



School of Education and Behavioral Sciences
Education

EDUC 612 Elementary Science Methods

Online Asynchronous

Credits: # 3 Section: # 90-3 Term: Fall 2025

Instructor Information

Instructor: Katrina Roseler

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Phone: 808-440-4215

Office Location: Brogan Hall 126

Virtual Office Hours: by appointment

Communication

Email is the best way to reach me with questions about course assignments or policies. I will answer all emails by the next school day (usually within 24 hours).

katrina.roseler@chaminade.edu. When communicating with me electronically, please identify EDUC 612 in the subject line of your email. We will be using the Canvas Learning Management System (LMS). Communication for this course, including announcements, assignments, and grades will be posted on Canvas.

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 teacher uncover big picture concepts through inquiry-based science activities and then planning dynamic science units for the elementary classroom 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..

Essential Questions

1. How do we engage students in science and engineering practices?
2. How do we plan for science teaching and learning?

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.

How This Course Meets the Credit Hour Policy - You are expected to engage in 12-15 hours of learning activities each week for this course.

Assignment Group	Hous of Engagement
Science/ Engineering Activities	30
Pedagogical Activities	72.5
Reading Articles & Watching Videos	30
Total Hours of Engagement	142.5

Required Materials

There are no materials required for this course. All reading materials will be supplied in Canvas

Technology Requirements

To successfully participate in this course, students must have access to the following:

- **Tablet or Laptop:** A device capable of running modern web browsers and productivity software, such as Microsoft Office or Google Workspace. The device should also support multimedia applications.
- **Reliable Internet Access:** A stable internet connection is necessary for accessing course materials, submitting assignments, and participating in online components of the course.
- **Printer:** Access to a printer is required for printing select course materials.
- **Audio and Video Recording Capability:** The tablet or laptop should include a functional camera and microphone for recording audio and video assignments.

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.

Regular and Substantive Interaction

Feedback

Once assignments are submitted, you will typically receive feedback in Canvas through the use of comments and within the documents submitted. Feedback and associated grades will be provided within one week of submission. Once received, you are expected to read and integrate the provided feedback into subsequent assignments.

Announcements

I will use announcements each week to communicate synthesized ideas about course assignments and discussions as well as to share any updates.

Discussions

I will regularly participate in the canvas discussion boards. My participation in these discussions will align with the due dates set for those discussions; typically on Saturday..

Learning Outcomes

Program Learning Outcomes (PLOs)

Upon completion of the Master of Arts in Teaching for Elementary Education, the student will be able to:

1. Synthesize knowledge of learner development, learner differences, diverse students and the learning environment to optimize learning for Elementary students
2. Evaluate 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 EDUC 612, the student will be able to:

1. Engage in and reflect upon personal engagement with science and engineering practices (PLO2; S&E Activities).
2. Critique science/engineering teaching and learning experiences, lessons and resources (PLO 1; Teaching Reflection Assignments, Article Critiques & Online resource critiques).
3. Develop science or engineering learning activities and assessments from a foundation of NGSS as well as evidence-based approaches to science teaching and learning. (PLO 1, 2, & 3; Unit Plan).

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.

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

1. Educate for Formation in Faith (Mana) E ola au i ke akua ('Olelo 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 ('Olelo 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 ('Olelo 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 ('Olelo 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 ('Olelo No'eau 203) All knowledge is not taught in the same school

Model Code of Ethics for Educators (MCEE)

The Model Code of Ethics for Educators 2.0 is intertwined throughout the various activities within this course, as well as the other courses you will take within this program. The responsibility to profession, of professional competence, to our students, to the school, and with the use of technology are integral to all aspects of this course. Principle II: Responsibility for Professional Competence has the greatest alignment with activities in this course.

- A.2 Incorporating into one's practice state and national standards, including those specific to one's discipline
- A.3. Advocating for equitable educational opportunities for all students
- A.5 Reflecting upon and assessing one's professional skills, knowledge and competency on an ongoing basis
- C.1 Increasing students' access to the curriculum, activities and resources in order to provide a quality and equitable educational experience.

International Society for Technology in Education (ISTE) Standards

The ISTE standards are intertwined throughout the various activities within this course, as well as the other courses you will take within this program. These standards will deepen your practice, promote collaboration with peers, challenge you to rethink traditional approaches and help you prepare students to drive their own learning (<https://iste.org/>, Retrieved Dec. 2024).

- 2.1. Learner - Educators are committed to improving their practice by actively exploring emerging technologies and participating in professional networks.
 - b: Pursue professional interests by engaging in professional learning networks and organizations.
- 2.3 Citizen - Educators inspire students to positively contribute to and responsibly participate in the digital world.
 - B: Educators foster digital literacy by encouraging curiosity, reflection, and the critical evaluation of digital resources.
- 2.5. Designer - Educators design authentic, learner-driven activities and environments that recognize and address the diverse needs of all students.
 - a: Use technology to create, adapt, and personalize learning experiences that foster independent learning and accommodate learner differences and needs.
 - b: Design authentic learning activities that align with content area standards and use digital tools and resources to maximize active, deep learning.
- 2.6. Facilitator - Educators facilitate learning with technology to support student achievement of the ISTE Standards for Students.
 - d: Model and nurture creativity and creative expression to communicate ideas, knowledge, or connections.

Alignment of Course Learning Outcomes

	CLO 1	CLO 2	CLO 3
Marianist Values	Educate for adaptation and change	Provide an Integral Quality Education	Educate for service, justice & peace Educate for adaptation and change
Program Outcomes	2	1	1, 2, 3
MCEE	A.5		A.2, C.1
ISTE		2.3b	2.5a, 2.5b, 3.6d

Course Activities

Assessment Item	%	Description	CLO(s)
Science/Engineering Activities	35	You will be evaluated on the development of your thoughts regarding different scientific/engineering ideas. These ideas will be evaluated based on your contributions to your Investigation Journal, Presentations, etc.	1
Pedagogical Activities	65	Pedagogical Discussions, Teaching Reflection, Lesson/Unit Plan for K-6 students, Presentations, etc.	2, 3

Changes to the Syllabus

While the provisions of this syllabus are as accurate and complete as possible, I reserve 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. Notification of any changes to activities and/or assignments will be posted on Canvas. Here is a tentative schedule of course assignments and activities.

Tentative Activities and Assignment Schedule

The first part of the course will be focused on your engagement in science & engineering practices (i.e., content), while the second half is focused on science teaching pedagogy.

Week	Content activities	Pedagogical activities	CLOs
1	1. Forces of Flight - Start Investigation 2. Paper Airplane Design & Test	1. Essential features of a good science lesson or unit 2. Student Introductions 3. Syllabus Quiz	1, 2
2	1. How things fly - Center of Gravity & Bernoulli 2. Paper Airplane Design & Test		1
3	1. How things fly - How living things fly 2. Comparing Airplane design and things that fly in nature		1
4	1. How things fly Summative assessment (Scientific Poster)	1. Paper airplane investigation debrief 2. What are the essential features of a good science lesson or unit	1, 2

5		1. Understanding by Design (UbD) 2. Navigating the NGSS 3. Teaching Reflection - Science for all	2, 3
6		1. Teaching reflection - NGSS 2. Learning Objectives 3. Science Learning has Layers	2, 3
7		1. Assessment in science 2. The 5E Instructional Model 3. Teaching Reflection - Assessment	2, 3
8		1. Rubrics 2. Nature of Science 3. Activities Plan 4. Unit Plan Critique	1, 2, 3
9		1. Technology for Science Learning 2. Unit Learning Supports 3. Teaching Reflection - Cooperative Learning	2, 3
10		1. Unit Plan 2. Teaching Reflection - Inspiring Excellence 3. Course Reflection	2, 3

Course Policies

Late Work

The success of the course rests on the quality of the discussions. Without time to read and respond to your peers, our shared classroom community (and the possibilities for learning therein) will suffer. As a result, late discussion posts will receive at most 50% credit. Posts that are more than one week late will receive no credit.

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>

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 90 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%

F = 69.9 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. For pregnant and parenting students, I am also obligated to provide you with similar resources for support and protections available to you. My goal is to make sure that you are aware of the range of options available to you and have access to the resources and support you need.

Nondiscrimination Policy & Notice of Nondiscrimination

The university is committed to comply with all State and Federal statutes, rules, and regulations which prohibit discrimination. The university is committed to a policy of nondiscrimination on the basis of race, sex, gender identity and expression, age, religion, color, national origin (including shared ancestry and ethnic characteristics), ancestry, citizenship, disability, genetic information, marital status, breastfeeding, arrest and court record (except as permissible under State law), sexual orientation, or status as a covered veteran. Inquiries about Title IX or general Civil Rights concerns 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 [HERE](#). *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](#).

Hazing Prevention Resources and Athlete Helpline:

Assists athletes, parents, coaches, and any allies interested in ensuring physical and mental safety for sports communities by offering confidential emotional support, crisis intervention, informational athlete-focused resources, and guidance related to concerns about any type of abuse—including hazing.

Chaminade University's Hazing Policy:

<https://catalog.chaminade.edu/studenthandbook/codeofconduct>

- <https://hazingpreventionnetwork.org/athlete-helpline/>
- <https://hazingpreventionnetwork.org/how-to-report-hazing/>

Basic Needs Resources: <https://chaminade.edu/basic-needs/>

Campus Safety/ SafeSwords

A program for students, faculty and staff, who may feel uncomfortable or unsafe walking alone on campus, at any time of the day. Call security, and a security professional will meet you at your location on campus. The security professional will escort you to your residence hall, car, etc. Students may utilize this when walking to and from night classes around campus or after late night events. [SafeSwords Webpage](#)

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 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 or 808-739-8305.