discussion 4 Response Due
Week 10: March 14, 16, 17	Exam 2 Group - Kinds of Energy, Conservation of Energy, Heat, Thermodynamics	Exam 2 Individual - Closed Book, Closed Notes	Site Visit - (Tentative) or Films	Lab 5 Due
Spring Break				
Week 11: March 28, 30, 31	Defining Waves	Defining Waves	Data Analysis, Results - Research Paper	Discussion 5 Post Due
Week 12: April 4,6,7	Wave Speed - Problem Set 5	Maundy Thursday - No Class	Good Friday - No class	Discussion 5 Response Due; Research Paper Data Analysis & Results Due
Week 13: April 11,13, 14	Sound and light waves	Problem Set 5	Site Visit (Tentative) Waves - Lab 6	
Week 14: April 18, 20, 21	Waves applications - Problem Set 6	Plate Tectonics (or other waves application)	Conclusion, Abstract - Research Paper	Lab 6 Due
Week 15: April 25, 27, 28	Exam 3 Group	Exam 3 Individual	Peer Review & Posters (Bonus Points) Research Paper	Final Research Paper Due
Final Exams	TBA			