



ED 324: ELEMENTARY SCIENCE METHODS

Course Logistics

Course: ED 324 Elementary Science Methods

Prerequisite: ED 220 Educational Foundations
ED 221 Educational Psychology

Instructor: Dr. Toni Marie Kauai



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Course Format: Online via Canvas.

Credit Hours 3

Dates & Times: Varies depending on semester

Program Chuuk BSEEO Course

Learning Materials: Buxton, C. A. & Provenzo, E. F. (2012). *Place-based science teaching and learning*. Thousand Oaks, CA: SAGE

Catalog Course 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, and earth and space science; develop inquiry-based science skills; and learn how to plan and teach meaningful units and lessons for Kindergarten to 6th grade students.

Major Course Topics

1. Science as inquiry,
2. Physical science and technology,
3. Earth and space science,
4. Life and environmental science,
5. Marine science

Course Requirements

Program Learning Outcomes (PLOs)

Successful teacher candidates must meet relevant professional, state, and institutional standards through meeting the following Program Learning Outcomes. PLOs highlighted will be emphasized through this course.

PLO1	Knowledge of subject matter such as reading/language arts, mathematics, social sciences, science, visual arts, musical arts, and kinesthetic arts (<i>Content Knowledge</i>).
PLO2	Knowledge of how students develop and learn, and engagement of students in developmentally appropriate experiences that support learning (<i>Developmentally Appropriate Practice</i>).
PLO3	Knowledge of how to teach subject matter to students and the application of a variety of instructional strategies that are rigorous, differentiated, focused on the active involvement of the learner (<i>Pedagogical Content Knowledge</i>).
PLO4	Knowledge and application of appropriate technology for student learning (<i>Technology</i>).
PLO5	Knowledge and use of appropriate assessment strategies that enhance the knowledge of learners and their responsibility for their own learning (<i>Assessment</i>).
PLO6	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>Diversity</i>).
PLO7	Skills in the planning and design of meaningful learning activities that support and have a positive impact on student learning based upon knowledge of subject matter, students, the community, curriculum standards, and integration of appropriate technology (<i>Focus on Student Learning</i>).
PLO8	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 (<i>Professional & Ethical Dispositions and Communication</i>).

Course Learning Objectives (CLOs)

At the end of this course, the student will:

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| CLO1 | Develop a balanced lesson plan focusing on the learner, science content in one domain, outcomes, and assessment plans, and an instructional blueprint which addresses the needs of all learner abilities and types in the K-8 classroom. |
| CLO2 | Demonstrate an understanding of, one, big ideas and concepts in science, aligned with K-8 FSM benchmarks; two, scientific inquiry; and three, the Nature of Science. |

- CLO3** Analyze and apply teaching models and strategies informing sound decisions to effectively plan lessons and units that are relevant, meaningful, and place-based with respect to Chuuk's students. Employ culturally appropriate pedagogical practices and utilize community and place-based resources to facilitate the learning process for students in grades K-8.

Essential Questions

- What is inquiry-based learning in science and how can this framework for planning, teaching, and assessing students of diverse backgrounds be utilized?
- How can connections, or a sense of place, be made to one's own environment as a teacher and as a student? How would a place-based science curriculum help make the learning meaningful and engaging, while also maintaining the rigors of science?
- 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 with respect to science attitudes and habits of mind?

Matrix of Learning

Course Learning Outcomes	Knowledge	Skills	Disposition	edTPA Elementary Education Rubrics	InTASC Standards	Program Learning Outcomes
1	P	P	P	4, 9, & 18	1, 3, 5, 6, & 8	1, 2, 3, 5, & 7
2	P	P	P	4, 9, & 18	5, 6, 7, & 9	1 & 3
3	P	P	P	4, 9, & 18	1, 3, 6, & 10	1, 2, 3, & 7

Course Requirements

This class follows a weekly schedule, beginning on a Monday and ending on Sunday. Working ahead is acceptable. Details on each assignment, including points to be earned, can be found in the units in Canvas.

Assignments

All assignments have assignment guidelines which provide you with complete assignment information, including, but not limited to, objective(s), description, format, submission, and due dates. It is your responsibility to review these guidelines for each assessment. If there are discrepancies with regards to the due date, the due date listed on the assignment guidelines will take precedence.

Grading Policy

The course consists of summative assessments that you will use to improve your knowledge and understanding, and I will use to make instructional decisions. Consequently, it is expected that by the end of this course, you should have been using all the provided feedback to have produced the best possible mathematics work to proficiently achieve the course learning outcomes.

Achieving "on target" for each assessment is the goal to demonstrate proficiency and to earn the 'A' in this course. If you are not earning "on target" for each assignment and you are unsure

how to use the feedback provided to achieve to “on target,” please do not hesitate in contacting me so that we can discuss your progress. Additionally, if you are not receiving any feedback from me, **this is great news** because it means that you are doing “Advanced” work and demonstrating advanced proficiency.

Assignments will be graded within two weeks of the Canvas due date.

Weekly Schedule

Wk	Topic	Learning Objective	Assignments
1	Place-based science	<ul style="list-style-type: none"> Identify and define place-based science. Describe place-based science and diverse learners 	<ul style="list-style-type: none"> Reading. Discussion post.
2	Belonging in science	<ul style="list-style-type: none"> Describe how one feels belonging as a scientist. Identify strategies for working in a multigrade classroom. Explain diverse learners and their connection to place-based science. 	<ul style="list-style-type: none"> Reading. Discussion post.
3 & 4	Science at home	<ul style="list-style-type: none"> Review and revise existing place-based science activities connected to learners’ home. 	<ul style="list-style-type: none"> Reading. Discussion post.
5 & 6	Science at school	<ul style="list-style-type: none"> Review and revise existing place-based science activities connected to learners’ school. 	<ul style="list-style-type: none"> Reading. Discussion post.
7 & 8	Science in the community	<ul style="list-style-type: none"> Review and revise existing place-based science activities connected to learners’ community. 	<ul style="list-style-type: none"> Reading. Discussion post.
9 & 10	Science as a global activity	<ul style="list-style-type: none"> Review and revise existing place-based science activities connected to learners’ world. 	<ul style="list-style-type: none"> Reading. Discussion post.

Education Division

Conceptual Framework

The Division of Education's Conceptual Framework is based upon a set of beliefs that flow from the University's vision and mission statements, the Division's vision and mission statements, and the core academic beliefs of Chaminade University. These values and beliefs are based on the Catholic Marianist principles; a commitment to mentor teacher and educational leader candidates to their fullest potential; a commitment to teaching, scholarship, and research; and a commitment to serve the university and the larger community. This alignment is designed to prepare education professionals who meet the National Council for Accreditation of Teacher Education (NCATE) standards for effective teaching by demonstrating professional dispositions and empathy, content knowledge, and the pedagogical/leadership skills to work effectively with a diverse community of learners.

Mission Statement

The Education Division's mission is to foster the development of knowledgeable, proficient, and reflective teachers and educational leaders. Our programs are based in the liberal arts tradition, Catholic Marianist values, current research, best practice, and professional standards. In this context, we develop educators who demonstrate ethical, effective, and culturally responsive practices, and a commitment to building a just and peaceful society.

Marianist Values

We promote the characteristics of Marianist universities which include:

1. *Education for Formation in Faith* (Mana): In the community of learners, reason and personal faith are seen as mutually complementary roads to truth. All scholars are invited to join the larger community of faith, hope, and love.
2. *Integral, Quality Education* (Aloha): The 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 student's life experience.
 - a. Education is an active process.
 - b. Teaching and learning are reciprocal processes.
 - c. Diversity enriches education by providing many different cultural values and viewpoints.
 - d. Varied instruction for individual differences and learning styles facilitates learning.
 - e. Learning is facilitated by integrating curriculum, using cooperative learning strategies, having high expectations of the learner, and making curriculum relevant to the world outside of the classroom.
 - f. Teachers are responsible for nurturing students' desire to learn.
3. *Education and the Family Spirit* ('Ohana): The community of learners is a second family which encourages the personal development of each of its members. Mutual respect for all members of the family allows the Marianist-based scholarly community to share responsibility for decision making at all levels.
 - a. Learning requires a safe, stimulating environment where each student is nurtured.
 - b. School, community, and family collaboration support learning.
4. *Education for Service, Peace, and Justice* (Pono): All members of the community strive to serve both the University and the larger surrounding community. Additionally, all members dispense and receive justice to and from each other in both the internal and external communities.
 - a. Students must be educated for responsible citizenship, and self-directed lifelong learning.
 - b. Peace is facilitated through cultural awareness and service in support of justice.
5. *Education for Adaptation and Change* ('Āina): True to the tradition of faith, a Marianist-founded education prepares students for tomorrow and facilitates adapting to the changes brought about each day. This scholarly community of learners regards technology as a critical aid in the quest for understanding in a changing world.
 - a. Creative problem solving, divergent thinking and effective communication are nurtured.

- b. Reflection facilitates learning.
- c. Technology enriches the learning environment and the learning experience.
- d. Assessment improves instruction and increases student achievement.
- e. Students must be educated for responsible citizenship, and self-directed lifelong learning.

edTPA

In 2014, 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. This is in conjunction with other requirements for teacher certification in the state of Hawaii. Chaminade University has integrated edTPA assignments in all teacher education courses. You can access the edTPA Chaminade University website for more information by clicking [here](#).

edTPA Portfolio: This is a nationally used performance-based assessment of readiness to teach. The portfolio you develop during student teaching has three parts: Planning – what you intend to do in the selected lessons; Instruction – what you did in these lessons (two short videos plus your commentary); and Assessment – impact of your teaching on student learning with a focus on selected students. Although this will be created during your final semester, it will be important to become familiar with what is required. This and future classes will address various components of the edTPA so that you are fully prepared by the time you begin student teaching.

Education Division Attendance Policy (Revised 22 December 2011)

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 the lowering of the grade, withdrawal from the course, or failing the course.

Online courses and the online portion of hybrid courses. I will specify and enforce expectations for online participation and receipt of assignments appropriate to the design of the course.

Education Division Incomplete Grade Policy. At the discretion of the faculty member, a grade of “I” may be assigned to a student who has successfully completed a majority of the coursework, but who has an unavoidable and compelling reason why the remainder of the work cannot be completed on schedule. The issuance of an “I” grade is not automatic. Prior to reporting final grades, a contract must be made between the student and the instructor for the completion of the required coursework. This contract must reflect a final default grade if the student does not submit the required assignments. (For example, the grade notation would be IB, IC, or IF. The default for an “I” that is submitted without an alternative grade is “F.”) The contract must include a detail of the remaining coursework and the final deadline date by which the grade is to be submitted. (Note: the deadline date is 90 days past the end of term date and includes the time required by the instructor to review, grade, and submit the paperwork reflecting the final grade.) This deadline date may not be extended.

3. Additional Notes.

3.1 If a student does not log on to an online course for the first two weeks, the instructor should notify the Dean and the student will be withdrawn from the course.

3.2 Any student who stops participating in an online course without officially withdrawing may receive a failing grade.

KSD Referrals.

- Background: Implementation of the Knowledge/Skill/Disposition (KSD) referral system was approved by the Division at the Fall 2011 Chaminade Faculty Retreat. The KSD referral system is in place to help undergraduate and graduate students in reaching their goals to become highly-qualified and highly-effective educators and administrators. As our Education Division mission states, we strive “To foster the development of teachers and leaders in education through programs based in the liberal arts tradition, Catholic Marianist values, current research, best practice, and state and professional standards.” Part of this is to ensure that each teacher candidate or educational leader taking our coursework is knowledgeable in the content area, possesses the needed skills to teach that content, and has dispositions that are reflective of an education professional with accompanying Marianist values.
- Referral process: Any member of the Education Team, defined as an employee of the Education Division and including adjunct instructors, can initiate a KSD referral to the Dean at any time and for any student taking an education course (see attached form). Referrals can also be made to the Dean for our students taking non-education courses.

Syllabus Change Policy. This syllabus is a guide and every attempt is made to provide an accurate overview of the course. Occasionally, it necessary for the instructor to modify the syllabus during the semester due to the progress of the class, experiences of the students, and unforeseen changes in the schedule. Changes to the syllabus will be made with advance notice whenever possible.

Netiquette for Online Activities.

- Be polite and respectful of one another.
- Avoid personal attacks. Keep dialogue friendly and supportive, even when you disagree or wish to present a controversial idea or response.
- Be careful with the use of humor and sarcasm. Emotion is difficult to sense through text.
- Be helpful and share your expertise. Foster community communication and collaboration.
- Contribute constructively and completely to each discussion. Add value in your comments. Avoid short, repetitive “I agree” responses.
- Consider carefully what you write. Re-read all email and discussion before sending or posting. Remember that email is considered a permanent record that may be forwarded to others.
- Be brief and succinct. Do not use up other people’s time or bandwidth.
- Use descriptive subject headings in each email message.
- Respect privacy. Do not forward a personal message without permission.
- Cite references. Include web addresses, authors, names or articles, etc.
- Keep responses professional and educational. Do not advertise or send chain letters.

- Do not send large attachments unless you have been requested to do so or have permission from all parties.
- Proofread! Errors in spelling and grammar hinder communication.

Chaminade University

University Policies

Attendance: 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 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 was included above.

Additionally, your inability to attend class regularly and punctually will adversely affect your grade in the following ways:

- Late work. All submitted assignments are due on the dates and times indicated on the syllabus and/or in eCollege. Late assignments will be reduced one letter grade each day they are late.
 - All work that is ten days late or more will receive a score of zero. This is important because in an accelerated ten-week course in which the assignments build upon each other student must keep current with the work. Work must be submitted in a timely fashion for feedback to be relevant.

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.

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:

- 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.
- Paraphrasing the work of another without proper acknowledgement.
- 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 within 90 days from the final date of the course. I will be the final authority on whether you qualify for an incomplete. Incomplete work must be finished and graded by the end of the 90-day period of the “I” will automatically be recorded as an “F” on your transcript.

Title XI 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 and/or 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 and/or 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 at (808) 735-4845 or
- Any priest serving as a sacramental confessor or any ordained religious leader serving in the sacred confidence role.

Academic Honesty Statement.

- In the cases of alleged academic dishonesty (such as plagiarism, cheating, claiming work not done by the student, or lying) where a faculty member observes or discovers the dishonesty, the faculty members may choose to confront the student and handle the matter between the faculty member and the student, or the faculty member may choose to refer the incident to the Dean or Graduate Program Director. (If the Dean or the Director is the instructor in question, the concern shall be directed to the Provost; if the Provost is the instructor in question, the concern shall be directed to the President.) If the faculty member chooses to confront the situation and it is not satisfactorily resolved between the faculty member and the student, the matter may then be referred or appealed to the Dean or Director.
- In either case, the Divisional Dean or Graduate Program Director may choose to 1) resolve the matter through a meeting with both the student and the faculty member, or 2) refer the matter to the Provost. The findings, in either case are final.
- If alleged academic dishonesty is reported to a faculty member by a third party, then the faculty member will meet with the Divisional Dean or Graduate Program Director; to determine whether the evidence warrants an investigation, and how the investigation will be handled. It may also be decided that the faculty member will either confront the student or, assuming enough evidence is present to warrant action, turn the matter over to the Divisional Dean or Program Director to either resolve or organize a hearing.
- If the student is found guilty of the charges of academic dishonesty, the student may be subject to academic penalties such as failure of the course, exam, or assignment. Other penalties from the list of possible disciplinary sanctions may also be deemed appropriate.

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

Disability and Full Inclusion Statement: 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, s/he should contact the Director of Personal Counseling at (808) 739-4603 or by email at the jyasuhar@chaminade.edu address. A determination will be made if the student meets the requirements for documented disability in accordance with the American 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.

Other Relevant Course Information

Attendance and Participation. 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.

Excused absences.

- 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 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.
- 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.
- **For this course.** Absences totaling 10% of the number of classes will result in the lowering of the **overall grade** by one letter grade. A student who misses 20% or more should drop the class.
 - In our ten week online class, a week of non-participation is considered an absence and will result in a one-point reduction. Please be careful to consistently login to the course and be a conscientious member of our learning community.

Unexcused absences. Chaminade University 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 classes.

- ***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 from the course.
 - *Accelerated Semester Classes (10 classes):* More than one absence lowers grade one letter. Missing more than two classes results in failure or withdrawal.
 - *Undergraduate Day Courses, TuTh (30 Classes):* More than three absences lowers grade one letter. Missing more than six classes results in failure or withdrawal.
 - *Undergraduate Day Courses, MWF (45 Classes):* More than four absences lowers grade one letter. Missing more than nine classes results in failure or withdrawal.
- ***Hybrid courses (Online combined with three or more on-ground meetings):*** One absence from on-ground classes lowers grade one letter. Two or more absences from on-ground meetings results in failure or withdrawal. For the online portion of the course the instructor will specify and enforce expectations for online participation and receipt of assignments appropriate to the design of the course.
- ***Online courses and online portion of Hybrid courses:*** The instructor will specify and enforce expectations for online participation and receipt of assignments appropriate to the design of the course.

Additional notes.

- If a student does not log on to an online or hybrid course for the first two weeks, the instructor should notify the Dean and the student will be withdrawn from the course.
- Any student who stops attending an on-ground course or stops participating in an online course without officially withdrawing may receive a failing grade.
- ***Tardy.*** 10% of class time is equivalent to one-half class absence, and minutes are cumulative.

Reading policy. For practical reasons, I will only be able to read assignments for assessment purposes. This means one read per submission. However, peer review is available at any time during the course and I will be more than happy to discuss your work with you and discuss any ideas or questions that you have about the assignment. Confused? Not sure which path to take for an assignment? Consult your peers first, if at all possible, because they will be online with you at all times and can give the fastest response. However, all students are always welcome to call or make an appointment to meet with me. Based on student demand, I may also consider online meetings.

Required Email. Students are required to use their Chaminade University Email to correspond with me. Your email may be accessed through the University Portal at <https://portal.chaminade.edu/>.

Important Dates and Financial Aid Information. Contact the Registrar's Office or view this [website](#) for important add, drop, and withdrawal dates for this semester. Please be sure to

contact your University Financial Aid Counselor before dropping or withdrawing from any class, as this may impact your financial aid status.