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

ED 581 Professional Learning in Science Education: Wildfire and Wildlife for Educators

1 Credit, Graded P/NP

Summer 2026

Course Sponsor:	Alaska Geographic, Murie Science and Learning Center, Denali National Park
Instructors:	Molly Gillespie and Jen Curl
Educational Resource:	Paula Davis
Primary Grading Instructor:	Jessica Brillhart
Facilitating Instructor:	Jessica Brillhart
Contact Information	
Address:	Alaska Geographic, Murie Science and Learning Center P.O. Box 136, Denali Park, AK 99755
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Course Meeting Information	
Location:	Murie Science and Learning Center, Denali National Park & Preserve entrance
Start and End Date:	June 1 – 3, 2026
Class Day(s) & Time(s):	June 1st, 6:30pm through June 3rd, 4pm, continuous residential course
Final Project Due:	Final day of course
Course Description:	Alaska Project Learning Tree and the Alaska Department of Fish and Game are teaming up to offer this unique educator course. Course will explore Denali's boreal forest and tundra, including the recent 2024 fire site, and the role that wildfire plays within

these ecosystems. Course will also investigate how fire provides critical habitat for wildlife and shapes the distribution of species across the landscape. Educators will walk away with several resources as part of this workshop: PLT's award winning "Explore Your Environment K-8 Activity Guide" and other Alaska fire education resources, as well as ADF&G's Alaska Wildlife Curriculum (AWC) Forests and Wildlife educator guide and student magazine, Alaska's Wild Wonders. Open to formal and non-formal K-12 educators, participants will learn how to adapt lessons to different grade levels, and where to find age-appropriate lessons and resources to teach about wildfire and wildlife in Alaska. 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 15 contact hours and approximately 30 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 Murie Science and Learning Center 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:

Introduce the national environmental education organization, Project Learning Tree (PLT) to participants, including PLT's network, resources and materials by using PLT's *Nature of Fire Activity Collection* and *Explore Your Environment K-8 Activity Guide* to engage in place-based teaching practices, outdoor learning experiences, the three-dimensions of science instruction while exploring the concepts of environmental literacy.

Defined Outcomes:

1.1 Participants will examine the Project Learning Tree curriculum and be able to describe key elements of the PLT program and the relevance of the material to their personal teaching goals and practices.

1.2 Participants will learn best practices for outdoor teaching and learning methods, and understand the benefits of place-based learning.

1.3 Participants will understand the three-dimensions of science instruction and how Project Learning Tree materials can help meet Alaskan State Content Standards.

1.4 Participants will become familiar with the various Alaska related fire curricula available including the Role of Fire in Alaska, Wildfire and Change in Alaska, and FireWorks while exploring connections to the Alaska Natural Resource and Environmental Literacy Plan.

2.0 Instructional Goal:

Introduce participants to the Alaska Wildlife Curriculum using *Alaska's Ecology* and *Alaska's Forests and Wildlife* Curriculum Guides (referred to as Alaska Wildlife Curricula) from the Alaska Department of Fish and Game (ADF&G). Connect resources to student learning goals, Alaska State Content Standards and Next Generation Science Standards.

Defined Outcomes:

2.1 Participants will demonstrate an understanding of current educational principles and theories that are relevant in the Alaska Ecology Curriculum and the Alaska Forests and Wildlife Curriculum and be able to describe how those are applicable in their educational setting.

2.2 Participants will learn how to incorporate the Alaska Wildlife Curricula as a model of place-based learning using outdoor teaching methods.

2.3 Participants will become familiar with the Alaska Wildlife Curricula and other ADF&G educational resources that are available to Alaskan teachers and be able to describe its relevancy to current classroom trends.

THEORY INTO PRACTICE (APPLICATION)

3.0 Instructional Goal:

Introduce participants to the ecology of the boreal forest and tundra and the role of fire in these biomes by examining the plants and animals of previously burned areas, engaging in scientific practices including field investigation techniques and data collection, and engaging in a fire ecology field day with NPS fire professionals.

Defined Outcomes

3.1 Educators will understand the role that disturbance, specifically wildfire, plays in shaping succession in boreal forest habitat and the distribution of wildlife species across Interior Alaska.

3.2 Participants will demonstrate an understanding of the ecology of the boreal forest and tundra and describe how they will use that knowledge to connect to specific fire and wildlife curriculum.

3.3 Participants will use their knowledge to describe how they can use place-based learning experiences and field investigations in their classroom or setting.

4.0 Instructional Goal:

Engage participants in scientific practices and learning experiences including field investigations in which they will collect data from a previous fire burn, participate in selected activities from the PLT curriculum and Alaska Wildlife Curriculum that connects to standard based learning, and participate in place-based outdoor learning experiences.

Defined Outcomes:

4.1 Participants will practice and apply outdoor teaching and learning techniques and describe how they will integrate field experiences and investigations into their classrooms.

4.2 Participants will demonstrate an understanding of the PLT activities and lessons from Alaska's Wildlife Curricula and explore how they will tailor the materials into their own place-based lessons that connect to Alaska State Content Standards.

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 participate in all classes as a contributing member of a learning community. Attendance is mandatory, and due to the ongoing field-based nature of this course, make-up work is not possible.

Course Assignments, Assessment of Learning, and Grading System:
Course grading will be Pass/No Pass based upon the following:

a. Participation 50%
Participants will be expected to actively and collegially participate in discussions, activities, and other process experiences during the seminar.

b. Final Project - Journal completion 50%
Participants will complete journal assignments to be turned in to MSLC field guide on the last day of class. Assignments will include thoughtful reflection based upon seminar experience and an application plan of how participants will integrate issues and content discussed into their own classroom setting.

Quality of Work

Grade of "Pass"
Passing work includes all components of the assignment and meets proficient criteria. It is focused, developed, supported, logical, and acceptable work with minimal errors. Work of this quality indicates understanding of key concepts and knowledge base.

Grade of "No Pass"
Work graded "No Pass" may lack key criteria/components of the task and show little or no evidence of conceptual understanding or knowledge utilization. Work may also show minimal or no organization/development and/or clear focus (may be difficult to follow) and may contain numerous errors. This grade indicates minimal or no knowledge or concept development. It may also mean that work was not attempted.

Course Calendar/Schedule:

Monday	6:00 p.m. – 6:30 p.m.	Greeting and check in at MSLC
	6:30 p.m. – 7:30 p.m.	Introduction, orientation & overview o Introduction to Alaska Wildlife Curriculum and resources and Project Learning Tree network, PLT fire curricula and resources
	7:30 p.m. – 9:00 p.m.	Drive to MSLC Field Camp and settle in
Tuesday	9:00 a.m. – 5:00 p.m.	Exploration of Denali o Engage in PLT's Exploring Your Environment and The Nature of Fire activities and investigations o Engage in activities from ADF&G's Tracks Guide and Alaska Forests and Wildlife Guide

- Engage in teaching techniques that encourage observation and inquiry

6:00 p.m. – 8:00 p.m. Dinner and evening discussions
- Engage in theme-related learning games from Fire in Alaska and ADF&G
- Teacher study group to discuss the day's activities and how the information can be shared with students
- Identify applicable science content standards addressed by course content

Wednesday 9:00 a.m. – 3:00 p.m. Fire Ecology Field Day
- Explore the 2024 Riley Fire Burn area with NPS Fire ecologist
- Examine the role that wildfire disturbance and ecological succession have on wildlife habitat
- Explore place-based learning and teaching techniques while engaging in Alaska Wildlife Curriculum lessons and PLT lessons

3:00 p.m. – 4:00 p.m. Return drive to MSLC

Final Project Due: last day of course

Course Texts, Readings, Handouts, and Library Reserve:

Pre-course Text/Materials:
Alaska Department of Fish & Game. (2013). *Alaska Natural Resource and Environmental Literacy Plan, pages 10-19.* Harper, Patty and Manning, Elizabeth (editors). Retrieved from: https://www.anroe.net/programs-workshops/environmental-literacy/

Grabinski, Z. & H. R. McFarland. (2025). *Alaska's Changing Wildfire Environment 2.0* [outreach booklet]. Alaska Fire Science Consortium, International Arctic Research Center, University of Alaska Fairbanks. Retrieved from: https://www.frames.gov/sites/default/files/ACWE2025.pdf

National Research Council, the National Science Teachers Association, the American Association for the Advancement of Science, and Achieve. (2013) *Using Phenomena in NGSS-Designed Lessons and Units.* Retrieved from: https://www.nextgenscience.org/sites/default/files/Using%20Phenomena%20in%20NGSS.pdf

Required Text/Materials: (will be provided)
Project Learning Tree. (2021). *The Nature of Fire Activity Collection.* Washington, D.C.: Sustainable Forestry Initiative. (printed or digital copy)

Project Learning Tree. (2021). *Exploring Your Environment K-8 Activity Guide.* Washington, D.C.: Sustainable Forestry Initiative.

University of Alaska, EPSCoR Fire and Ice. (2020). *Wildfire and Change in Alaska.* Fairbanks, AK: University of Alaska.

Alaska Department of Fish and Game. (2018). *Alaska's Forests and Wildlife: Alaska's Wildlife Curriculum Teacher's Guide.* Anchorage, AK: Alaska Department of Fish and Game, Division of Wildlife Conservation Retrieved from: https://www.adfg.alaska.gov/index.cfm?adfg=alaskawildlifecurriculum.forestswildlife

Suggested Text/Materials:

Alaska Department of Fish and Game. (2018). *Alaska's Ecology: Alaska Wildlife Curriculum Teacher's Guide.* Anchorage, AK: Alaska Department of Fish and Game, Division of Wildlife Conservation. Retrieved from: https://www.adfg.alaska.gov/index.cfm?adfg=alaskawildlifecurriculum.ecology

Alaska Department of Fish and Game. (2025). *Tracks of Alaska Animals: A Guide for Educators.* Anchorage, AK: Alaska Department of Fish and Game, Division of Wildlife Conservation. Retrieved from: https://www.adfg.alaska.gov/index.cfm?adfg=curricula.tracks

Baltzer et al. (2025). *Impacts of novel wildfire disturbance on landcover and wildlife in boreal North America.* Frontiers in Env. Science. Retrieved from: https://www.frontiersin.org/journals/environmental-science/articles/10.3389/fenvs.2025.1504568/full

Content References:

North American Association for Environmental Education. (2021). *Environmental education materials: Guidelines for excellence.* Washington, D.C. Retrieved from: https://eepro.naaee.org/resource/environmental-education-materials-guidelines-excellence

North American Association for Environmental Education. (2021). *K-12 Environmental education: Guidelines for excellence executive summary.* Washington, D.C. Retrieved from: https://eepro.naaee.org/sites/default/files/2025-05/k-12_ee.executive_summary_2019.pdf

Regents of the University of California, Berkeley. (2020). *NGSS Science and Engineering Practices in Outdoor Science Programs.* NAAEE Conference Presentation. beetlesproject.org. Retrieved from: http://beetlesproject.org/cms/wp-content/uploads/2021/03/Website-Copy-of-NGSS-Science-Engineering-Practices-in-Outdoor-Science-Programs.pdf

Regents of the University of California, Berkeley. (2021). *Beetles Project: Science and Teaching for Field Educators*. Lawrence Hall of Science. Retrieved from: https://beetlesproject.org/about/

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/standards/cultural

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.

State of Alaska Department of Education and Early Development. (2019). *Content and performance standards for Alaska students.* Juneau, AK: Author. Retrieved from: https://education.alaska.gov/akstandards/standards/Content_and_Performance_Standards_edited.pdf

State of Alaska Department of Education and Early Development. (2019). *K-12 Science Standards for Alaska*. Juneau, AK. Author. Retrieved from: https://education.alaska.gov/akstandards/science/science-standards-for-alaska.pdf?v=1

State of Alaska Department of Education and Early Development. (2012). *Alaska English/Language Arts and Math Standards.* Juneau, AK: Author. Retrieved from: https://education.alaska.gov/akstandards/standards/ELA_and_Math.pdf

Informed by the School 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 School of Education as we encourage lifelong learning to meet the challenges of a rapidly changing world.

Link to Alaska Educator Content and Performance Standards:
This professional development is rooted in the fundamentals of Alaska's standards for teachers, administrators, and beginning teachers in Alaska's Administrative Code, 4 AAC 04.200. It is offered to encourage and support practicing educators attain, maintain, or surpass the standards for effectively preparing today's students for successful lives and productive careers. (https://education.alaska.gov/standards/other-standards)

Learning Forward Standards for Professional Learning:
This course is further informed by the Learning Forward Standards for Professional Learning which outline the "characteristics of professional learning that leads to effective teaching practices, supportive leadership, and improved student results." As explicit in the standards, "professional learning is for educators to develop the knowledge, skills, practices and dispositions they need to help student perform at a higher levels." (https://standards.learningforward.org)

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 RH 105 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 School 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 School 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 by the course instructors and in the Alaska Geographic Participant Release of Liability, Waiver of Claims, Assumption of Risks, and Indemnity Agreement form. This 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.