



School of Education and Behavioral Sciences

## ED 324 - Elementary Science Methods

Brogan 102,

Tuesday and Thursday 1:00-2:20 pm

Credits: # 3    Section: # 01-1    Term: Fall 2024

### Instructor Information

**Instructor:** Katrina Roseler

**Email:** [katrina.roseler@chaminade.edu](mailto:katrina.roseler@chaminade.edu)

**Phone:** 808-440-4215

**Office Location:** Brogan Hall 126

**Office Hours:** Monday 9:00 am -12:00 pm

**Virtual Office Hours:** by appointment

### Communication

Communication for this course including announcements, assignments, and grades will be posted on Canvas. When communicating with me electronically, please identify the course you are referring to in the subject line (ED 324) of your email. My goal is to respond to emails within 24 hours, however, there may be delays on weekends and holidays.

### School & Department Information

#### School of Education and Behavioral Sciences

Office Location: Brogan Hall 110; Phone: 808.739.4652

If you have questions regarding the Education department, reach out to your Instructor or the School of Education and Behavioral Sciences.

### Course Description & Materials

#### Catalog Course Description

This course focuses on helping the classroom teacher uncover big-picture concepts through inquiry-based science activities, and then planning dynamic science units based on these understandings. Successful candidates will acquire an understanding of big ideas in physical, life,

earth, and space science; develop inquiry-based science skills; and learn how to plan and teach meaningful units and lessons for K-6 students.

**Time Allocation**

The unit of semester credit is defined as university-level credit that is awarded for the completion of coursework. One credit hour reflects the amount of work represented in the intended learning outcomes and verified by evidence of student achievement for those learning outcomes. Each credit hour earned at Chaminade University should result in a minimum of 45 hours of engagement, regardless of varying credits, duration, modality, or degree level. This equates to one hour of classroom or direct faculty instruction and a minimum of two hours of out-of-class student work each week for approximately fifteen weeks for one semester. Terms that have alternative lengths, such as 10 week terms, should have an equivalent amount of faculty instruction and out-of-class student work to meet each credit hour. Direct instructor engagement and out-of-class work result in total student engagement time of 45 hours for one credit. The number of engagement hours may be higher, as needed to meet specific learning outcomes.

*Specific Credit Situations*

The minimum 45 hours of engagement per credit hour can be satisfied in fully online, internship, or other specialized courses through several means, including (a) regular online instruction or interaction with the faculty member and fellow students and (b) academic engagement through extensive reading, research, online discussion, online quizzes or exams; instruction, collaborative group work, internships, laboratory work, practica, studio work, and preparation of papers, presentations, or other forms of assessment. This policy is in accordance with federal regulations and regional accrediting agencies.

Activity group	Hours of engagement
Class sessions	38.5 hours
Content and Skills	20 hours
Pedagogy	50 hours
Teaching Reflections	14 hours
Communities of Practice	8 hours
Total	140.5 hours

## Required Materials

There are no required texts to purchase for this course.

## Canvas (<https://chaminade.instructure.com>)

All course assignments and activities will be managed through Canvas. All assignments have assessment rubrics to support your understanding of the expectations.

## Learning Outcomes

### Program Learning Outcomes (PLOs)

Upon completion of a Bachelor of Science in Elementary Education, the student will be able to:

1. Apply knowledge of learner development, learner differences, diverse students and the learning environment to optimize learning for Elementary students.
2. Describe central concepts, tools of inquiry, and structures of the subject matter disciplines for Elementary students.
3. Utilize formative and summative assessments, to determine, select, and implement effective instructional strategies for Elementary students.
4. Analyze the history, values, commitments, and ethics of the teaching profession within the school community.
5. Explain the Marianist tradition of providing an integral, quality education within diverse learning communities.

### Course Learning Outcomes (CLOs)

Upon completion of ED 324 (Elementary Science Methods), the student will be able to:

1. Engage in and reflect upon personal engagement with science and engineering practices (Content and Skills)
2. Critique science/engineering teaching and learning experiences, lessons, and resources (Teaching Reflection Activities, Article Critiques & Online resource critiques)
3. Develop science or engineering learning activities that are based on NGSS and research-based approaches to science teaching and learning. (Unit Plan)
4. Engage in Professional Networks beyond course activities (Communities of Practice)

## 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, and integrity of creation.
5. Educate for adaptation and change.

While all five characteristics are present in this course, we will pay particular attention to “adaptation and change.” This methods course will prepare you for decision-making roles as an elementary science educator. Through your ability to engage in and critique elementary science learning, you will begin to prepare for your dynamic role as an elementary teacher. Assignments in this course that will require the Marianist Value of Education for Adaptation and Change include lesson critiques and the science unit plan.

### **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

## Alignment of Course Learning Outcomes

	<b>CLO 1</b>	<b>CLO 2</b>	<b>CLO 3</b>	<b>CLO4</b>
<b>Marianist Values</b>		Educate for service, justice & peace	Educate for adaptation and change	Integral Quality Education
<b>CUH Core Competencies</b>	Critical Thinking Written Communication	Critical Thinking Written Communication Information Literacy	Written Communication	Oral Communication Written Communication
<b>Program Outcomes</b>	2	2	1, 2	4

## Course Activities

### Assessment

Students in this course will be evaluated in 4 areas. Learning is an iterative process that includes making mistakes, therefore, students will be provided feedback on their progress towards completion of the assessment items with opportunities to edit work that has been submitted.

<b>Assessment Item</b>	<b>%</b>	<b>Description</b>	<b>CLO(s)</b>
<b>Content and Skills</b>	35	You will be evaluated on developing your thoughts regarding different scientific/engineering ideas. These ideas will be evaluated based on your contributions to your Investigation Journal, Presentations, etc.	1
<b>Pedagogy</b>	35	Pedagogical Discussions, Lesson/Unit Plan for K-6 students, Presentations, etc.	2, 3
<b>Teaching Reflection Tasks</b>	20	Teaching Reflections	2
<b>Communities of Practice</b>	10	Participation in one or more learning communities beyond this course.	4

## Course Policies

Students are expected to attend regularly all courses for which they are registered. Student should notify their instructors when illness or other extenuating circumstances prevent 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. 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.

### Late Work

All assignments should be turned in by the due date. I am willing to accept late work; however, late assignments will receive a lower grade.

### Use of Generative Artificial Intelligence (Gen AI)

Students are encouraged to use Gen AI tools such as ChatGPT and others to support their learning and creativity. However, the use of these tools must adhere to the following guidelines:

- **Attribution:** Any content generated by AI must be clearly attributed.
- **Academic Integrity:** AI tools should not be used to produce entire assignments or projects without significant input and modification by the student.

- **Originality:** Students must ensure that their submissions are original and reflective of their understanding. Plagiarism, including the uncredited use of AI-generated content, is strictly prohibited.
- **Disclosure:** Students must disclose the use of AI tools in their work. This includes specifying which tools were used and how they were applied.

Examples of appropriate uses for Generative AI for course activities include

- Idea generation,
- Creating outlines, and
- Sentence-level edits (i.e., punctuation and grammar)

OpenAI. (2024). ChatGPT (July 24 version) [Large language model]. <https://chat.openai.com/chat>

### Changes to the Syllabus

While the provisions of this syllabus are as accurate and complete as possible, your instructor reserves the right to change any provision herein at any time. Every effort will be made to keep you advised of such changes, and information about such changes will be available from your instructor. The first part of the course will focus on science content and skills, while the latter is focused on developing your science teaching pedagogy. A tentative schedule of activities is provided in the table below.

Week	Learning activities	CLO
1	<ol style="list-style-type: none"> <li>1. Investigation - Fossils</li> <li>2. Essential Features of a good science lesson or unit</li> <li>3. Syllabus Quiz</li> </ol>	1, 2
2	<ol style="list-style-type: none"> <li>1. Investigation - Fossils</li> <li>2. Science Content and Skills Debrief discussion</li> </ol>	1, 2
3	<ol style="list-style-type: none"> <li>1. Communities of Practice: Picture-Perfect STEM Workshop Sept 3 (8:30-9:50 am Brogan 101)</li> <li>2. Research-based approaches to science teaching and learning</li> </ol>	2, 4
4	<ol style="list-style-type: none"> <li>1. Communities of Practice: Picture-Perfect STEM Workshop Sept 10 (8:30-9:50 am Brogan 101)</li> <li>2. UbD/Backward Design</li> <li>3. Communities of Practice: Hawaii Science Teaching Association Conference</li> </ol>	2, 3, 4

5	<ol style="list-style-type: none"> <li>1. Communities of Practice: Picture-Perfect STEM Workshop Sept 17 (8:30-9:50 am Brogan 101)</li> <li>2. Navigating the NGSS</li> <li>3. The 5E model</li> </ol>	2, 3
6	<ol style="list-style-type: none"> <li>1. Communities of Practice: Picture-Perfect STEM Workshop Sept 10 (8:30-9:50 am Brogan 101)</li> <li>2. NGSS and the Common Core State Standards</li> <li>3. Learning Objectives</li> <li>4. Teaching Reflection</li> </ol>	2, 3, 4
7	<ol style="list-style-type: none"> <li>1. Assessment in Science</li> <li>2. Rubrics</li> <li>3. Teaching Reflection</li> </ol>	3
8	<ol style="list-style-type: none"> <li>1. Lesson/Activity Planning</li> <li>2. Technology for science learning</li> </ol>	2, 3
9	<ol style="list-style-type: none"> <li>1. Lesson/Activity Planning Feedback</li> <li>2. Unit Learning Supports</li> <li>3. Teaching Reflection</li> </ol>	2, 3
10	<ol style="list-style-type: none"> <li>1. Unit Plan Draft</li> <li>2. Teaching Reflection</li> </ol>	2, 3, 4
11	<ol style="list-style-type: none"> <li>1. NOS and ways of knowing</li> <li>2. Unit Plan Feedback</li> </ol>	3
12	<ol style="list-style-type: none"> <li>1. Unit Plan Critique</li> <li>2. Teaching Reflection</li> </ol>	2, 3
13	<ol style="list-style-type: none"> <li>1. Unit Plan Presentations &amp; Feedback</li> <li>2. Teaching Reflection</li> <li>3. Communities of Practice</li> </ol>	2, 3, 4
14	<ol style="list-style-type: none"> <li>1. Unit Plan Revisions</li> </ol>	3
15	<ol style="list-style-type: none"> <li>1. Course Reflection</li> <li>2. Teaching Reflection</li> </ol>	2, 3

### Grades of Incomplete

If students are unable to complete the course due to circumstances beyond their control, the instructor will consider offering a grade of “incomplete”. This will provide the student with up to 30 days beyond the end of the term to complete all outstanding course requirements. Please note that a grade of “incomplete” must be discussed with the instructor before the end of the



term. If a student does not contact the instructor by the end of the term to discuss the possibility of an incomplete, they will be awarded the grade they have earned to that point.

### **Final Grades**

Final grades are submitted to [Self-Service](#):

A = 90% and above

B = 80-89%

C = 70-79%

D = 60-69%

F = 59% and below

## **Important Information**

### **Academic Honesty**

Academic honesty is an essential aspect of all learning, scholarship, and research. It is one of the values regarded most highly by academic communities throughout the world. Violations of the principle of academic honesty are extremely serious and will not be tolerated.

Students are responsible for promoting academic honesty at Chaminade by not participating in any act of dishonesty and by reporting any incidence of academic dishonesty to an instructor or to a University official. Academic dishonesty may include theft of records or examinations, alteration of grades, and plagiarism, in addition to more obvious dishonesty.

Questions of academic dishonesty in a particular class are first reviewed by the instructor, who must make a report with recommendations to the Dean of the Academic Division. Punishment for academic dishonesty will be determined by the instructor and the Dean of Academic Division and may include an "F" grade for the work in question, an "F" grade for the course, suspension, or dismissal from the University.

For the most up to date information, please refer to the [Academic Honesty Policy](#) on the Chaminade University Catalog website.

### **Title IX and Nondiscrimination Statement**

Chaminade University of Honolulu is committed to providing a learning, working, and living environment that promotes the dignity of all people, inclusivity, 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. 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.

### **Nondiscrimination Policy & Notice of Nondiscrimination**

Chaminade University of Honolulu does not discriminate on the basis of sex and prohibits sex discrimination in any education program or activity that it operates, as required by Title IX and its regulations, including in admission and employment. Inquiries about Title IX may be referred to the University's Title IX Coordinator, the U.S. Department of Education's Office for Civil Rights, or both and contact information may be found at the [Chaminade University Title IX Office Contact Information and Confidential Resources website](#). On-campus Confidential Resources may also be found here at [CAMPUS CONFIDENTIAL RESOURCES](#).

The University's Nondiscrimination Policy and Grievance Procedures can be located on the University webpage at:

<https://chaminade.edu/compliance/title-ix-nondiscrimination-policies-procedures/>.

To report information about conduct that may constitute sex discrimination or make a complaint of sex discrimination under Title IX, please refer to the [Campus Incident Report form](#). Chaminade University of Honolulu prohibits sex discrimination in any education program or activity that it operates. The NOTICE of NONDISCRIMINATION can be found here: [Notice of Nondiscrimination](#).

### **CUH Alert Emergency Notification**

To get the latest emergency communication from Chaminade University, students' cell numbers will be connected to Chaminade's emergency notification text system. When you log in to the Chaminade portal, you will be asked to provide some emergency contact information. If you provide a cellphone number, you will receive a text from our emergency notification system asking you to confirm your number. You must respond to that message to complete your registration and get emergency notifications on your phone.

### **Assessment for Student Work**

With the goal of continuing to improve the quality of educational services offered to students, Chaminade University conducts assessments of student achievement of course, program, and institutional learning outcomes. Student work is used anonymously as the basis of these assessments, and the work you do in this course may be used in these assessment efforts.

### **Student with Disabilities Statement**

Chaminade University of Honolulu offers accommodations for all actively enrolled students with disabilities in compliance with Section 504 of the Rehabilitation Act of 1973, the Americans with Disabilities Act (ADA) of 1990, and the ADA Amendments Act (2008).

Students are responsible for contacting Kokua Ike: Center for Student Learning to schedule an appointment. Verification of their disability will be requested through appropriate documentation and once received it will take up to approximately 2–3 weeks to review them. Appropriate paperwork will be completed by the student before notification will be sent out to their instructors. Accommodation paperwork will not be automatically sent out to instructors each semester, as the student is responsible to notify Kokua Ike via email at [ada@chaminade.edu](mailto:ada@chaminade.edu) each semester if changes or notifications are needed.

### **Kōkua 'Ike: Tutoring & Learning Services**

Chaminade is proud to offer free, one-on-one tutoring and writing assistance to all students. Tutoring and writing help is available on campus at Kōkua 'Ike: Center for Student Learning in a variety of subjects (including, but are not limited to biology, chemistry, math, nursing, English, etc.) from trained Peer and Professional Tutors. Please check [Kōkua 'Ike's](#) website for the latest times, list of drop-in hours, and information on scheduling an appointment. Free online tutoring is also available via TutorMe. Tutor Me can be accessed 24/7 from your Canvas account. Simply click on Account > TutorMe. For more information, please contact Kōkua 'Ike at [tutoring@chaminade.edu](mailto:tutoring@chaminade.edu) or 808-739-8305.