



Chaminade University OF HONOLULU

Course Syllabus

[Chaminade University Honolulu](http://www.chaminade.edu)

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 2025

Course Credits: 3/1

Lecture Meeting Days: Tuesday and Thursday

Lecture Meeting Hours: 4:00-5:20 pm

Lecture Location: Behavioral Sciences, 101

Lab Meeting Days: Friday

Lab Meeting Hours: 3:00-5:20 pm

Lab Location: Henry Hall, Room L10

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 is 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 'Ōlelo No'eau (Hawaiian proverbs) and Marianist core beliefs:

1. Educate for Formation in Faith (Mana) E ola au i ke akua ('Ōlelo No'eau 364) May I live by God
2. Provide an Integral, Quality Education (Na'auao) Lawe i ka ma'alea a kū'ono'ono ('Ōlelo No'eau 1957) Acquire skill and make it deep
3. Educate in Family Spirit ('Ohana) 'Ike aku, 'ike mai, kōkua aku kōkua mai; pela iho la ka nohana 'ohana ('Ōlelo No'eau 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 no'eau ('Ōlelo No'eau 1430) Education is the standing torch of wisdom
5. Educate for Adaptation and Change (Aina) 'A'ohe pau ka 'ike i ka hālau ho'okahi ('Ōlelo No'eau 203) All knowledge is not taught in the same school

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

Students will:

- Authenticate their commitment to service, justice and peace through experiential project-based activities that enhance the condition of the integral ecology, care for creation and value all voices.
- Apply scientific reasoning and methodology to environmental problems.
- Apply analytical methods and skills from multiple disciplines to environmental problems.
- Pursue throughout their education the ever-changing knowledge and skills that prepare them for the adaptation and change essential to environmental problem solving.
- Propose, design and participate in scientific research projects that document, describe and/or help solve environmental problems and foster sustainability. (Lab)

Specific objectives and skills include:

- **Possessing problem-solving skills from diverse disciplines for diverse populations**
 - 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
- **Possessing a solid scientific foundation**
 - Be able to assess the veracity of information

- Have experience reading the primary scientific literature
- Be able to conduct research
- Understand the role science plays in environmental problem-solving
- **Possessing good written and oral communication skills**
 - Be able to write a scientific research report (Lab)
- **Knowing the major environmental issues and their potential solutions**
- **Knowing the roles and importance of laws, politics and economics in 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.

Canvas Links:

[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 - ENV202

- **Reading, Discussion, and Reflection Assignments (30%)**

You will be asked to read article(s) and/or watch videos before an in-class discussion and then write a response of 200-300 words. Your voice and thoughts are the priority in your reflection (rather than a summary of the information). Your reflection will need to include at least one direct quote from the readings 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: Why is the information in the article meaningful? What was surprising or new?

- **Conceptual Physics Problem Sets (30%)**

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.

- **Two Exams and a Final Exam (40%)**

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).

Assessment - ENV202L

- **Lab Reports (60%) & Research Paper (40%)**

Lab Reports and the Research Paper fulfill several Environmental Science/Studies Program Objectives

and skills that include: to possess a solid scientific foundation, to be able to conduct research, to understand the role science plays in environmental problem solving, to possess good written and oral communication skills, and to be able to write a scientific research report.

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
Discussion & Reflection - 30% 90 points	Research Project & Paper - 40% 40 points
2 Exams (in class) & Final Exam- 40% 120 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 or text 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. Expect an email response within 24 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 'Ike: Center for Student Learning (Kōkua 'Ike), 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 'Ike 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. 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 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.

2025 Lecture and Lab Schedule (subject to change)

Spring 2025	ENV202 Tuesday Lecture	ENV202 Thursday Lecture	ENV202 assignments due Friday midnight	ENV202L Friday Lab	ENV202L assignments due Friday midnight
Week 1: Jan 7,9,10	Course Introduction and Describing Motion	Describing Motion and Problem Set 1	Read for Discussion 1	Lab 1 (Measuring Motion) and Lab Report Format Due in lab	
Week 2: Jan 14,16,no lab Jan 17 *Lab 2/Memo on your own	Discussion 1 & En-ROADS	Finish Problem Set 1	Reflection 1 Due	No Lab - on your own Lab 2 Simulating Climate Change Futures - En-ROADS	
Week 3: Jan 21, 23, no lab Jan 24 *15 min individual meeting	Forces (Newton's Laws)	More Forces - Newton's Laws and Problem Set 2		No Lab - Sign up for 15 min individual meeting	Simulating Climate Change Memo Due (Lab 2)
Week 4: Jan 28, 30, 31	Discussion 2	Finish Problem Set 2	Reflection 2 Due	Lab 3 Graphing Motion Due in Lab	
Week 5: Feb 4,6,7	Exam 1: Describing motion, Forces Newton's Laws (Forces) - Group	Exam 1: Individual		Research Protocol and Positionality	
Week 6: Feb 11,13,14	Energy	More Energy and Problem Set 3		Lab 4 (Pendulum - Forces) Due in lab	Lab - Positionality Statement Due
Week 7: Feb 18,20,21	Discussion 3	Finish Problem Set 3	Reflection 3 Due	Lab 5 (Pendulum - Energy) Due in lab	
Week 8: Feb 25, no class Feb 27, no lab Feb 28 *15 min	Waves	No class - Option to begin Problem Set 4 on your own		No Lab - Sign up for 15 min individual meeting	Lab - Summaries of 2 Peer-Reviewed Research

Spring 2025	ENV202 Tuesday Lecture	ENV202 Thursday Lecture	ENV202 assignments due Friday midnight	ENV202L Friday Lab	ENV202L assignments due Friday midnight
individual meeting					(Literature Review) Due
Week 9: March 4,6,7	Discussion 4 & Problem Set 4	Finish Problem Set 4	Reflection 4 Due	Lab 6 (Waves) Due in lab	
Week 10: March 11,13,14	Exam 2 - Energy and Waves - Group	Exam 2 - Energy and Waves - Individual		Zoom - Work on Introduction, Materials, Method - Research Paper	
Spring Break - March 17 - 21					
Week 11: March 26,28,29	Motion & Forces applications	More Motion & Forces applications and begin Problem Set 5		Zoom - Work on Draft Data Analysis, Results - Research Paper	Research Paper Draft Introduction, Materials, Methods Due
Week 12: April 1,3,4	Discussion 5	Finish Problem Set 5	Reflection 5 Due	Zoom - Work on Conclusion, Abstract - Research Paper	Research Paper Data Analysis & Results Draft Due
Week 13: April 8,10,11	Energy & Waves applications	More Energy & Waves applications and begin Problem Set 6		Work on Figures, Tables, References, etc.	Complete Research Paper Draft Due
Week 14: April 15,17,18	Discussion 6	Finish Problem Set 6	Reflection 6 Due	No Lab - Good Friday Holiday	
Week 15: April 22,24,25	Prepare for Final Exam	Prepare for Final Exam		Peer Review (& Posters) for (Revised if needed) Research Paper	Lab - Revised Research Paper Due
Exam Week: April 29 or May 1	Final Exam				