



ED 324: Elementary Science Methods
Instructor: Katrina Roseler, Ph.D.
katrina.roseler@chaminade.edu
Office: Brogan 126/ Phone: 808-440-4215
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Class Location: Brogan, Room 101	Office Hours: T/R 1100-1200, 2:30-5:00pm
Class Time/Day: T/R 1:00-2:20	O&P/Service Requirement: 10 hours
Required Text: None	

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*

Program Outcomes

PLO1	Content Knowledge (<i>Knowledge of subject matter</i>)
PLO2	Developmentally Appropriate Practice (<i>Knowledge of how students develop and learn, and engagement of students in developmentally appropriate experiences that support learning</i>)
PLO3	Pedagogical Content Knowledge (<i>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</i>)
PLO4	Educational Technology (<i>Knowledge of and application of appropriate technology for student learning</i>)
PLO5	Assessment for Learning (<i>Knowledge of and use of appropriate assessment strategies that enhance the knowledge of learners and their responsibility for their own learning</i>)
PLO6	Diversity (<i>Skills for adapting learning activities for individual differences and the needs of diverse learners and for maintaining safe positive, caring, and inclusive learning environments</i>)
PLO7	Focus on Student Learning (<i>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</i>)
PLO8	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)

Course Learning Outcomes By the completion of this course students will be able to:

#	Learning Outcome	Alignment
1	Demonstrate an understanding of the big ideas and concepts in science, aligned with the three strands of the Next Generation Science Standards (NGSS) (i.e., Disciplinary core ideas , Crosscutting Concepts , Scientific Practices) and Nature of Science (NOS) .	PLO: 1 InTASC : 4, 5 edTPA
2	Iteratively develop a connected series of learning opportunities for students that: a. are focused on student outcomes and are aligned with varied assessments b. that used varied instructional strategies that addresses the needs of all learner abilities and types in the K-6 science classroom c. utilize technological tools and resources to support learning and better understanding of the subject matter in science.	PLO: 1, 2, 4, 5, 6, 7 InTASC : 1, 2, 5, 6, 7, 8 edTPA: Rubric 2, 4, 5 WASC : 1, 3
3	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 5Es framework and Engineering Design Process (EDP) for teaching and assessment in science.	PLO: 1, 2 InTASC : 1, 2, 4, 5, 8 edTPA: Rubric 3, 5 WASC : 2,
4	Develop and teach relevant and significant science lessons and activities to K-6 students, and then 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.	PLO: 1, 2, 3, 5, 7, 8 InTASC : 4, 5, 6, 7 edTPA: Rubric 5 WASC : 1, 2, 3, 4

Essential Questions addressed in this course:

Question	CLOs	PLOs
How do we engage K-6 students in meaningful and enduring science learning?	2, 3, 4	1, 2, 3, 4, 5, 6, 7, 8
What are the big ideas in science with respect to content knowledge which includes science concepts in the areas of physical, life, and earth and space science, and what is the nature of science (NOS) with respect to science attitudes and habits of mind?	1	1

Course communication

CUH has adopted Canvas as the new Learning Management System (LMS). Communication for this course including announcements, assignments and grades will be posted on Canvas. Please be patient with yourselves as you engage in learning using this new LMS.

edTPA

The Hawaii Teacher Standards Board (HTSB) approved the use of the *Teacher Performance Assessment* or edTPA, a performance-based assessment for Teacher Education Preparation Programs. The successful completion of an edTPA Portfolio will be required during the student teaching practicum beginning Spring semester 2016, and for teacher certification in the state of Hawaii beginning in 2019. Chaminade University has integrated edTPA assignments in all teacher education courses. Please go to <http://cuhedtpa.weebly.com/> for more information.

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 your 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.

Grading scale

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

Course Policies

Late Work Policy

I do not accept late work. 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., mini unit plan).

Writing Policy:

All papers are to be word-processed, proofread, and solely the work of the author. All papers should demonstrate mastery of grammar, punctuation, spelling and syntax expected of college level students. Use of [APA/MLA](#) is required for all papers. If you need writing assistance, please seek help from Student Support Services and the [Academic Achievement Program](#).

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.

Grading

Basis for Final Grade Students will in this course will be evaluated in 5 areas. Learning is an iterative process which includes making mistakes, therefore, students will be provided feedback on their progress towards completion of the listed assessment items with opportunities to edit work that has been submitted.

Assessment Item	%	Description	CLO(s)
<u>Mini Unit Plan</u>	50	Your Signature assignment will be mini-unit plan consisting of 3 or more lessons following the mini-unit plan template in LiveText. The template for this mini-unit plan, along with the lesson plan template, will be posted in the LiveText system and will be noted as the signature assignment for this ED 324 course and will be assessed in LiveText. This mini-unit plan should contain lessons that are connected, cohesive, and integrated (to a certain extent), and tied to a theme. Reflection on the process of planning and any implementation of lessons (through O&P assignment) are also required.	1, 2, 3
<u>My Science Story</u>	5	Create a narrative account of your science experiences growing up as a child and up to this point in your life. Show your colleagues and I how the “inner scientist” in you has emerged over the years. This autobiography should include photos, artwork, etc. to fully express this “inner scientist” and emergent science educator. You may choose present your story in various agreed upon formats.	3
Informal Science Learning experience (Field Trip/ Service Learning) lesson(s)	25	You will be planning for a science field trip and/or service learning project in the community that may be included in the required mini-unit plan for the course (signature assignment). In this plan you will include the pre-experience considerations and activities leading up to the event, day of activities, and post- event reflections. You will also need to make the proper contacts with the site personnel and visit the site yourself, and gather any information needed to help you with the planning of such an activity. Safety considerations, chaperones, and other field trip provisions need to be discussed in this plan. Assessments (if any) need to be developed as well, and included in this plan. You may develop this learning plan as part of your O&P assignment, which may be related to your signature assignment for this course. If your O&P teacher (OPT) has a field trip/service learning project scheduled for when you will be there to participate, then plan with him/her for this very assignment.	4

Assessment Item	%	Description	CLO(s)
O&P Reflective Journal/Blog	10	<p>As part of this science methods course you are required to complete 6 hours of observation and participation at an educational institution. 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 the 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 bit teaching in his/her classroom. <i>It is of utmost importance that you show the teacher, students, and staff and the school respect when conducting yourself at this assigned school.</i></p> <p>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.</p> <p><i>*I will provide you with a letter to give to your OPT, at the start of this course, which gives the expectations for this term as a Chaminade student participating in the elementary classroom for this ED 324 course.</i></p> <p><u>This assignment (and the 10 total hours of O&P) must be completed prior to <i>finals week</i> for this course.</u> 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 , and to me, at katrina.roseler@chaminade.edu by Friday, December 4th, 2015.</p>	4
Participation, Community Engagement, and Cooperative learning.	10	<p>You must be must attend in-class sessions as well as engage in learning activities both in-class and on Canvas. Your level of participation and engagement will be based on genuine efforts to contribute to class discussions (based on readings and class topics), weekly in-class activities as well as online contributions to Canvas dialogue.</p> <p>Additionally, 6-9 hours of community engagement service learning will be incorporated into this science methods course (Hawaii Science Teachers Association (HaSTA) Conference). Your participation in this HaSTA Conference will culminate in a discussion about the activities with your peers.</p>	2, 3, 4

Tentative Activities and Assignment Schedule

Week	Topic(s)	Learning activities	Review/Do	CLO
Aug 24-26	(Introduction) What impacts the implementation of engaging science instruction?	<ul style="list-style-type: none"> • Drawing (DaST) • The what, where, and when of science • How did you get so “good” at that? • Informal/Free choice science experiences 	<ul style="list-style-type: none"> • My Science Story #1 • Register for Hawai'i Science Teachers Association Conference (Sept 12) 	3
Aug 31- Sept 4	Personal and cultural science experiences	<ul style="list-style-type: none"> • My Science Story presentations • Engaging in science/engineering in everyday activities • Identify Science and/or Engineering areas of strength • Science as a way of knowing • Criteria for evaluating science/engineering lessons 	<ul style="list-style-type: none"> • What are my ways of knowing? • Identify Science/Engineering lessons • Utah Curriculum Resources • Discovery Education - K-5 Science Lessons • Teachers.net - Science Lessons • PheT • Evaluate Science/Engineering lessons • Infographic for evaluating lesson plans 	3
Sept 7-11	NGSS	<ul style="list-style-type: none"> • Creating learning objectives • Identifying standards • Class investigation #1 • Assessing science/engineering practices 	<ul style="list-style-type: none"> • Edit/Revise a K-6 science lesson #1 • Class investigation data collection • Build/revise rubric for class investigation • Hawai'i Science Teachers Association Conference (Sept 12) 	1, 2, 3
Sept 14-18	Building science/engineering units Applying NGSS	<ul style="list-style-type: none"> • Science of Cooking - Exploratorium • Science of Cooking - Science behind food and cooking in the kitchen • Applying NGSS to Kitchen Science • Presentation on Class investigation #1 	<ul style="list-style-type: none"> • Edit/Revise a K-6 science lesson #1 • Build a rubric for evaluating student learning of lesson #1 • The natural phenomenon I see every day 	1, 2
Sept 21-25	Practice Teaching & 5E instructional Model	<ul style="list-style-type: none"> • Presentation of Lesson #1 • Applying 5E to lesson plans • Create O&P Rubric 	<ul style="list-style-type: none"> • Identify Science/Engineering lesson #2 • Edit/Revise a K-6 science lesson 	3, 4
Sept 28-Oct 2	Informal/Free Choice Learning Applying NGSS	<ul style="list-style-type: none"> • Applying NGSS to The Science of Sport • Field Trips • Teaching and Learning Resources 	<ul style="list-style-type: none"> • Identify 2 possible field trip ideas • O&P reflection #1 - Prior knowledge and assessment • Identify teaching and/learning resources to support your lessons. 	1, 3

Oct 5-9	Practice Teaching	<ul style="list-style-type: none"> • Presentation of Lesson #2 • Workday 	<ul style="list-style-type: none"> • Develop an initial field trip lesson 	4
Oct 12-16	Informal learning/ Field Trips	<ul style="list-style-type: none"> • TBD by students 	<ul style="list-style-type: none"> • O&P reflection #2 - Student engagement • Field trip reflections • Edit/Revise field trip lesson • TBD by students 	3
Oct 19-23	Informal learning/ Field Trips	<ul style="list-style-type: none"> • TBD by students 	<ul style="list-style-type: none"> • Field trip reflections • Edit/Revise field trip lesson • TBD by students 	3
Oct 26-30	Informal learning/ Field Trips	<ul style="list-style-type: none"> • TBD by students 	<ul style="list-style-type: none"> • O&P reflection #3 - NGSS • Field trip reflections • Edit/Revise field trip lesson • TBD by students 	3
Nov 2-6	Science AND Religion	The encyclical & <i>50 simple things you can do to save Hawai'i</i> (Grabrowsky, 2007)	<ul style="list-style-type: none"> • TBD by students 	1, 3
Nov 9-13	Unit planning	<ul style="list-style-type: none"> • Workday • Class investigation #2 	<ul style="list-style-type: none"> • Data collection for class investigation • O&P reflection #4 - Meeting the needs of all learners 	1, 2, 3
Nov 16-20	Unit planning	<ul style="list-style-type: none"> • Presentation of class investigation #2 • Integrating the Common Core Standards • Workday 	<ul style="list-style-type: none"> • Edit/Revise Unit Plan 	1, 2, 3
Nov 23-27	Unit planning	<ul style="list-style-type: none"> • Building resources for unit plan • Workday 	<ul style="list-style-type: none"> • O&P reflection #5 - • Edit/Revise Unit Plan 	2, 3
Nov 30 - Dec 4	Unit planning	<ul style="list-style-type: none"> • TBD 	<ul style="list-style-type: none"> • Final O&P Reflective Journal/Blog entry • Edit/Revise Unit Plan 	2, 3
Dec 7-11	Finals	Unit plan presentations	<ul style="list-style-type: none"> • Upload Unit Plan to LiveTEXT 	4

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. Use correctly 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 735-4845 or 739-4603. 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.

Education Division Attendance Policy

(Revised 3/8/10)

As stated in the Chaminade University Catalog, students are expected to attend all classes for courses in which they are registered.

Students must follow the attendance policy as stipulated in the syllabus of Education Division courses.

Penalties for not meeting the attendance requirements may result in lowering of the grade, withdrawal from the course, or failing the course.

1. Excused Absences.

1.1. Since it is expected that students will participate in all class sessions, excused absences are only granted in exceptional situations where evidence is provided by the student to the instructor. Examples would include illness (with verification by a doctor) or the death of a close family member. Students should notify their instructors when a situation prevents them from attending class and make arrangements to complete missed assignments. While notification of the instructor by a student that he/she will be absent is courteous, it does not necessarily mean the absence will be excused.

1.2. In cases where excused absences constitute a significant portion of a course's meetings (e.g., more than 20% of on-ground course meetings, or a significant portion of online or hybrid courses), the instructor should refer the case to the Dean with a recommendation on how the case should be handled (e.g., withdrawal or incomplete).

2. Unexcused Absences. [Chaminade University student policy](#) states that in cases where unexcused absences are equivalent to more than a week of classes the instructor has the option of lowering the grade. In the Education Division we have added detailed guidelines to cover different types of courses and class schedules:

2.1. **On-ground courses.** When unexcused absences total more than 10% of the number of classes will result in a lowering of the overall grade by one letter grade. A student who misses 20% or more should withdraw or be administratively withdrawn.

- a. Accelerated Semester Classes (10 classes): More than one absence lowers grade one letter. Missing more than two classes results in failure or withdrawal.
- b. Undergraduate Day Courses TTh (30 classes): More than 3 absences lowers grade one letter. Missing more than six classes results in failure or withdrawal.
- c. Undergraduate Day Courses MWF (45 classes): More than 4 absences lowers grade one letter. Missing more than nine classes results in failure or withdrawal.