

# THE CLASS OF 2011

## DOCTOR OF PHILOSOPHY DEGREES



### COLLEGE OF ENGINEERING AND MINES

*Dr. Douglas J. Goering, Dean*

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~~PH.D. IN CIVIL ENGINEERING, PH.D. IN CHEMICAL ENGINEERING, PH.D. IN MECHANICAL ENGINEERING, PH.D. IN ELECTRICAL ENGINEERING, PH.D. IN INDUSTRIAL ENGINEERING, PH.D. IN ENVIRONMENTAL ENGINEERING, PH.D. IN METALLURGICAL ENGINEERING, PH.D. IN BIOMEDICAL ENGINEERING, PH.D. IN ENVIRONMENTAL SCIENCE, PH.D. IN MATERIALS SCIENCE, PH.D. IN CHEMISTRY, PH.D. IN PHYSICS, PH.D. IN GEOLOGY, PH.D. IN GEOPHYSICS, PH.D. IN METEOROLOGY, PH.D. IN CLIMATE SCIENCE, PH.D. IN PLANETARY SCIENCE, PH.D. IN AERONAUTICAL ENGINEERING, PH.D. IN ASTRONAUTICAL ENGINEERING, PH.D. IN SPACE SCIENCE, PH.D. IN PLANETARY SCIENCE, PH.D. IN ASTROPHYSICS, PH.D. IN COSMOLOGY, PH.D. IN PARTICLE PHYSICS, PH.D. IN THEORETICAL PHYSICS, PH.D. IN EXPERIMENTAL PHYSICS, PH.D. IN MATHEMATICS, PH.D. IN STATISTICS, PH.D. IN DATA SCIENCE, PH.D. IN COMPUTATIONAL SCIENCE, PH.D. IN INFORMATION SCIENCE, PH.D. IN SOFTWARE ENGINEERING, PH.D. IN HUMAN-COMPUTER INTERACTIONS, PH.D. IN SYSTEMS ENGINEERING, PH.D. IN MANAGEMENT SCIENCE, PH.D. IN BUSINESS ADMINISTRATION, PH.D. IN FINANCIAL ENGINEERING, PH.D. IN INDUSTRIAL MANAGEMENT, PH.D. IN SUPPLY CHAIN MANAGEMENT, PH.D. IN LOGISTICS MANAGEMENT, PH.D. IN INNOVATION MANAGEMENT, PH.D. IN ENTREPRENEURSHIP, PH.D. IN SOCIAL SCIENCE, PH.D. IN POLITICAL SCIENCE, PH.D. IN INTERNATIONAL RELATIONS, PH.D. IN HISTORY, PH.D. IN LITERATURE, PH.D. IN ARTS, PH.D. IN HUMANITIES, PH.D. IN EDUCATION, PH.D. IN TEACHER EDUCATION, PH.D. IN EDUCATIONAL LEADERSHIP, PH.D. IN EDUCATIONAL POLICY, PH.D. IN EDUCATIONAL RESEARCH, PH.D. IN EDUCATIONAL TECHNOLOGY, PH.D. IN EDUCATIONAL EVALUATION, PH.D. IN EDUCATIONAL PSYCHOLOGY, PH.D. IN EDUCATIONAL SOCIOLOGY, PH.D. IN EDUCATIONAL ANTHROPOLOGY, PH.D. IN EDUCATIONAL LINGUISTICS, PH.D. IN EDUCATIONAL PSYCHOLOGY, PH.D. IN EDUCATIONAL SOCIOLOGY, PH.D. IN EDUCATIONAL ANTHROPOLOGY, PH.D. IN EDUCATIONAL LINGUISTICS~~

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**Ph.D. Hydrology: Interdisciplinary Program**

*M.S., Umea University (Sweden), 2005*

**Thesis: The Hydrologic Regime at Sub-Arctic and Arctic Watersheds: Present and Projected**

Anna Liljedahl studied hydrological processes occurring in permafrost regions. She examined the impact of a tundra wildfire on the hydrology and permafrost on the Seward Peninsula. She analyzed a low-gradient watershed near Barrow to determine the influence of subtle terrain features and the possible response to a warmer climate.

**Major Professor: Dr. Larry Hinzman**

## COLLEGE OF LIBERAL ARTS

*Dr. Burns Cooper, Interim Dean*

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\* Summer degree recipient

\*\* December degree recipient

Ch . . . C

**Ph.D. Counselor Education: Interdisciplinary Program**

*B.A., Whitman College (Washington), 1991. M.S., Western Washington University, 1993*

**Thesis: Exploring the Challenges of School Counseling: Voices from Rural Alaska**

This research investigated the challenges experienced by rural school counselors



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**Ph.D. Creative Writing and Community Psychology: Interdisciplinary Program**

B.A., Colorado College, 1999. M.F.A., St. Mary's College of California, 2004

**Thesis: Shudder: Poems and Essay on Cancer, Care, and Healing**

*Shudder* chronicles a son's experience with his father's chronic lymphocytic leukemia. The introduction describes receiving cancer care at the MD Anderson Cancer Center in Houston, Texas. The poems weave together the MD Anderson trip and life after the father's death with a variety of images, memories, characters and spirits.

**Major Professor: Dr. Derick Burleson**

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**Ph.D. Anthropology**

B.A., University of Alaska Anchorage, 2002. M.A., University of Alaska Anchorage, 2005

**Thesis: Come On Ugzruk, Let Me Win: Experience, Relationality and Knowing in Kigiqtaamiut Hunting and Ethnography**

This ethnography of marine mammal hunting explores linkages between personal experiences and shared understandings of ecological phenomena among a group of Kigiqtaamiut hunters in Shishmaref, Alaska. It examines the relationships between Kigiqtaamiut hunters' experiences in the world and how the experienced world is brought into being through hunters' ways of knowing.

**Major Professor: Dr. Peter Schweitzer**

## COLLEGE OF NATURAL SCIENCE AND MATHEMATICS

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B

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**Ph.D. Biological Sciences: Botany**

B.A., College of the Atlantic (Maine), 1994. M.A., University of Missouri-Columbia, 2000

**Thesis: From Forest to Tundra: Historical Biogeography, Floristic Diversity and Nucleotide Variation in Balsam Poplar**

Climate fluctuations drove major migrations in the history of the boreal forest. The paleobotanical record supports the presence of a balsam poplar refugium within Beringia. The genetic consequences of this refugium, however, were minimal due to a massive migration following deglaciation that swamped standing variation in balsam poplar populations today.

**Major Professor: Dr. Matthew Olson**

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B

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**Ph.D. Biochemistry and Molecular Biology**

B.S., University of California-Berkeley, 1974

**Thesis: ATP-Dependent Chromatin Remodeling Complexes in *Xenopus* Development**

A central question in the study of vertebrate development is how genes direct the creation of the organs of the vertebrate embryo during development. I demonstrate a role for the protein CHRAC17 in development by visualizing its expression and by ablating its function in *Xenopus laevis* embryos.

\* Summer degree recipient

\*\* December degree recipient

**A G h**

**Ph.D. Environmental Health: Interdisciplinary Program**

B.S., University of Alaska Fairbanks, 1996. M.A., University of Alaska Fairbanks, 2003

**Thesis: The Northway Wild Food and Health Project: Confronting the Legacy of Toxic Waste along the ALCAN**

Collective local knowledge in Northway makes important implications regarding endocrine disruption via multiple historic and unquantifiable exposure pathways. Community-based participatory research has significant capacity to improve local and scientific understanding of the repercussions of chronic low-dose exposures to toxic waste in rural communities, despite deep complexity and inherent uncertainty.

**Major Professor: Dr. Lawrence Duffy**

**D ☒ D. G . \*\***

**Ph.D. Biological Sciences: Wildlife Biology**

B.A., University of Oklahoma, 1994. B.S., Colorado State University, 2000. M.S., University of Northern British Columbia (Canada), 2005

**Thesis: Protein Status of Muskoxen and Caribou in Late Winter**

Nitrogen isotopes were used to assess the protein status of muskoxen and caribou. Foraging constraints decreased the amount of body proteins available for reproduction. Although challenges remain to applying isotopic proxies as a monitoring tool, nitrogen isotopes may be used to evaluate environmental constraints for northern ungulates at small scales.

**Major Professor: Dr. Peregrine Barboza**

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**Ph.D. Biological Sciences: Wildlife Biology**

B.S., University of Montana, 1999. M.S., University of Calgary (Canada), 2004

**Thesis: Spatio-Temporal Recruitment Dynamics of Mountain-Dwelling Caribou in the Yukon Territory, Canada**





D . -Ch . \*

**Ph.D. Space Physics**

*B.S., Fort Lewis College (Colorado), 2001. M.S., University of Kansas, 2003*

**Thesis: Neural Network Approach to Classification of Infrasound Signals**

A neural network is examined for automatic classification of mountain-associated waves and high-trace velocity signals against spurious signals with common characteristics. The trained network is designed to replace an expert analyst. In addition, it is robust, resistant to errors and the biases of human operators.

**Major Professor: Dr. Curt Szuberla**

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**Ph.D.**





D . H. D h \*\*

**Ph.D. Environmental Sciences: Interdisciplinary Program**

*B.S., Montana State University-Bozeman, 1975. M.S., Texas Tech University, 1979*

**Thesis: Development and Application of a Methodology to Estimate Regional Natural Conditions for Trace Metals in Marine Sediments of Southcentral Alaska's Coastal Region**

Responsible environmental management of resource activities along Alaska's Southcentral coastline requires statistical methodologies for assessing spatial distribution of sediment trace metals and their background conditions. The statistical methodologies applied in the dissertation show that overall sediment trace metals along this coastline reflect background rather than human inputs.

**Major Professor: Dr. John Kelley**

G \*\*

**Ph.D.**

