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

ED 581 Professional Learning in Science Education: Wildlife Tracking

1 Credit, Graded P/NP

Summer 2026

Course Sponsor:	Alaska Geographic, Murie Science and Learning Center, Denali National Park
Instructor:	Mike Taras
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
Telephone:	(907) 771-8485
Email address:	courses@akgeo.org
Course Meeting Information	
Location:	Murie Science and Learning Center, Denali National Park & Preserve entrance
Start and End Date:	June 5 - 7, 2026
Class Day(s) & Time(s):	June 5th, 6:30 p.m. through June 7th, 4 p.m., continuous residential course
Final Project Due:	Last day of class.
Course Description:	Participants will learn how to read stories on the landscape using the science and art of wildlife tracking. With expert tracker Mike Taras, class will explore Denali to find the tracks and signs of all animals, large and small. Participants will learn how to look for tracks and signs and then learn key factors in their identification. Course will study the gaits of different animals and the track patterns they leave on the ground and will also cover aging tracks, animal behavior, observation skills, and more. 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

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 participants to the cultural and scientific aspects of tracking as a tool for hunting, recreation, and research.

Defined Outcomes:
1.1 Participants will become familiarized with the history of tracking as an art and science.
1.2 Participants will understand the Cybertracker (Tracker Certification North America) certification system and its applications for research and management.

2.0 Instructional Goal:
Instruct participants in foot morphology, tracking terminology, and accurate track measurements.

Defined Outcome:
Participants will understand and be able to utilize correct terminology to discuss track features, gaits, and measurements.

THEORY INTO PRACTICE (APPLICATION)

3.0 Instructional Goal:
Participants will use systematic observations in conjunction with existing resources to successfully identify and interpret tracks and sign.

Defined Outcomes:
3.1 Participants will be equipped to reliably identify features of tracks and sign that help determine species identification and behavior.
3.2 Participants will describe how they will integrate their experiences into teaching or educational environments.
3.3 Participants will learn about education materials available for teaching students about Alaska wildlife and animal tracks.

REFLECTION ON THEORY INTO PRACTICE (REFLECTION)

4.0 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

5.0 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 into MSLC field guide on the last day of class. Assignments will include, but are not limited to, 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:

Friday 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
- Logistical orientation
- Boreal forest ecosystem

- Presentation about the history of tracking, basic tracking terminology, and awareness skills

7:30 p.m. – 9:00 p.m. Drive to MSLC Field Camp and settle in

Saturday 9:00 a.m. – 5:00 p.m. Exploration of Denali

Condition dependent, but may include:

- Identifying track and sign in multiple habitats
- Aging tracks
- Drawing and recording track observations
- Animal gaits, track pattern recognition and interpretation
- Discussion of tracks as indicators of animal behavior

6:00 p.m. – 8:00 p.m. Dinner and evening discussions

- Following animals (trailing)
- Natural History – building your database
- Bird language and other critical observations
- 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

Sunday 9:00 a.m. – 3:00 p.m. Continued exploration of Denali

- Continued study of topics from Saturday
- More site visits

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

Course Texts, Readings, Handouts, and Library Reserve:

Required Text/Materials:

Alaska Department of Fish and Game (2012). *Alaska's Wild Wonders.* Retrieved from: Tracks! - Alaska's Wild Wonders (2012), Alaska Department of Fish and Game

Alaska Department of Fish and Game (2025). *Tracks of Alaska Animals: A guide for Educators* Retrieved from: https://www.adfg.alaska.gov/static/education/educators/curricula/pdfs/tracks.pdf

Alaska Department of Fish and Game (2025). *Tracks Resources* Retrieved from: Alaska Department of Fish and Game Tracks Resources (Instructor will have hard copies for educators.)

Suggested Text/Materials:

Elbroch, M., Marks, E., & Boretos, C. D. (2001). *Bird tracks & sign: A guide to North American species*. Stackpole Books.

Elbroch, M., & McFarland, C. (2019). *Mammal Tracks & Sign: A Guide to North American species* (2nd ed.). Stackpole Books.

Goldfarb, Ben. (2024) *Even as A.I. Technology Races Ahead, the Prehistoric Science of Wildlife Tracking Is Making a Comeback.* Smithsonian Magazine. Retrieved from: https://www.smithsonianmag.com/science-nature/even-ai-technology-races-ahead-old-school-prehistoric-science-wildlife-tracking-making-comeback-180985229/

Steyn, H. P., & Liebenberg, L. (1990). The art of tracking. the origin of science. *The South African Archaeological Bulletin*, *45*(152), 137. Retrieved from: The Art of Tracking, the Origin of Science

Content References:

Elbroch, M., & Rinehart, K. (2011). *Behavior of North American Mammals*. Mariner Books.

Liebenberg, L., Louw, A., & Elbroch, M. (2010). *Practical Tracking: A Guide to Following Footprints and Finding Animals*. Stackpole Books.

Moskowitz, D. (2010). *Wildlife of the Pacific Northwest: Tracking and Identifying Mammals, Birds, Reptiles, Amphibians, and Invertebrates*. Timber Press (OR).

Poppele, J. (2021). *Animal Tracks of the Midwest Field Guide: Easy-to-Use Guide with 55 Track Illustrations*. Adventure Publications.

Young, J. (2013). *What the Robin Knows: How Birds Reveal the Secrets of the Natural World*.

Young, J., & Morgan, T. (2007). *Animal Tracking Basics*. Stackpole Books.

Online Resources and Apps:

iNaturalist (n.d.) *North American Animal Tracks Database*. Retrieved from: https://www.inaturalist.org/projects/north-american-animal-tracks-database

Nature Tracking (2018) *Getting Started Identifying Animal Tracks*. Retrieved from: https://naturetracking.com/getting-started/

Nature Tracking (2021) *iTrack Wildlife – Animal Tracks App*. Retrieved from: https://naturetracking.com/itrack-wildlife/

U.S. Fish and Wildlife Service Forensics Lab. (n.d.). *The Feather Atlas - Feather Identification and Scans - U.S. Fish and Wildlife Service Forensics Laboratory*. Retrieved from: https://www.fws.gov/lab/featheratlas/

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.