



**Chaminade University**  
OF HONOLULU

**ED 324: Elementary Science Methods**  
**Fall 2019**  
**Credits: 3**  
T/R 1:00-2:20  
Brogan Hall 101

**Instructor: Katrina Roseler**  
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**Office Hours: T/R 9-11**  
**Office Location: Brogan 126**

### Helpful Resources / Supplementary Materials:

<a href="#">GLOBE</a>	An international science and education program that provides students and the public worldwide with the opportunity to participate in data collection and the scientific process, and contribute meaningfully to our understanding of the Earth system and global environment
<a href="#">Na Wai `Ekolu</a>	Connecting classroom to community through Citizen Science
<a href="#">Next Generation Science Standards</a>	Within the Next Generation Science Standards (NGSS), there are three distinct and equally important dimensions to learning science. These dimensions are combined to form each standard—or performance expectation—and each dimension works with the other two to help students build a cohesive understanding of science over time.
<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="#">National Science teacher Association</a>	Access podcasts, webinars, courses, online tutorials, NSTA Press resources, and online communities to sharpen your science teaching skills.
<a href="#">Edutopia</a>	K-12 Teaching Tips and Strategies that work
<a href="#">The Wonders of Science and STEM</a>	A solution for integrating science and STEM with the Wonders Reading Program
<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.

**Course Catalog Description: ED 324 Elementary Science Methods (3)**—This course focuses on helping the classroom teacher uncover *big picture* concepts through inquiry-based science activities, 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. *Required: 6 hours of O&P Prerequisite: Pass Praxis I, ED 220, ED 221.*

**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

**WASC Core Competencies:**

1. Written Communication
2. Oral Communication
3. Quantitative reasoning
4. Critical Thinking
5. Information Literacy

**Program Learning Outcomes (PLOs)**

1	Content Knowledge (Knowledge of subject matter)
2	Developmentally Appropriate Practice (Knowledge of how students develop and learn, and engagement of students in developmentally appropriate experiences that support learning)
3	Pedagogical Content Knowledge (Knowledge of how to teach subject matter to students and application of a variety of instructional strategies that are rigorous, differentiated, focused on the active involvement of the learner)
4	Educational Technology (Knowledge of and application of appropriate technology for student learning)
5	Assessment for Learning (Knowledge of and use of appropriate assessment strategies that enhance the knowledge of learners and their responsibility for their own learning)
6	Diversity (Skills for adapting learning activities for individual differences and the needs of diverse learners and for maintaining safe positive, caring, and inclusive learning environments)
7	Focus on Student Learning (Skills in the planning and design of meaningful learning activities that support and have positive impact on student learning based upon knowledge of subject matter, students, the community, curriculum standards, and integration of appropriate technology)

8	Professional & Ethical Dispositions and Communication (Professional dispositions, professionalism in teaching, and ethical standards of conduct consistent with Marianist values, and positive and constructive relationships with parents, the school community and professional colleagues).
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**Course Learning Outcomes:**

#	Learning Outcome
1	Demonstrate an understanding of the big ideas and concepts in science, aligned with the three strands of the <a href="#">Next Generation Science Standards (NGSS)</a> (i.e., <a href="#">Disciplinary core ideas</a> , <a href="#">Crosscutting Concepts</a> , <a href="#">Scientific Practices</a> ) and <a href="#">Nature of Science (NOS)</a> .
2	Analyze and apply models of teaching and instructional strategies that inform sound decisions to effectively plan lessons and units that are relevant, meaningful, and place-based with respect to Hawai'i's students. Employ culturally appropriate pedagogical practices, and utilize community and place-based resources to facilitate the learning process for students in grades K-6. Introduce and employ the <a href="#">5Es framework</a> and <a href="#">Engineering Design Process (EDP)</a> for teaching and assessment in science.
3	Develop and teach relevant and significant science lessons for K-6 students, and reflect on personal strengths, shortcomings, and areas needing improvement. Apply a variety of diagnostic, formative, and summative assessments to evaluate and support developmentally appropriate progress of the grade K-6 learner in the science classroom.

**Alignment of Course Learning Outcomes**

	CLO 1	CLO 2	CLO 3
<b>Marianist Values</b>	Educate for service, justice & peace Educate for adaptation and change	Educate for service, justice & peace Educate for adaptation and change	Educate for service, justice & peace Educate for adaptation and change
<b>WASC Core Competencies</b>	Critical Thinking Written Communication	Written Communication Information Literacy	Written Communication
<b>Program Outcomes</b>	1	1, 3, 7	1, 2, 5, 8

## Course Requirements

### Grading

**Basis for Final Grade** Students will in this course will be evaluated in 2 areas. Learning is an iterative process which 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.

Assessment Item	%	Description	CLO(s)
Science/Engineering Activities	50	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	1,
Pedagogical Activities	50	Pedagogical Discussions, O&P, Lesson/Unit Plan for K-6 students, Presentations,	2, 3

**Grade Dissemination** Much of the evidence for learning in this course is written. Personal and meaningful on assignments may take 30 to multiple hours of time. In order to honor the time you invest in engaging in learning activities, so to should I invest time in the evaluation of that learning. My goal will be to return graded assignments within one week of the due date.

### Course Policies

**Course communication:** CUH uses Canvas as the Learning Management System (LMS). Communication for this course including announcements, assignments and grades will be posted on Canvas.

#### 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 - \(Tutoring Center\)](#).

**O&P Activities.** **There is a 6 hour O&P requirement for this course.** It is imperative that you complete your O&P paperwork as well as get into your placement during the first few weeks of the semester. Should you have further questions please contact the Field Services office via email at [edu-fieldservices@chaminade.edu](mailto:edu-fieldservices@chaminade.edu)

The “participation” component of this O&P is flexible and depends entirely on the classroom teacher you are observing this semester. While you may not get to see actual science blocks of teaching and assessment, you can certainly observe and note the integration of science with other subject areas in the elementary classroom. If the mentor teacher is willing, you may help out with activities, work with individual or groups of students, or you may even do some teaching in his/her classroom. ***It is of utmost importance that you show the teacher, students, and staff and the school respect when conducting yourself at this assigned***

**school.**

Five journal entries (approximately 1 journal entry for every hour of O&P) with assigned prompts for tasks and reflections will be completed over the 16 weeks of this course, in an elementary science classroom setting. These entries will focus on different aspects of planning, teaching, assessment, and reflection in the science classroom. They will be assigned and turned in Canvas.

*\*A letter to give to your OPT is available [here](#) and provides your OPT my expectations for this term as a Chaminade student participating in the elementary classroom for this ED 324 course.*

This assignment (and the 6 total hours of O&P) must be completed prior to *finals week* for this course. Have all hours completed (forms signed and approved by the O&P teacher) and e-mailed to both Kathy Nishimura (Education Field Services Director) [kathleen.nishimura@chaminade.edu](mailto:kathleen.nishimura@chaminade.edu), and to me, at [katrina.roseler@chaminade.edu](mailto:katrina.roseler@chaminade.edu) by, **Dec 6th, 2019**.

**Grading scale**

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

### Tentative Activities and Assignment Schedule

The first half of the course will be focused on your engagement in science & engineering practices, while the second half is focused on your development of lessons and/or a unit concept to engage K-6 students in science and engineering activities.

Week	Science investigation activities	CLO
1 8/26	1. What weather conditions can we expect each season? a. Investigation proposal 2. Submit O&P request	1
2 9/2	1. What weather conditions can we expect each season? a. Data Collection b. Analysis <b>*Roseler out Sept 5 (PHAM)</b>	1
3 9/9	1. What weather conditions can we expect each season? a. Scientific Argument - Claim, Evidence, Reasoning b. Scientific Poster 2. O&P placement confirmation	1
4 9/16	1. How does climate change as you move from the equator to the poles? 2. Benefits of journal writing <b>*Roseler out Sept 19 (PHAM)</b>	1, 3
5 9/23	1. How does climate change as you move from the equator to the poles? a. Investigation proposal b. Data Collection 2. O&P Reflection #1	1
6 9/30	1. How does climate change as you move from the equator to the poles? a. Analysis b. Scientific Argument - Claim, Evidence, Reasoning	1
7 10/7	1. How does climate change as you move from the equator to the poles? a. Scientific Poster 2. O&P Reflection #2 3. Scholarships - Extra Credit <b>*DOE Fall Break</b>	1
8 10/14	1. Canvas Discussion - Read and review the selected lesson/unit plan <b>*Roseler out Oct 17 (PHAM)</b>	2
9 10/21	1. Canvas Discussion - Read and review the selected lesson/unit plan 2. Lesson/Unit Planning - Navigating the NGSS 3. Student/Teacher Roles during Science/ Engineering 4. O&P Reflection #3	2, 3
10 10/28	1. Lesson/Unit Planning - UbD a. Learning Objectives 2. Canvas Discussion - Read and review the selected lesson/unit plan	2, 3
11 11/4	1. Lesson/Unit Planning - Assessment in Science a. Rubrics 2. Canvas Discussion - Read and review the selected lesson/unit plan 3. O&P Reflection #4 <b>*Roseler Out Nov 7th - Conference</b>	2, 3
12	1. Lesson/Unit Planning - Identify 3 different K-6 resources that could be used to support	2, 3

11/11	<ul style="list-style-type: none"> <li>student learning about your unit</li> <li>2. Canvas Discussion - Read and review the selected lesson/unit plan</li> </ul>	
13 11/18	<ul style="list-style-type: none"> <li>1. Lesson/Unit Planning - 5-E Model</li> <li>2. Canvas Discussion - Read and review the selected lesson/unit plan</li> <li>3. O&amp;P Reflection #5</li> </ul> <p><b>*Roseler out Nov 21st - PHAM</b></p>	2, 3
14 11/25	<ul style="list-style-type: none"> <li>1. NOS and ways of knowing</li> </ul> <p><b>*No Class on Thursday (Thanksgiving)</b></p>	1
15 12/2	<ul style="list-style-type: none"> <li>1. Lesson Plans &amp; Unit Overview Due</li> </ul>	2, 3
Finals		

## 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 (ED 324) of your e-mail.** My goal is to respond to emails within 24 hours of receipt.

### Late Work Policy

**I do not accept late work.** 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.

The Chaminade's Learning Management System (i.e., Canvas) will be configured to identify assignments that are submitted after the due date/time. I will share complete information on assignments to allow ample time for completion if you do not procrastinate. Please respect my time and your colleagues, plan ahead and submit your work on time, so that we can all progress through this learning experience together.

### 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., Lesson Plans/Unit Concept).

### 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 - \(Tutoring Center\)](#).

### **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 in-class and online discussion will support your learning as well as the learning of others in this course.

### **Appropriate Technology (Smartphones/Laptops/Tablets).**

Laptops, tablets and smartphones will be used during course activities to support individual and group learning activities. Students are encouraged to bring their devices in order to support their learning. However, students are urged to minimize functions that will detract from learning. [Chaminade University student classroom policy](#) indicates that cell phones are not to be used in class without instructor approval. Distractions that inhibit your ability to fully engage in learning should be minimized or eliminated. Every effort will be made to motivate your engagement in course activities, however distractions such as text messages, emails and posts on social media take away from your ability to learn as well as your contribution to other in the course. Please make a conscious decision to minimize or eliminate distractions of this nature.

### **Disability Access**

The University is committed to providing reasonable accommodations for all persons with disabilities. This syllabus is available in alternate formats upon request. Students who need accommodations must be registered with Student Disability Services. 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 the Counseling Center by the end of week three of the class, in order for the instructor to plan accordingly. Failure to provide written documentation will prevent your instructor from making the necessary accommodations. Please refer any questions to the Dean of Students at the following address [counselingcenter@chaminade.edu](mailto:counselingcenter@chaminade.edu).

## **University Policies**

### **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. Should you want to speak to a confidential source you may contact the following:

- Chaminade Counseling Center [808 735-4845](tel:8087354845).
- Any priest serving as a sacramental confessor or any ordained religious leader serving in the sacred confidence role.

**Attendance:** As stated in the Chaminade University Student Handbook, students are expected to attend all classes for courses in which they are registered. *Students must follow the attendance policy of the Division* as appropriate for the course format (on-ground, hybrid, or online). Penalties for not meeting the attendance requirements may result in lowering of the

grade, withdrawal from the course, or failing the course. A summary of the Education Division's attendance policy is attached at the end of this syllabus.

**Writing Standards:** All work submitted by Chaminade University students must meet the following writing standards. Written assignments should:

1. Correctly use the grammar, spelling, punctuation, and sentence structure of Standard Written English.
2. Develop ideas, themes, and main points coherently and concisely.
3. Adopt modes and styles appropriate to their purpose and audience.
4. Be clear, complete, and effective.
5. Carefully analyze and synthesize material and ideas borrowed from sources. In addition, the sources of the borrowed material should be correctly acknowledged to avoid plagiarism (see Plagiarism).

**Plagiarism:** "Plagiarism is the offering of work of another as one's own. Plagiarism is a serious offense and may include, but is not limited to, the following:

1. Complete or partial copying directly from a published or unpublished source without proper acknowledgement to the author. Minor changes in wording or syntax are not sufficient to avoid charges of plagiarism. Proper acknowledgement of the source of a text is always mandatory.
2. Paraphrasing the work of another without proper author acknowledgement.
3. Submitting as one's own original work (however freely given or purchased) the original exam, research paper, manuscript, report, computer file, or other assignment that has been prepared by another individual.

Please refer to your **Student Handbook** for other important institutional and academic policies including more detailed information regarding Grading, Plagiarism, Classroom Department, Freedom of Expression, Add/Drop, Disabilities, and others.

**Diversity/Full Inclusion:** Chaminade University of Honolulu is committed to a policy of non-discrimination and recognizes the obligation to provide equal access to its programs, services, and activities to students with disabilities. If a student is in need of accommodation due to a documented disability, he/she should contact the Counseling Center at [counselingcenter@chaminade.edu](mailto:counselingcenter@chaminade.edu). A determination will be made if the student meets the requirements for documented disability in accordance with the Americans with Disabilities Act. It is important to contact them as soon as possible so that accommodations are implemented in a timely fashion. Beyond the legal requirements Chaminade's Education Division is committed to an integral, quality education that begins with respect for the complexity and diversity of each person. Subsequently, faculty members attempt to engage the whole person with quality courses and activities that challenge the intellectual, emotional, aesthetic, physical, and ethical dimensions that make up each student's life experience.

### **Grades of "Incomplete"**

The current university policy concerning incomplete grades will be followed in this course. Incomplete grades are given only in situations where unexpected emergencies prevent a student from completing the course and the remaining work can be completed the next semester. Your instructor is the final authority on whether you qualify for an incomplete.

Incomplete work must be finished within 90 days of the end of the semester or the "I" will automatically be recorded as an "F" on your transcript.