# e Class of

## D P D

## C E M

Dr. Douglas J. Goering, Dean

**Erovie-Oghene Uyoyou-karo A eroho**

Ph.D. Petroleum Engineering, Economics, and Policy Management: Interdisciplinary Program

B.E., Ambrose Alli University, 1994; MBA, Pan-African University, 2005; M.S., University of Alaska Anchorage, 2010.

esis: Dying Intestate or with a Will on Toxic Estate? An Evaluation of Petroleum Fiscal Systems and the Economic and Policy Implications for Decommissioning of Onshore Crude Oil Fields in Nigeria

e knowledge frontier was extended through this study with introduction of (i) a methodology that determines cost of decommissioning petroleum elds; (ii) metrics for evaluation of vulnerability to decommissioning 6 (t)-40.3 (y)-25.234nh* 23(i)-

Major Professor: Dr. Shirish Patil

**Nicholas T. Janssen ***

Ph.D. Engineering: Mechanical Engineering

B.S., University of Wisconsin, Platteville, 2005; M.S., North Carolina State University, 2010.

esis: Electric ermal Storage in Isolated Wind Diesel Power Systems: Use of Distributed Secondary Loads for Frequency Regulation

Remote communities historically rely upon diesel fuel to energize their electrical grids, with cleaner wind power a recent trend. Strategies for the deployment of electric thermal storage devices as autonomous distributed secondary loads were developed in order to better utilize this wind energy while improving frequency regulation on the grid.

Major Professors: Dr. Rorik Peterson and Dr. Richard Wies Jr.

**Leah Sloan Zacher**

Ph.D. Marine Biology

B.S., California State University, Long Beach, 2009; M.S., Humboldt State University, 2012.

esis: Alaskan King Crab: Bering Sea Distribution and a Parasitic Castrator

Sustainability of Alaskan king crab is of concern, especially with climate change. A parasitic barnacle can transform a king crab into a castrated “zombie crab.” Survival of the parasitic larvae under di erent environmental conditions, and metabolites in infected crab were studied. King crab distributions under di erent temperature regimes also were explored.

Major Professor: Dr. Sarah Hardy

# C L A

## Mr. Todd Sherman, Dean

**Keri M. Boyd**

Ph.D. Clinical-Community Psychology

B.S., University of Alaska Anchorage, 2001; M.S., University of Alaska Anchorage, 2011.

esis: “We Did Listen.” Successful Aging from the Perspective of Alaska Native Elders in Northwest Alaska

A qualitative exploration of the phenomenon of successful aging as experienced by Alaska Native elders in Northwest Alaska revealed that family and community engagement, self-awareness and gratitude were essential. Successfully aging elders listen to their elders, enact their traditional values and practices, and share wisdom and knowledge with future generations.

Major Professor: Dr. Valerie Gi ord

**Douglas Cost ***

Ph.D. Cross-Cultural Education and Futures Studies: Interdisciplinary Program

B.A., University of Southern California, 1995; M.A., California State University, Northridge, 2005; M.F.A., University of Alaska Fairbanks, 2010.

esis: Compulsory Education and Resilience in Northern Alaska: e Role of Social Learning and Youth in Healthy Sustainable Communities

An investigation of the social-environmental systems, resilience, compulsory education and Indigenous knowledge in Arctic Alaska used interviews, surveys and scenarios development workshops to better understand the feedbacks and connections of these elements within rural communities. Public schools o er o en underutilized opportunities to better link societies and environments through governance.

Major Professors: Dr. Beth Leonard and Dr. Diane Hirshberg

**Kyle Raymond Kwon Dexter ***
Ph.D.

**Polly E. Hyslop**

Ph.D. Indigenous Studies

B.A., University of Alaska Fairbanks, 1990; M.A., University of Alaska Fairbanks, 2013.

**Lexie Tom**

Ph.D. Indigenous Studies

B.A., Western Washington University, 2011; M.P.A., Evergreen State College, 2014.

**Saurav Bhowmick ****

Ph.D. Biochemistry and Neuroscience: Neuroscience

B.S., Bangalore University, 2007; M.S., Bangalore University, 2009.

esis: Modulation of Ischemia-Reperfusion Injury in Mammalian Hibernators And Non-Hibernators: A Comparative Study

Ischemia/reperfusion (I/R) associated with stroke and cardiac arrest are among the most frequent causes of debilitating neurological injury and death worldwide. is dissertation presents how obligate hibernators such as arctic ground squirrels may hold insight into possible interventions to ameliorate disorders characterized by I/R injury.

Major Professor: Dr. Kelly Drew

**Douglas John Brinkerho ****

Ph.D. Geophysics

B.S., University of Montana, 2009; M.S., University of Montana, 2012.

esis: Bayesian Methods in Glaciology

Bayesian inference was used to nd the probability distributions of unobservable properties at a glacier bed, given a set of surface observations. ese methods produced better estimates of subglacial topography, hydrology and ice velocity, as well as an improved understanding of their uncertainties.

Major Professors: Dr. Martin Tru er and Dr. Andreas Aschwanden

**Lei Cai**

Ph.D. Atmospheric Sciences

B.S., Nanjing University, 2011; M.S., University of Kansas, 2014.

esis: Global and Local Contributors to the Historical and Projected Regional Climate Change on the North Slope of Alaska

Four contributing factors that result in regional climate change on the North Slope of Alaska are quantitatively explored and compared by numerical simulations. Global warming was found to be the leading contributing factor, while other factors primarily contribute to the spatial and temporal asymmetries of the regional climate change.

Major Professor: Dr. Vladimir Alexeev

**Christina Seiman Chu ***

Ph.D. Space Physics

B.S., Embry-Riddle Aeronautical University, 2010; B.S., Embry-Riddle Aeronautical University, 2010; M.S., Embry-Riddle Aeronautical University, 2010.

esis: Hot Flow Anomalies at Earth's Bow Shock and eir Magnetospheric-Ionospheric Signatures

is dissertation presents statistical and case studies of hot ow anomalies (HFAs)

**Dyre Oliver Dammann ***

Ph.D. Geophysics

B.S., University of Oslo, 2008; M.S., University of Alaska Fairbanks, 2011.

esis: Arctic Sea Ice Tra cability — New Strategies for a Changing Icescape

is work demonstrates an approach to improve knowledge of over-ice travel by outlining steps toward strategies capable of addressing key stakeholder needs. e result is a series of remote sensing techniques capable of evaluating critical parameters to ensure safety of sea ice operations and investigate potential implications of long-term change.

Major Professor: Dr. Hajo Eicken

**Abraham Melesse Endalamaw ***

Ph.D. Atmospheric Sciences

B.S., Arba Minch University, 2005; M.P.S., Cornell University, 2009.

esis: Development of a Parameterization for Mesoscale Hydrological Modeling and Application to Landscape and Climate Change in the Interior Alaska Boreal Forest Ecosystem

is research addressed the limitations of modeling hydrological processes in Interior Alaska boreal forest catchments by simulating small-scale processes to regional-scale catchments via development of a small-scale landscape model. By developing a coupled climate-vegetation-permafrost-hydrology model, this study also quanti ed the impact of future climate on hydrological processes.

Major Professors: Dr. William Bolton and Dr. Jessica Young-Robertson

**Louise Melanie Farquharson ****

Ph.D. Geology

B.S., University of Sussex, 2007; M.S., University of Alaska Fairbanks, 2012.

esis: Arctic Landscape Dynamics: Modern Processes and Pleistocene Legacies

To understand how the cryosphere will respond to warming, we need to understand landscape processes across a wide range of spatial and temporal scales. is dissertation uses a combination of eld surveys, sedimentology, geochronology and remote sensing to explore Arctic cryosphere responses to climate change in the distant and recent past.

Major Professors: Dr. Daniel Mann and Dr. Vladimir Romanovsky

**John Robinson Harley ****

Ph.D. Biochemistry and Neuroscience: Neuroscience

B.S., University of California, Santa Cruz, 2010.

esis: One Health Toxicology: Expanding Perspectives and Methods to Assess Environmental Contaminants

One Health is founded on the idea that 21.6 (s)-13li.

**Scott P. Jerome**

Ph.D. Biochemistry and Neuroscience: Biochemistry

B.A., Bates College, 1993; M.S., Northern Michigan University, 2000.

esis: Vitamin D, Cognitive Function, and Oxidative Stress: Clues to Overtraining Syndrome?

Endurance athletes are o en stricken by overtraining syndrome (OTS), which is characterized by an unexplainable drop in athletic performance. OTS etiology remains unclear; the only known remedy is sustained rest. Our study revealed that vitamin D de ciency and oxidative stress marker HNE are associated with a drop in athletic performance.

Major Professor: Dr. Arleigh Reynolds

**Nicholas John Kerhoulas ****

Ph.D. Biological Sciences

B.S., Humboldt State University, 2006; M.A., Humboldt State University, 2008.

esis: Phylogeography and Molecular Phylogenetics of the Hoary Marmot (*Marmota caligata*)

A study of the phylogeographic history of the hoary marmot (Marmota caligata) and its molecular phylogenetic relationships with Vancouver Island (M. vancouverensis) and Olympic (M. olympus) marmots provides insight into future management and conservation of these iconic alpine mammals.

Major Professor: Dr. Link Olson

**Masoud Khalaj-Teimoury**

Ph.D. Environmental Studies and Water Security: Interdisciplinary Program

B.S., University of Kentucky, 1980; M.S., University of Louisville, 1983.

esis: Environmental Impacts on Guam's Water Security and Sustainable Management of the Resource

Impacts of climate change on freshwater resources of inhabited islands in the Paci c Ocean are of great concern. Utilizing historical data, evidence of change in water quality and access on Guam has been examined. Several indicators support the hypothesis that climate change trends are impacting Guam's water security.

Major Professors: Dr. Lawrence Du y and Dr. Alicia Aguon

**Amanda Nicole Lindoo ***

Ph.D. Geology

B.A., Augustana College, 2011.

esis: Causes and Consequences of Coupled Crystallization and Vesciculation in

* Summer degree recipient

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**Maduabuchi Pascal Umekwe**