# Chaminade University
### O F   H O N O L U L U

**Instructor: Katrina Roseler**
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**Office Hours:** By appointment
**Office Location: Brogan 126**

**Required texts: None**
**Helpful Resources / Supplementary Materials:**

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|---|---|
| My NASA Data | Repository for Earth Science Data Collected and Archived by NASA for use in the classroom. Also resources for teaching Earth Science |
| EO Kids | Science readers for ages 9-14 |
| GLOBE | 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 |
| Na Wai `Ekolu | Connecting classroom to community through Citizen Science |
| Next Generation Science Standards | 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. |
| Hawaii Science Teachers Association | 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! |
| National Science Teaching Association | Access podcasts, webinars, courses, online tutorials, NSTA Press resources, and online communities to sharpen your science teaching skills. |
| Edutopia Science | K-12 Science Teaching Tips and Strategies that work |
| The Wonders of Science and STEM | A solution for integrating science and STEM with the Wonders Reading Program |
| Open Science Ed | Middle School (Grades 6-8) Teaching Resources |

**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

**CUH Core Competencies:**
1. Written Communication
2. Oral Communication
3. Quantitative reasoning
4. Critical Thinking
5. Information Literacy

**Program Learning Outcomes (PLOs)**

| | |
|---|---|
| 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:**

| # | Learning Outcome |
|---|---|
| 1 | Engage in and reflect upon personal engagement with science and engineering practices (S&E Activities) |
| 2 | Critique science/engineering teaching and learning experiences, lessons and resources (O&P 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) |

## Alignment of Course Learning Outcomes

| | CLO 1 | CLO 2 | CLO 3 |
|---|---|---|---|
| **Marianist Values** | | Educate for service, justice & peace | Educate for adaptation and change |
| **CUH Core Competencies** | Critical Thinking Written Communication | Critical Thinking Written Communication Information Literacy | Written Communication |
| **Program Outcomes** | 2 | | 1, 2 |

# Course Requirements

## Grading

**Basis for Final Grade** Students 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** | 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,O&P, Lesson/Unit Plan for K-6 students, Presentations, etc. | 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 too 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

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 individuals 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 uploaded to Canvas by Nov 25th.

## Grading scale

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

## 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**

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).

**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 online discussions supports  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 others in the course. Please make a conscious decision to minimize or eliminate distractions of this nature.

### 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 investigation activities | CLO |
|------|----------------------------------|-----|
| 1<br>8/24 | 1. Introductions<br>2. Science & Engineering Practices - Weather Patterns<br>   a. Investigation proposal<br>3. Select O&P activity | 1 |
| 2<br>8/31 | 1. Science & Engineering Practices - Weather Patterns<br>   a. Design a Method and Collect Data<br>   b. Create an argument<br>   c. Argument Session | 1 |
| 3<br>9/7 | 1. Science & Engineering Practices - Weather Patterns<br>   a. Reflective Discussion<br>   b. Investigation Report Draft<br>   c. Peer review/feedback<br>   d. Revise and finalize your investigation report | 1 |
| 4<br>9/14 | 1. Pedagogy<br>   a. ADI Debrief discussion<br>   b. Research-based approaches to science teaching and learning | 2 |
| 5<br>9/21 | 1. Pedagogy -<br>   a. The 5E model<br>   b. UbD/Backward Design<br>   c. O&P Reflection #1 (5E Model) | 2, 3 |
| 6<br>9/28 | 1. Pedagogy<br>   a. Navigating the NGSS<br>   b. Learning Objectives<br>   c. O&P Reflection #2 (NGSS) | 2, 3 |

| | | |
|---|---|---|
| 7<br>10/5 | 1. Pedagogy -<br>    a. Assessment in Science<br>    b. Rubrics<br>**\*DOE Fall Break** | 3 |
| 8<br>10/12 | 1. Pedagogy -<br>    a. Lesson/Activity Planning<br>    b. O&P Reflection #3 (Assessment) | 2, 3 |
| 9<br>10/19 | 1. Pedagogy -<br>    a. Lesson/Activity Planning Feedback<br>    b. O&P Reflection # 4 (Science for all) | 2, 3 |
| 10<br>10/26 | 1. Pedagogy -<br>    a. Resources for teaching/learning science<br>    b. Unit Plan Draft | 3 |
| 11<br>11/2 | 1. Pedagogy -<br>    a. NOS and ways of knowing<br>    b. Unit Plan Feedback | 3 |
| 12<br>11/9 | 1. Pedagogy -<br>    a. Unit Plan Presentations & Feedback<br>    b. O&P Reflection (Cooperative Learning) | 2, 3 |
| 13<br>11/16 | 1. Pedagogy -<br>    a. Creating your unit in Google Classroom | |
| 14<br>11/23 | 1. Pedagogy -<br>    a. O&P Timesheet<br>    b. Course Reflection | 3 |

.**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. 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.

**Notice of Nondiscrimination**

Chaminade University's compliance with Title IX is implemented in the context of the University's broader Nondiscrimination/Anti-harassment Policy and Grievance Procedures, which advises the University community of prohibited discriminatory and harassing conduct by Community Members, as well as the resources and processes for addressing and resolving complaints of discrimination, harassment and/or violation of University policy.

Chaminade University does not discriminate because of race, color, national origin, religion, sex, age, disability (mental or physical), genetic information, pregnancy, gender identity/expression, sexual orientation, ancestry, marital status, arrest or court record status, National Guard participation, victim of domestic or sexual violence status, breastfeeding, or any other protected status.  Full details of the University's anti-discrimination policy can be viewed in Volume III, Section 3.1 of the Policy Manual

## ADA Accommodations

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.

**Academic Conduct:**

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

**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.

**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.