



**Chaminade University**  
OF HONOLULU

**EDUC 612: Elementary Science Methods**  
Instructor: Katrina Roseler, Ph.D.  
[katrina.roseler@chaminade.edu](mailto:katrina.roseler@chaminade.edu)  
Office: Brogan 126/ Phone: 808-440-4215  
Winter Graduate 2020-21

<b>Class Location:</b> Online	<b>Office Hours:</b> By Appointment Online
<b>Class Time/Day:</b> Online	<b>O&amp;P Requirement:</b> 5 hours
<b>Required Text: None</b>	

### Helpful resources

Resource	Description
<a href="#">Na Wai `Ekolu</a>	Connecting classroom to community through Citizen Science
<a href="#">STEM Teaching Tools</a>	Professional Development support for teaching STEM. Particularly helpful for thinking about assessment.
<a href="#">Edutopia</a>	K-12 Teaching Tips and Strategies that work
<a href="#">Hawaii Science Teachers Association</a>	Hawaii Science Teachers Association is an excellent resource for free professional development activities. Waikiki Aquarium, Whale Watching, State Conference and Networking opportunities! PLEASE consider registering for this great organization!
<a href="#">Bernice Pauahi Bishop Museum</a>	An in-site search for lesson/unit plans that are grades 3-5, connected to NGSS, HSTS and GLO's
<a href="#">Hawaii DOE - STEM competitions and programs</a>	A growing list of links to STEM-related competitions, programs and fairs, plus a vetted list of STEM classroom units.
<a href="#">NASA Educational Resources</a>	A searchable database of STEM Education Resources (activities, lesson plans, professional development) developed and promoted by NASA.

### Catalog Description

**EDUC 612 Elementary Science Methods (3)**—This course focuses on helping the teacher uncover big picture concepts through inquiry-based science activities, 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. *Requires 5 hours of observation and participation. Observation and Participation fee applies.*

**Essential questions:**

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

**Mission Statement:**

The mission of the education division is to foster the education of teachers and leaders in education through programs based in the liberal arts tradition, Catholic Marianist's values, current research, and best practices.

**Marianist Values:**

1. Educate 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

#	Program Outcomes (POs)
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)- By the completion of this course students will:
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; O&P Activities, 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).

**Alignment of learning outcomes**

	<b>CLO 1</b>	<b>CLO 2</b>	<b>CLO 3</b>
<b>Marianist Values</b>	Educate for adaptation and change	Provide an Integral Quality Education	Educate for service, justice & peace Educate for adaptation and change
<b>Program Outcomes</b>	2	1	1, 2, 3

**Grading**

**Basis for Final Grade.** Students in this course will be evaluated in 2 areas.

<b>Assessment Item</b>	<b>%</b>	<b>Description</b>	<b>CLO(s)</b>
<b>Science/ Engineering Activities</b>	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
<b>Pedagogical Activities</b>	65	Pedagogical Discussions, O&P, Lesson/Unit Plan for K-6 students, Presentations, etc.	2, 3

**Grading scale**

Percent	Grade
90 – 100%	A
80 – 89%	B
70 – 79%	C
60 – 69%	D
0 – 59%	F

**Grade Dissemination.** My goal will be to return graded assignments within one week of the due date. Please note that individualized, meaningful feedback may take 30 minutes to multiple hours of time to complete. I appreciate your patience as I support your learning and the learning of your peers.

**Grade 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.

## Course Policies

### Course communication

Communication for this course including announcements, assignments and grades will be posted on Canvas; Chaminade’s Learning Management System. **When communicating with me electronically, please identify the course you are referring to in the subject line (EDUC 612) of your e-mail.** My goal is to respond to emails within 24 hours of receipt.

### Writing Policy:

All written work is to be word-processed, proofread, and solely the work of the author. Written work should demonstrate mastery of grammar, punctuation, spelling and syntax expected of college level students. If you need writing assistance, please seek help from Student Support Services and [Kokua ike - \(Tutoring Center\)](#).

**Tutoring and Writing 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 (<https://chaminade.edu/advising/kokua-ike/>) 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 Account – Notifications – TutorMe. For more information, please contact Kōkua ‘Ike at [tutoring@chaminade.edu](mailto:tutoring@chaminade.edu) or 808-739-8305.

**O&P Activities.** There is a 5 hour O&P requirement for this course. Five reflections (approximately 1 journal entry for every hour of O&P) with assigned prompts for tasks and reflections will be completed over the 10 weeks of this course, relative to an elementary science classroom setting. These entries will focus on different aspects of planning, teaching, assessment, and reflection in the science classroom.

### Late Work Policy

Deadlines are created in order to allow students time to process and collaborate on assignments as well as allow the instructor an opportunity to evaluate participation and engagement. When the deadline for an assignment has passed and a student has failed to engage in the required learning activity with his/her colleagues, that opportunity/experience cannot be recreated or revisited. ***If an assignment is submitted late, without prior notification and agreement with the instructor, the assignment will not receive full credit.***

### Rewrite/Resubmission Policy

Learning is an iterative process and multiple opportunities will be provided for students to revise their work. Students who wish to submit a revised assignment for an increased grade need to contact the instructor directly. Because course activities will include the process of revision, opportunities to rewrite and resubmit work will ONLY be provided on a case-by-case basis. **No**

rewrites will be provided on the final submission of the Signature Assignment (i.e., Final unit plan).

### Group Work/Cooperative Learning Policy

Learning and engagement in science and engineering is a process that requires the interaction and support of others. In other words, knowledge is [socially constructed](#). In order to support learning of all students you will be expected to work cooperatively with others in this course. Your contribution to the online discussions supports your learning as well as the learning of others.

### Tentative Activities and Assignment Schedule

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

Week	Science activities	Pedagogical activities	CLOs
1	1. Forces of Flight - Start Investigation 2. Paper Airplane Design & Test		1
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 (The Scientific Poster)	1. Paper airplane investigation debrief	1
5		1. <a href="#">Understanding by Design</a> (UbD) 2. Navigating the <a href="#">NGSS</a> 3. O&P Reflection - Science for all	2, 3
6		1. O&P reflection - NGSS 2. <a href="#">Learning Objectives</a>	2, 3
7		1. <a href="#">Assessment in science</a> 2. The 5E instructional Model 3. O&P Reflection - Assessment	2, 3
8		1. <a href="#">Rubrics</a> 2. Technology for science learning 3. Unit plan draft	2, 3
9	1. <a href="#">Nature of Science</a>	1. O&P Reflection - Valuing student ideas	2, 3
10		1. Unit Plan revisions 2. Course Reflection	2, 3

## **University Policies**

### **Disability Access:**

If you need individual accommodations to meet course outcomes because of a documented disability, please speak with me to discuss your needs as soon as possible so that we can ensure your full participation in class and fair assessment of your work. Students with special needs who meet criteria for the Americans with Disabilities Act (ADA) provisions must provide written documentation of the need for accommodations from Kōkua 'Ike: Center for Student Learning by the end of week three of the class, in order for instructors to plan accordingly. If a student would like to determine if they meet the criteria for accommodations, they should contact the Kōkua 'Ike Coordinator at (808) 739-8305 for further information ([ada@chaminade.edu](mailto: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:**

The following attendance policy is from the 2019-2020 Academic Catalog (p. 54-55). Faculty members should also check with their divisions for division-specific guidelines.

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, 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 Tutor 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:**

From the 2019-2020 Undergraduate Academic Catalog (p. 39):

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 for more details. A copy of the Student Handbook is available on the Chaminade website.

For further information, please refer to the Student Handbook:

<https://chaminade.edu/wp-content/uploads/2019/08/NEW-STUDENT-HANDBOOK-19-20-Final-8.20.19.pdf>

**Credit Hour Policy:**

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 45 hours of engagement. 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, 10 week term, or equivalent amount of work over a different amount of time. Direct instructor engagement and out-of-class work result in total student engagement time of 45 hours for one credit.

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.