

**University of Alaska Anchorage
College of Education
3211 Providence Drive
Anchorage, Alaska 99508-8269**

**ED 580 Professional Learning in Science Education:
Kenai Fjords Floating Teacher Workshop**

3 Credits, Graded A-F

Summer 2019

Course Sponsor: Alaska Geographic, Ocean Alaska Science and Learning Center,
Kenai Fjords National Park, Island C Charters

Instructor: Jim Pfeiffenberger

Education Instructor: Jim Pfeiffenberger

Facilitating Instructor: Eileen Kazura

Contact Information Address: Alaska Geographic, 421 W. 1st St, Suite 250, Anchorage AK 99501

Telephone: (907) 771-8482

Email address: ekazura@alaskageographic.org

Course Meeting Information

Location: Kenai Fjords National Park Visitor Center, Seward, Alaska

Start and End Date: June 14, 2019 to June 21, 2019

Class Day(s) & Time(s): June 14th, 2019 8:00am June 21st, 2019 4pm, continuous residential course

Final Project Due: August 15, 2019

Course Description: The Kenai Fjords Floating Teacher Workshop will inspire teachers to connect their students to nature and field-based, scientific research. Direct interaction with researchers and their long-term monitoring projects will guide much of our discussions, with other emphases on stewardship and resource management. Topics will include research methods for long-term monitoring of species, the 1989 Exxon Valdez oil spill, and the local effects of global climate change. The group will also learn about the area's flora, fauna and glaciers. Participants will practice field research, kayaking, and other outdoor skills. Participants will consider how to integrate their learning from this fieldwork course into their teaching or educational environments.

Intended Audience: Teachers and other interested educators

Enrollment Restrictions: None

Course Prerequisite/Co-requisites: None

Course Design:

- a. Requires 45 contact hours and approximately 90 hours of engaged learning.
- b. Does not apply to any UAA certificate or degree program.
- c. No UAA lab and/or materials fees beyond standard charges.
- d. This Alaska Geographic course will be entirely field-based. Learning will be achieved through lectures, group discussions, field observations, and field activities. This course is based upon the collegial sharing, collaboration, and support of the participants and facilitator as a community of learners. Course activities will include common readings and group discussions, collective learning processes, peer coaching/mentoring, and reflective practices.

Instructional Goals and Defined Outcomes:

RESEARCH BASED THEORY/PRINCIPLES/PRACTICES/TRENDS (CONTENT)

1.0 Instructional Goal:

- 1.1 Use experiential learning about the human history, natural history, and current natural resource issues and research of Kenai Fjords National Park to help teachers incorporate nature and science-based education into their classrooms. Teachers will create new lesson plans that reflect course objectives.

Defined Outcomes:

- 1.1a Participants will understand the basic natural history of a fjord ecosystem, with a focus on glaciers and nearshore marine environments.
- 1.1b Participants will understand general human history of the Kenai Fjords, including Alaska Native culture, early Euro-American activities, creation of the Kenai Fjords National Park, 1989 Exxon Valdez oil spill, and the ongoing effort to understand and monitor change in nearshore fjord ecosystem.
- 1.1c Participants will consider the need for baseline knowledge and long-term monitoring of ecosystems in order to effectively manage and understand change in these ecosystems.
- 1.1d Participants understand the ecological relationships in the nearshore ecosystem, with an emphasis on “indicator” and “keystone” species.
- 1.1e Participants will understand current methods of data gathering and analysis for conducting long-term ecological monitoring
- 1.1f Participants will explore ways to bring the natural world, the public lands, and ecological issues such as ocean acidification, wildlife monitoring, and environmental change into their classrooms to inspire a connection to nature by a younger generation.

THEORY INTO PRACTICE (APPLICATION)

2.0 Instructional Goal:

- 2.1 Provide a collaborative structure for participants to translate the natural history, human history, and ecological principles they have learned into classroom activities and lessons.
- 2.2 Inspire teachers to plant the seeds of natural ecosystem stewardship into their students.

Defined Outcomes:

- 2.1a Participants will analyze and discuss a variety of nature and science-based Education materials, activities, and teaching techniques for their own application.

- 2.2a Participants will discuss past, current and potential future impacts to the nearshore ecosystem, methods of mitigating these impacts, and methods of making these impacts and issues relevant to their students.

REFLECTION ON THEORY INTO PRACTICE (REFLECTION)

3.0 Instructional Goal:

Engage participants in discussions, reflective journaling and informal sharing about science instruction and how to incorporate gained knowledge and experience into their classrooms.

Defined Outcome:

Participants will review and reflect upon the scientific information covered. Participants will complete a journal, reflecting on how the information can be shared with their students.

RELATIONSHIP TO STANDARDS

4.0 Instructional Goal:

Familiarize participants with science content standards addressed by the strategies and concepts presented.

Defined Outcome:

Participants will identify the Science-Content standards applicable to their classroom.

Writing Style Requirements:

Participants' writing will reflect the clarity, conciseness, and creativity expected of post-baccalaureate certificated educators.

Attendance and Make-up Policy:

Participants are expected to actively and collegially participate in all classes as a contributing member of a learning community. Attendance at every session is mandatory.

Course Assignments, Assessment of Learning, and Grading System:

Course grading will be A-F based upon the following. Models and rubrics will be provided for each assignment.

- a. Participation and Collegial Support 25%
Participants are expected to actively and collegially participate in discussions, activities, and other process experiences during the seminars and group sessions.
- b. Reflective Journal 30%
Participants will complete a thoughtful, reflection in journal format of the course experience(s), discussions, applications, and readings.
- c. Final Project 45%
Participants will develop two classroom lesson plans *or* one classroom lesson plan and one digital/visual presentation (i.e., iMovie, book) applying concepts and theory discussed during the course.

Quality of Work

Participation, assignments, presentations, etc. will be graded for quality as follows:

"A" work goes beyond the assignment in originality or includes critical thinking extensions. 90-100 points earned.

"B" work is complete, comprehensive, and well prepared. 80-89 points earned.

“C” completed as requested, on time, and in appropriate format. 70-79 points earned.

“D” work is incomplete, or shows limited effort and understanding. 60-69 points earned.

“F” indicates that the student has not met the guidelines for “A-D” work. Less than 60 points earned.

Course Calendar/Schedule:

June 14

8 AM – 5 PM, Course and Content Orientation at National Park Service office, Seward, Alaska. Introduce course objectives and expectations. Topics will include overview of Kenai Fjords natural and human history, and introduction to Prince William Sounds Regional Citizen’s Advisory Council Oil Spill Curriculum.

June 15

8 AM – 5 PM, Course and Content Orientation Continued at National Park Service office, Seward, Alaska. Topics will include overview of Nearshore Monitoring research program, Ocean Issues, Marine Invertebrates and Mammals, and introduction to Alaska Seas and Watersheds Curriculum.

Note: the events of the next 5 days depend upon weather, tides and other factors.

June 16

8 AM – 8 PM, Embark on M/V Island C for Northwestern Fjord.
Travel by boat through fjord ecosystem with stops for geological features as well as bird and mammal viewing along the way. Potential evening shore excursion in Northwestern Fjord.

June 17

6 AM – 8 PM, Explore Northwestern Fjord
Activities today will include a hike to a glacier, a kayak paddle among icebergs, wildlife observations, and possibly an intertidal exploration. Discussions of the natural history, geology, oceanography, and human history will ensue as participants are immersed in the fjord ecosystem.

June 18

6 AM – 6 PM, Explore Northwestern Fjord

Today will include further explorations in Northwestern Fjord by foot and kayak, including opportunities for journaling. In the evening, we will rendezvous with a research team of National Park Service and US Geological Survey researchers who are conducting nearshore monitoring surveys.. One or more researchers may join us onboard the M/V island C for an evening talk/discussion.

June 19

6 AM – 8 PM, Explore Northwestern Fjord

Today we will join the crew of National Park Service and US Geological Survey researchers to conduct nearshore monitoring surveys. Participants will divide in to groups, helping researchers conduct surveys and gather data. Morning projects will include mussel bed surveys, rocky intertidal surveys, and clam bed sampling. The entire group will reconvene at lunch, switching roles. Afternoon projects will include sea otter foraging observations, black oystercatcher surveys, and marine mammal and bird surveys. In the evening we will travel from Northwestern Fjord to Aialik Bay.

June 20

8 AM – 8 PM, Explore Aialik Bay
Today will be structured much like the previous day, with participants switching roles in order to experience surveys and data gathering that they did NOT experience the previous day. We will be working with researchers all day to

complete surveys in Aialik Bay. Researchers may join us onboard the M/V Island C for an evening talk/discussion.

June 21 8 AM-4 PM Aialik Bay - Wrap-up and Return to Seward
Morning hike or passle and discussion in Aialik Bay. Cruise in M/V Island C back to Seward, taking in seabird rookeries marine mammals haulouts, and any other opportunistic wildlife sightings on the way home.

Final paper/project due: August 15, 2019

Course Texts, Readings, Handouts, and Library Reserve:

Required Text/Materials: none

Content References:

The Spill, Personal Stories from the Exxon Valdez Disaster, PWS Regional Citizens Advisory Council (2009)

Exploring Alaska's Kenai Fjords, David William Miller (2017)

The Complete Guide to Kenai Fjords National Park, Jim Pfeifferberger (1995) Greatland Graphics

A Stern and Rockbound Coast, Kenai Fjords National Park Historic Resource Study, Linda Cook and Frank Norris (1998)

https://www.nps.gov/kefj/learn/historyculture/upload/Cook1998_HRSSternRockBoundCoast.pdf

Southeast Alaska's Rocky Shores, Animals, Rita O'Clair, Charles O'Clair (1998) Plant Press

Between Pacific Tides, Edward F. Ricketts, Jack Calvin, Joel Hedgpeth (1992) Stanford University Press

Seashore Life of the Northern Pacific Coast, Eugene N. Kozloff (1983) University of Washington Press

Living Ice: Understanding Glaciers and Glaciation, Robert P. Sharp, (1988) Cambridge University Press

Glaciers and Glaciation, Douglas Benn, David Evans (2nd Edition) Hodder Arnold Publications

Looking Both Ways: Heritage and Identity of the Alutiiq People, Aron L. Crowell, Amy Steffian, and Gordon Pullar (2001) University of Alaska Press

Last Child in the Woods, Richard Louv (2008) Algonquin Books

Sea Kayaking Skills, Leave No Trace Inc. (2002) Skills & Ethics Series, Boulder, CO

Wilderness: A Journal of Quiet Adventure in Alaska, Rockwell Kent (1996 edition)

Travels in Alaska, John Muir, Mariner Books;

Standards References:

Alaska Comprehensive Center. (2012). *Guide to Implementing the Alaska Cultural Standards for Educators*. Juneau, AK: Alaska Department of Education and Early Development. Retrieved from: https://education.alaska.gov/akstandards/cultural/cultural_standards.pdf

Alaska Native Knowledge Network. (1998). *Alaska standards for culturally responsive schools*. Fairbanks, AK: University of Alaska Press. Retrieved from: <http://www.ankn.uaf.edu/publications/culturalstandards.pdf>

National Research Council, the National Science Teachers Association, the American Association for the Advancement of Science, and Achieve. (2013). *The next generation science standards*. Retrieved from <http://www.nextgenscience.org/next-generation-science-standards>.

National Research Council (NRC) of the National Academies and Board on Science Education. (2012). *A framework for K-12 science education: Practices, crosscutting concepts, and core ideas*. Washington, DC: National Academies Press. Free download retrieved from: <http://www.nap.edu/catalog/13165/a-framework-for-k-12-science-education-practices-crosscutting-concepts>

State of Alaska Department of Education and Early Development. (1997). *Standards for Alaska teachers*. Juneau, AK: Author. Retrieved from: <https://education.alaska.gov/TeacherCertification/standards/pdf/teacher.pdf>

State of Alaska Department of Education and Early Development. (2016). *Content and performance standards for Alaska students*. Juneau, AK: Author. Retrieved from: <https://education.alaska.gov/akstandards/standards/ContentStandards.pdf>

Alignment with College of Education Vision, Mission, and Conceptual Framework:

We believe that the preparation and support of professional educators is the shared responsibility of the University of Alaska Anchorage and our partners, and that our programs must evolve dynamically in response to unique community needs, research, and continuous program assessment. This PACE course is designed to meet a professional development need in response to our partner school districts and professional organizations. The course fits within the mission of the UAA College of Education as we encourage lifelong learning to meet the challenges of a rapidly changing world.

Link to Standards for Alaska Teachers:

This professional development effort is firmly rooted in the fundamentals of the standards for Alaska Teachers. It is offered to encourage and support practicing educators in attaining, maintaining, or surpassing the standards that, as stated in Standards for Alaska's Teachers, "define the skills and abilities our teachers and administrators need to possess to effectively prepare today's students for successful lives and productive careers." (Roger Sampson, <http://www.eed.state.ak.us/standards/pdf/teacher.pdf>)

Course Policies:**Incomplete Grades**

Due to the nature of this course, grades of incomplete will not be permitted.

ADA Policy

The provision of equal opportunities for students who experience disabilities is a campus-wide responsibility and commitment. Disabilities Support Services (DSS) is the designated UAA department responsible for coordinating academic support services for students who experience disabilities. To access support services, students must contact DSS (786-4530 or 786-4536 TTY) and provide current disability documentation that supports the requested services. Disability support services are mandated by Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act (ADA) of 1990. Additional information may be accessed at the DSS Office in Business Education Building (BEB105) or on-line at www.uaa.alaska.edu/dss.

Academic Dishonesty Policy

Academic integrity is a basic principle that requires all students to take credit only for the ideas and efforts that are their own. Cheating plagiarism, and other forms of academic dishonesty are defined as the submission of materials in assignments, exams, or other academic work that is based on sources prohibited by the faculty member. Academic dishonesty is defined further in the "student Code of Conduct." In addition to any adverse academic action that may result from the academically dishonest behavior, the University specifically reserves the right to address and sanction the conduct involved through student judicial review procedures and the Academic Dispute Resolution Procedure specified in the University catalog.

Professional and Ethical Behavior

University of Alaska Anchorage College of Education students are expected to abide by the State of Alaska Code of Ethics of the Education Profession and professional teaching standards as they concern students, the public, and the profession. The standards, adopted by the Professional Teaching Practices Commission, govern all members of the teaching profession. A violation of the code of ethics and professional teaching standards are grounds for revocation or suspension of teaching certification.

Technology Integration

University of Alaska Anchorage College of Education students are expected to (a) demonstrate sound understanding of technology operations and concepts; (b) plan and design effective learning environments and experiences supported by technology; (c) implement curriculum plans that include technology applications in methods and strategies to maximize student learning; (d) facilitate a variety of effective assessment and evaluation strategies; (e) use technology to enhance productivity and professional practice; and (f) understand the social, ethical, and human issues surrounding use of technology in PreK-12 schools and apply those principles in practice.

Course Safety and Risk

This course is sponsored by Alaska Geographic and the Murie Science and Learning Center. The University of Alaska Anchorage provides the credit option for interested participants. This course takes place entirely outdoors and within a remote area of Alaska. Field courses, such as this, do have inherent risks. These risks will be outlined in the Alaska Geographic Acknowledgement of Risk form and by the course instructors. The Acknowledgement of Risk form will be provided at the time of registration and a signed copy is required in order to attend.

Non-Discrimination Policy

The University of Alaska is an affirmative action/equal opportunity employer and educational institution. The University of Alaska does not discriminate on the basis of race, religion, color, national origin, citizenship, age, sex, physical or mental disability, status as a protected veteran, marital status, changes in marital status, pregnancy, childbirth or related medical conditions, parenthood, sexual orientation, gender identity, political affiliation or belief, genetic information, or other legally protected status. The University's commitment to nondiscrimination, including against sex discrimination, applies to students, employees, and applicants for admission and employment. Contact information, applicable laws, and complaint procedures are included on UA's statement of nondiscrimination available at www.alaska.edu/nondiscrimination.