UNIVERSITY of HAWAIʻI
WINDWARD COMMUNITY COLLEGE
Ke Kulanui Kaiāulu o ke Koʻolau

ERTH 103 Geology of Hawaiian Islands

Fall 2026

3 Credits | CRN 62128

About Windward Community College

Mission Statement

ʻO keia ka wā kūpono e hoʻonui ai ka ʻike me ka hoʻomaopopo i kō Hawaiʻi mau hoʻoilina waiwai. Aia nō hoʻi ma ke Kulanui Kaiāulu o ke Koʻolau nā papahana hou o nā ʻike ʻake akamai a me nā hana noʻeau. Me ke kuleana koʻikoʻi e hoʻohiki ke Kulanui e kākoʻo a e hoʻokumu i ala e hiki kē kōkua i ka hoʻonui ʻike a nā kānaka maoli. Na mākou nō e hoʻolako, kākoʻo a paipai i nā Koʻolau a kō Oʻahu aʻe me nā hana noʻeau ākea, ka hoʻonaʻauao ʻoihana a me ka hoʻonui ʻike ma ke kaiāulu—hōʻaʻano a e hoʻoulu i nā haumāna i ka poʻokela.

Windward Community College offers innovative programs in the arts and sciences and opportunities to gain knowledge and understanding of Hawaiʻi and its unique heritage. With a special commitment to support the access and educational needs of Native Hawaiians, we provide the Koʻolau region of Oʻahu and beyond with liberal arts, career and lifelong learning in a supportive and challenging environment — inspiring students to excellence.

ʻĀina

Windward Community College is located in the ahupuaʻa of Kāneʻohe and Heʻeʻia in the moku of Koʻolaupoko on the island of Oʻahu. Both ahupuaʻa are directly connected to the moʻo ʻōlelo of Pāpa and Wākea, who are seen as the ancestors of the Hawaiian nation. The campus sits beneath the puʻu of Keahiakahoe, which is also connected to many moʻo ʻōlelo of this ʻāina. Because wind names and rain names are associated with specific ʻāina, the rain name of Kāneʻohe is known as the ʻĀpuakea and the rain name of Heʻeʻia is the Ulumano.

Instructor Information

About Your Instructor

My name is Arjun Aryal. I received my PhD in Geophysics from the University of Hawaii in Hawaii, USA, in 2013. Before joining UH, I earned an MPhil in GIS and Remote Sensing from the University of Cambridge, England, and an MS in Geology from Purdue University, Indiana. My research and experience include understanding geologic processes, such as landslides and earthquake cycles, using data from GPS, radar satellites, laser scanners, and computer models. I have conducted significant geologic fieldwork in many parts of the world, including the Himalayas, the US mainland, Alaska, Europe, and Hawaii. I was part of an Ocean mapping

program and participated in a French Oceanographic Research Cruise. I am also actively involved in many charitable activities (mostly education-related) in many parts of the world. You can see more about my professional background at https://www.linkedin.com/in/arjunaryal/. Not all of them are updated, though.

I believe that teaching and learning are active, two-way processes. My goal is to support and facilitate student growth, which means **what you learn is far more important than what I teach.** I invite you to engage in discussions, ask 'why,' and challenge ideas. Your active participation and curiosity are what make this course successful and are my greatest sources of motivation as an educator.

How to Contact Your Instructor

Instructor Name:	Dr. Arjun Aryal (Visit Arjun's Zoom Room in Lamakū for details)
Office/Class:	Hale ʻImiloa 119 (Office) or 113 (Lab/Classroom)
Office Hours:	Zoom - M 12 - 2 PM. Please make an appointment at https://www.star.hawaii.edu/. If you can't make it on Monday afternoon, I also have a T 8-9 PM time (evening); make an appointment using the same STAR link. In-person - T 12- 1 PM (Walk-in ok) at WCC
Tel:	8082369257 (Office) 8082555139 (cell, if needed)
Email:	aryal@hawaii.edu
Zoom:	See Arjun's Zoom Room in Lamakū
More about the Instructor:	See Arjun's Zoom Room in Lamakū

Response time: I generally respond to emails and Q&A within a day. Please call/text me at 8082555139 if you need immediate help or if you don't see my response in a timely manner.

Asking Course Questions

Please use the course Q&A in Lamakū Discussions for all general questions about content, activities, due dates, grading, etc. I will check Q&A regularly and provide follow-up information there.

Email specific grading questions and/or personal matters, per FERPA, to keep your information protected. Please use Lamakū Email instead of UH Gmail or other email.

[* While Lamakū has an Instant Message feature, I prefer email. Please feel free to use Instant Message to communicate with your CORS 123 classmates if you like.]

Alternate Contact Information

If you are unable to contact the instructor, have questions that your instructor cannot answer, or for any other issues, please contact the Academic Affairs Office:

- Location: Alakaʻi 121
- Phone: (808) 235-7422

Contingency Plan

If there is an outage, weather situation, or family emergency on my end, I will do my best to find a way to communicate an update as soon as possible about my return to the course. Mahalo in advance for your understanding and I hope you will do the same.

Course Format & Structure

This course is offered in a 16-week asynchronous online time frame. Please note that this is not a self-paced course; our course schedule is provided in this syllabus.

- Content release: Content or weekly modules are released before Monday of the week.
- This is an asynchronous online class. Students can meet the instructor online or in person. Online class discussions with peers are required.
- This is a Textbook Zero cost (TXT0) course; Lamaku will have all the course content you need.

Regular Substantive Interaction (RSI)

Online courses at Windward Community College follow the college's RSI Definition for ensuring quality instruction. You can expect me to communicate with you frequently (and in a timely fashion) about our coursework in the following ways during our 16-week course.

- Announcements: The weekly announcement will be available by Monday.
- Assignments: Will be in Lamaku, check weekly Module for details. They are all due on Saturday evening, and I encourage you to make an appointment with me to get my detailed feedback.
- Discussions: There will be discussions in Lamaku, and they will be graded based on your participation.
- Groups: I will not make any groups but students are welcome and encouraged to work in a group for their term project.
- Q&A: I will check the weekly discussion at least twice a week.
- Quizzes and Exams: You will have three attempts to complete your quizzes. But you need to score more than 50% in the first attempt to go to the second attempt, and more than 60% to go to the third attempt. Exams will have only one attempt and will not provide feedback.
- Student Check-Ins: I will contact you if you are overdue on assignments.
- Study Sessions: I am available to help you during office hours. If that time does not work for you, please let me know, and I will try my best to work on the time that works for you. Email or call/text me at my cell no above.
- A minimum of 2 one-to-one meetings with me is required.

All course activity due dates are listed in Lamakū on the Calendar. Please check your UH email often and set your Lamakū Notifications (both email and D2L Brightspace Pulse App) to receive course notices, such as grading updates, announcements, and activity reminders. I will keep our

Lamakū course Grades as current as possible; I will need at least a week from the due date to grade your assignments.

Participation Verification

Campuses are required by federal regulations to verify the participation of students in their classes. In accordance with Executive Policy 7.209, all students in the University of Hawai'i system are required to establish "participation" to ensure that they are not dropped from their class(es). Effective Fall 2021, students who fail to participate by the late registration period for a class will be administratively dropped from that class. Students may also be dropped from dependent prerequisite and/or corequisite classes if both courses do not establish participation.

Course Information

Catalog Description

Hawaiian geology and geological processes: the origin of the Hawaiian Islands, volcanism, rocks and minerals, landforms, stream and coastal processes, landslides, earthquakes and tsunamis, groundwater, geological and environmental hazards. Field trips arranged. (3 hrs. lect.) WCC: DP

Prerequisites

There are no prerequisites or co-requisites. When available, students are recommended to take the companion laboratory course ERTH 101L concurrently with ERTH 103 or ERTH 101.

Student Learning Outcomes

Students can expect to attain the following outcomes as a result of taking this course:

1. Students can explain the relevance of geology and geophysics to human needs, including those appropriate to Hawaii, and be able to discuss issues related to geology and its impact on society and planet Earth.

2. Students can apply technical knowledge of relevant computer applications, laboratory methods, and field methods to solve real-world problems in geology and geophysics.

3. Students use the scientific method to define, critically analyze, and solve a problem in earth science.

4. Students can reconstruct, clearly and ethically, geological knowledge in both oral presentations and written reports.

5. Students can evaluate, interpret, and summarize the basic principles of geology and geophysics, including the fundamental tenets of the sub-disciplines, and their context in relation to other core sciences, to explain complex phenomena in geology and geophysics.

General Description of the Course

"*Civilization exists by geological consent, subject to change without notice.*" [Will Durant, American historian]

Have you ever wondered what causes the eruption of Kilauea's summit and rift zone and when it will be pau (or paused)? And what is the science behind Hawaii's 'Smiley Face' Volcano? How did the lava lake at the Halemaumau crater change to a hot water lake and now back to the lava lake? Or, would you like to know how the mountains, valleys, craters, beaches, reefs, etc., formed in Hawaii? What processes shaped them into what they are today? What processes provide for and threaten our resources and safety, and how did Hawaiians in the olden days manage to use these resources without modern materials? ERTH103 is a start to your understanding of these things.

ERTH103 introduces Hawai'i Nei geologically. It surveys Hawaiian geology and geologic processes. Includes origin of the Hawaiian Islands, volcanism, rocks and minerals, landforms, stream and coastal processes, landslides, earthquakes and tsunamis, groundwater, and geologic and environmental hazards.

This course will interleave geologic processes and places, starting from Lō'ihi (the youngest Hawaiian volcano) and moving NW along the chain to finish at Meiji Seamount (the oldest Hawaiian volcano). We will cover processes along the way as we need them. For example, Kilauea is an active volcano, so we'll have to cover how magma is produced there. However, erosion only becomes a major geological process once a volcano starts to die off, so we won't cover it until we get to Mauna Kea, Kohala, and so on. The goal is that by the end of the semester, you will be able to look at the entire Hawaiian-Emperor volcanic chain and understand how it got there, why it is not the same all along the chain, and what the geologic future may hold.

The most important thing in ERTH 103 is not what I teach but what you learn. Learning is an active process – you have to do something to learn. In this class, reviewing online course materials, doing homework/quizzes, and reading are very important.

Course Materials

This course has no particular textbook, and all the required study materials will be provided in Lamakū.

Reference book: Roadside Geology of Hawai'i (Hazlett & Hyndman, 2022, Mountain Press Publishing Company, ISBN- 978-0-87842-711-6). [Only for your reference]. WCC library has some copies of the book

- Regular access to a computer with internet (desktop or laptop).
    - Windward offers free laptop and WiFi hotspot check-out to students (first-come, first-served), as well as software and other tech discounts; see Ka Piko Student Tech Support for information.
    - UH Online provides an online learning Readiness Activity and an Orientation to Online Learning that Windward CC students may take to see if online learning is a good fit.
- Include text and/or other required materials.

Recommended

- D2L Brightspace Pulse App (free download from app stores)
- Rocked is a great, useful app.

Lamakū Learning Management System (https://lamaku.hawaii.edu/d2l/home)

Learn about the Hawaiian meaning of the word "lamakū": Lamakū Pronunciation, Meaning, and Importance.

- UHCC Lamakū Student Resources (how-to videos)
    - Contact UH ITS for 24/7 Lamakū assistance.
- Keeping Accessibility and UDL in Mind
    - If you find any course content that needs remediation and/or updating, please kindly share and I will immediately work to make the content accessible.
- Lamakū courses will appear 5 days before the first day for the academic term and will become inactive (no longer be available to access) 3 weeks after the end of the term. Be sure to save any coursework you may need from Lamakū *during* the term.
- Lamakū automatically logs you out *if it does not detect activity for three hours*. A warning message will appear, notifying you of the lack of activity. Activity is defined as clicking a button in Lamakū, such as "Save Draft" or "Next" (in a test), clicking on a course tab, or taking an action that sends information to the server.

Other Technology

D2L Brightspace, the parent company of Lamakū, recommends users choose the latest versions of Google Chrome, Mozilla Firefox, Microsoft Edge, or Apple Safari as their internet browser.

We recommend that students update their internet browser at the start of each term, search how to allow pop-up windows, adjust their cookies, and clear device history. Also, fully restart your computer and/or device from time-to-time to optimize performance.

Review the privacy/security policies before using the technologies we will be using in this class. Contact me if you would like to discuss the use of alternate options or technologies.

You may need to use fullowing tools/apps.

- Adobe Reader is used to read course files (accessibility statement, privacy policy)
- Google Drive is UH-provided cloud storage (accessibility statement, privacy policy)
- Google Docs is used to create documents (accessibility statement, privacy policy)
- Google Sheets is used to create assignment and reference worksheets (accessibility statement, privacy policy)
- Google Slides is a presentation authoring software provided by UH (accessibility statement, privacy policy)
- Miro is used for graphically organizing information (accessibility statement, privacy policy)
- YouTube is used for delivering some of the course content (accessibility statement, privacy policy)
- Zoom is used for the Synchronous Sessions and virtual office (accessibility statement, privacy policy)

Grading Policy

Grading will be based on the following points of distribution

Quizzes and	20%
Homework	20%
Knowledge Check and Project (one)	20%
Exams (a midterm and final)	40%
Other (meetings/lab visits and online discussion)	5% (Extra-credit)

Letter Grade Breakdown: A = 90%+; B = 80 – 89%; C = 70 – 79%; D = 60 – 69%; F = < 60%
Please check your grade book in Lamakū regularly.

Make-up Exams/Early Exams: If such a situation arises, please contact your instructor. Note that make-up and/or early exams might be in essay format and may be substantially more time-consuming.

Late Assignments will get partial credit. 0.5% off every day you are late.

Students involved in academic dishonesty will receive an "F" grade for the course. Academic dishonesty is defined in WCC's college catalog.

Course Schedule

Students may check the Windward Student Notifications page on the website for canceled classes and/or school closures. Academic Integrity

Topics and Tentative Class Schedule

Week # or module,	Topic (Tentative)	Assignments*

Week of		
1, Aug 24	Setting the stage, Introduction to Geology, Earth Layers	KC1, Qz1
2, Aug 31	Plate Tectonics, Minerals, Rocks and Rock Cycle	KC2, Hw1
3, Sept 7	Formation of Hawaiian Islands or the island chain, Life Stages of Hawaiian Volcanoes	KC3, Qz2
4, Sept 14	Calderas and Rift Zones, Kama'ehuakanaloa (formerly Lō'ihi) , Kīlauea and recent eruptions in Big Island	KC4, Hw2
5, Sept 21	Mauna Loa, Earthquakes, Tsunami	KC5, Qz3
6, Sept 28	Hawaiian Eruption Styles, ʻAʻā and Pāhoehoe lava, Lava flows, Vents and pyroclasts,	KC6, Hw3
7, Oct 5	Mauna Kea, Glaciers, Hualalai	KC7, Qz4
8, Oct 12	Kohala, Soil Formation, Streams, Water Erosion, ET Volcanoes	KC8, Hw4
9, Oct 19	**Midterm**, Project Overview	
10, Oct 26	East Maui, Haleakalā, West Maui, and Rejuvenation	KC9, Qz5
11, Nov 2	Lānaʻi and Kahoʻolawe, East and West Molokaʻi, Aeolian Processes	KC10, Hw5
12, Nov 9	Oʻahu (Koʻolau and Waiʻanae), Giant Avalanches and Submarine Geology	KC11, Qz6
13, Nov 16	Kauaʻi, Niʻihau, Papahānaumokuākea	KC12, Hw6
14, Nov 23	Groundwater Hydrology, Shorelines, and Sea Level	KC13, Qz7
15, Nov 30	Climate Change Adaptation, Project submission	KC14, Hw7
16, Dec 7	Review	Project Due
17, Dec 14	**Final Exam**	

*Assignments are available on Monday and due on Saturday. Late assignments are accepted for partial credit (deduct 0.5% per day). Types of assignments are Qz-Quizzes (Probably takes about 15 to 20 min to do), Hw- Homework (1 – 2 hours to do), KC – Knowledge Check (probably 20 min to do), OD – Online discussion (10-15 min), and a term Project

Academic Integrity

Work submitted by a student must be the student's own work. The work of others should be explicitly marked, such as through the use of quotes or summarizing with reference to the original author.

In this class, students who commit academic dishonesty, cheating, or plagiarism will have the following consequence(s):

- Students will receive a failing grade for plagiarized assignments.
- All cases of academic dishonesty are referred to the Vice Chancellor for Student Affairs.

Windward CC Student Conduct Information

UH System Student Conduct Policy EO 7.208

Use of AI tools – AI will be used in this class as a learning tool, and students can use it for learning purposes. Students are permitted to integrate AI into some substantive tasks, such as data analysis or spreadsheet creation. Students are encouraged to keep drafts of assignments and logs of interactions

with AI applications to demonstrate their contribution to an assignment and check what is permissible for each assignment. Use of AI may be required in the course, but students are not permitted to use AI to complete their writing assignments.

Student Kuleana

- Please review our Hawai'i-Style Netiquette, which blends the values of ALOHA with approaches to how we should consider treating each other online.
- Online discussion needs to be relevant to the course and culturally respectful.
- Windward CC has Grievance Procedures in place, but I encourage us to try to work together first to see if we can work through any troubles. Mahalo!

Academic and Technical Support

Academic Support

- Windward Community College Library
- Library eResources
- Library Research Units (LRUs)
- Ka Piko Tutoring Services: Math Lab, Speech Lab, Writing Lab, ʻŌlelo Hawaiʻi Lab
- Online Learning at Windward Community College
- STAR Balance

Technical Support

- UH ITS Help Desk: email help@hawaii.edu or call (808) 956-8883 (or 1-800-558-2669) for Lamakū and most technology support. Available 24 hours a day, 7 days a week, including holidays.
- Student Tech Support: email winhelp@hawaii.edu, call (808) 235-7437, or stop by in person at Hale Laʻakea 228. Available Monday–Friday from 8:00 am–4:00 pm.
- Lamakū: Click on the Lamakū Help link in the menu bar at the top of the Lamakū homepage to fill out and submit a question and get your answer via email.
- Information Security for Students

College Policies & Support Services

Your instructor may also provide additional resources in your Lamakū course.

Basic Needs

Basic needs include food and housing, childcare, mental health, financial resources, and transportation. Student basic needs security is critical for ensuring strong academic performance, persistence and graduation, and overall student well-being. If you or someone you know is experiencing basic needs insecurity, please see the UH System Basic Needs.

Disabilities Accommodations Statement

Windward Community College's Disability Student Services Office (WCC-DSSO) is committed to providing equal access to qualified students with disabilities.

If you have a physical, sensory, health, cognitive, or mental health disability that could limit your ability to participate fully in this class, you are encouraged to contact the Disability Specialist Counselor, Roy Inouye, to discuss reasonable accommodations that will help you succeed in this class. The Disabilities Counselor can be reached at (808) 235-7448, wccdsso@hawaii.edu, or stop by the office (Hale Kakoʻo 106) for more information.

Financial Aid

If you are receiving financial aid and are contemplating not completing the course it is highly recommended that you contact the Financial Aid Office at (808) 934-2712 or email them at wccfao@hawaii.edu ***BEFORE*** you withdraw to discuss the impact this decision may have on your financial aid eligibility.

LGBTQ+

The University of Hawaiʻi system and Windward Community College are committed to building an inclusive community that supports and advocates for all students, staff, and faculty. We welcome all members of our campus community to our campuses: transgender, māhū, and people of all gender identities. All members of our campus community deserve a work and educational environment free from harassment or bullying based on their sexual orientation, gender identity, or expression. For more information, see the University of Hawaiʻi Commission on LGBTQ+ Equality. Windward Community College Commissioner: Scott Sutherland, scottjks@hawaii.edu

Mental Health Counseling

Mental Health and Wellness at Windward Community College provides counseling services and activities on campus to support students' life goals as well as their academic goals. Information about services can be found at WCC Mental Health & Wellness.

Student Conduct Code

Windward Community College follows the University of Hawaiʻi Code of Student Conduct which defines expected conduct for students and specifies those acts subject to University sanctions. Students should familiarize themselves with the Code of Student Conduct since, upon enrollment at Windward Community College, they have placed themselves under the policies and regulations of the University and its duly constituted bodies. The disciplinary authority is exercised through the Office of the Vice Chancellor for Student Affairs. Copies of the Student Conduct Code are available at the Office of the Vice Chancellor for Student Affairs.

TRiO Program

The Federal TRiO Programs are educational opportunity outreach programs designed to motivate and support students from disadvantaged backgrounds. TRiO includes six outreach and support programs

targeted to serve and assist low-income, first-generation college students and students with disabilities in progressing through the academic pipeline from middle school to post-baccalaureate programs. Information about services can be found at Windward CC TRiO.

Title IX - Sex Discrimination And Gender-Based Violence Resources

Windward Community College is committed to providing a learning, working, and living environment that promotes personal integrity, civility, and mutual respect and is free of all forms of sex discrimination and gender-based violence, including sexual assault, sexual harassment, gender-based harassment, domestic violence, dating violence, and stalking.

If you or someone you know is experiencing any of these, WCC has staff and resources to support and assist you. To report an incident of sex discrimination or gender-based violence, as well as receive information and support, please contact one of the following:

Desrae Kahale, UH System Confidential Advocate
Phone: (808) 235-7393
Email: advocate@hawaii.edu
Office: Hale Kākoʻo 101

Desrae Kahale, Mental Health Counselor & Confidential Resource
Phone: (808) 235-7393
Email: dkahale3@hawaii.edu
Office: Hale Kākoʻo 101

Mykie E. Menor Ozoa-Aglugub, J.D., Title IX Coordinator
Phone: (808) 235-7468
Email: mozoa@hawaii.edu
Office: Hale Kākoʻo 109

Karen Cho, Deputy Title IX Coordinator
Phone: (808) 235-7404
Email: kcho@hawaii.edu
Office: Hale ʻAlakaʻi 120

As a member of the University faculty, I am required to immediately report any incident of sex discrimination or gender-based violence to the campus Title IX Coordinator. Although the Title IX Coordinator and I cannot guarantee confidentiality, you will still have options about how your case will be handled. My goal is to make sure you are aware of the range of options available to you and have access to the resources and support you need.

For more information regarding sex discrimination and gender-based violence, refer to the University's Title IX resources, and the Universityʻs Policy, EP 1.204.

UH Alerts

The UH Alert emergency notification system alerts the university community in the event of a natural, health or civil emergency. The information you provide will only be used in the event of an emergency that impacts the health and safety of the UH community or the closure of whole campuses. It will not be shared with others or used for routine UH communications or announcements. To sign up, visit UH Alerts for more information.