The Class of 2020

Doctor of Philosophy Degrees

College of Engineering and Mines

Dr. William E. Schnabel, Dean

Jason Arlen Clark **

Ph.D. ***Ecology: Interdisciplinary Program***

B.A., Pomona College, 2008; M.S., Yale University, 2012.

Thesis: The Role of Tundra Vegetation in the Arctic Water Cycle

Vegetation cycles water back to the atmosphere and modifies the local environment. This study examined vegetation in the water cycle through woody shrub stem water storage and woody shrub transpiration, and by partitioning evapotranspiration into major vegetation components. Mosses and sedges are the major constituents of evapotranspiration, while woody shrub contributions are limited.

Major Professor: Dr. Kenneth Tape

Timothy Edward Theurer

Ph.D. ***Engineering: Electrical Engineering***

B.S., University of Alaska Fairbanks, 2010.

Thesis: High-Latitude Over-the-Horizon Radar Applications

High-latitude over-the-horizon radar systems must contend with multipath and diffusive scattering effects produced by the ionosphere. Spatial processing algorithms to maximize angular resolution or preserve the characteristics of angle-Doppler coupled clutter through interference rejection are proposed. The derivation of transverse plasma velocity from spatial correlation analysis is also presented.

Major Professor: Dr. William Bristow

College of Fisheries and Ocean Sciences

Dr. S. Bradley Moran, Dean

Cheryl L. Barnes **

Ph.D. ***Fisheries***

B.S., San Diego State University, 2006; M.S., San Jose State University, 2015.

Thesis: Ecological Interactions Among Important Groundfishes in the Gulf of Alaska

Ecological interactions drive population and community dynamics. This study assessed predation and competition to better understand these interactions in the Gulf of Alaska. Results showed intense, highly variable predation on walleye pollock and no evidence of competition between Pacific halibut and arrowtooth flounder, though similar diets suggest competition among smaller fishes.

Major Professor: Dr. Anne Beaudreau

Jesse Coleman *

Ph.D. ***Fisheries***

B.S., University of Wisconsin-Eau Claire, 2008; M.S., University of Alaska Fairbanks, 2012.

Thesis: Commercial Fishing Livelihoods, Permit Loss, and the Next Generation in Bristol Bay, Alaska

Fishing people across the globe have experienced a fundamental restructuring of their livelihoods, communities and economies in response to shifts to rights-based fisheries management. This dissertation examines some of the long-term and latent effects of this and other historical transitions in the fishery-dependent Bristol Bay region of Alaska.

Major Professor: Dr. Courtney Carothers

Philip J. Joy *

Ph.D. ***Fisheries***

B.S., College of William and Mary, 1994; M.S., University of Alaska Fairbanks, 2001.

Thesis: The Response of Juvenile Coho and Chinook Salmon Stocks to Salmon Spawner Abundance: Marine Nutrients as Drivers of Productivity

An investigation of the relationship between salmon spawner abundance, nutrients imported to freshwater by spawning salmon, and the subsequent effects on rearing coho and chinook salmon found that the abundance of spawning pink salmon enhanced parameters of productivity in coho and chinook salmon populations at the watershed scale.

Major Professor: Dr. Mark Wipfli

* *Summer degree recipient*
** *Fall degree recipient*

Kofan Lu *

Ph.D. ***Oceanography: Physical***

B.S., National Tsing Hua University, 2007.

Thesis: Numerical Investigations of the Hydrography, Dynamics and Ice Distributions of the Chukchi Sea Shelf

Warm Bering Sea water carried into the Chukchi Sea provides oceanic heat for melting ice and sets up hydrographic features. Model integrations investigate the importance of eddies and the factors that affect dynamics such as frontal stratification. Strong wind effects on ice edge displacement are highlighted as well.

Major Professors: Dr. Seth Danielson and Dr. Thomas Weingartner

Fletcher Sewall

Ph.D. ***Oceanography: Fisheries***

B.S., University of Alaska Anchorage, 1993; M.AS., James Cook University 2005.

Thesis: Pacific Herring Juvenile Winter Survival and Recruitment in Prince William Sound

Juvenile herring survival to recruitment age in Prince William Sound varied synchronously with age-0 Gulf of Alaska pollock abundance, suggesting regionwide mortality processes common to both species. Size- and energy-dependent mortality related to temperature, food and predation were shown to require herring to attain critical size and energy levels to survive their first winter.

Major Professor: Dr. Brenda Norcross

Lauren A. Wild

Ph.D. ***Fisheries***

B.A., Brandeis University, 2009; M.S., University of St. Andrews, 2013.

Thesis: Diet and Movement of Depredating Male Sperm Whales (*Physeter macrocephalus*) in the Gulf of Alaska

Stable isotope analysis and satellite tag data were used to assess diet and movement of sperm whales in Alaska waters. Sablefish represent a new prey source that is increasing in diets over time. Tag data revealed Alaska is an important foraging ground, and whales prefer the continental slope habitat.

Major Professor: Dr. Franz Mueter

Ann-Christine Zinkann

Ph.D. ***Marine Biology***

B.S., Ludwig Maximilian University of Munich, 2011; M.S., University of Hamburg, 2014.

Thesis: Organic Matter Sources on the Chukchi Sea Shelf in a Changing Arctic

The input of various primary production sources to the Arctic benthic system is shifting. Terrestrial and bacterial organic matter contributes significantly to marine sediments and is readily utilized by benthic invertebrates, and increases in these sources could partially compensate for the potential reductions of pelagic production to the benthos.

Major Professor: Dr. Katrin Iken

College of Liberal Arts

Mr. Todd Sherman, Dean

Martha J. Amore

Ph.D. Feminist Gothic Creative Writing: Interdisciplinary Program

B.A., University of Michigan-Ann Arbor, 1992; M.F.A., University of Alaska Anchorage, 2009.

Thesis: Shorebirds and Other Stories

"Shorebirds And Other Stories" is a collection of original feminist gothic stories set in Alaska. A critical introduction to the creative portion situates the work within the context of feminist gothic literature and contemporary feminist psychology. The fictional stories reflect themes of maternal subjectivity, maternal ambivalence and reproductive justice.

Major Professor: Dr. Christine Coffman

Zenaida T. Asuncion *

Ph.D. Culture and Leadership: Interdisciplinary Program

B.B.A., University of Santo Tomas, 1975; MBA, University of Guam, 2006.

Thesis: Exploring the Impact of Culture in Strengthening the Stewardship of Compact Funds in the Federated States of Micronesia: A Convergent Parallel Mixed Methods Design

This study explores the impact of culture in strengthening the stewardship of compact funds in the Federated States of Micronesia (FSM). Understanding island culture and its influences over FSM leadership and governance are essential in attempting to assist in the federal compliance requirements of the compact trust funds and other federal FSM assistance programs.

Major Professors: Dr. J. Rob Duke and Dr. Ansito Walter

Tyler J. Hoyt **

Ph.D. Clinical-Community Psychology

B.A., University of Montana, 2009.

Thesis: Explorations of Intergenerational Healing, Resilience, and Post-Traumatic Growth by Helpers and Healers on the Blackfeet Nation

This exploratory phenomenological project, comprising 14 narratives of helpers and healers working on the Blackfeet Nation, provides public narrative surrounding healing and resilience related to historical and intergenerational trauma. Seven central themes arose in narratives: spirituality, trauma, healing, resilience, helping role, community, and Blackfeet worldview.

Major Professor: Dr. Valerie Gifford

Hugh David Leonard *

Ph.D. Clinical-Community Psychology: Rural Indigenous Emphasis

B.A., California State University Dominguez Hills, 2013.

Thesis: The Looking Glass Effect: The Influences of Clinical Supervision on Student Attitudes Toward Evidence Based Practices

This study explored how student attitudes toward evidence-based practices (EBP) to clinical care in psychology are cultivated through clinical mentorship. Findings indicated mentors with multiple roles and students' positive attitudes toward research related to students' favorable attitudes toward EBPs. Results suggest the clinical psychology field includes adherence to this approach.

Major Professor: Dr. Kendra Campbell

Dhara Shah *

Ph.D. Clinical-Community Psychology

B.A., Ohio State University, 2004; B.A., Rollins College, 2012; M.S., University of Texas at Tyler, 2015.

Thesis: Moderators of Bicultural Self-Efficacy and Mental Health Among Asian Americans

This study examined the relationship between bicultural self-efficacy and mental well-being among Asian Americans. It specifically aimed to identify factors that may affect the strength of this relationship in order to further inform clinical and community interventions for Asian Americans experiencing psychological distress associated with the acculturation process.

Major Professor: Dr. Eric John David

Marie Skanis *

Ph.D. Clinical-Community Psychology

B.A., Western Washington University, 2010.

Thesis: Attributions of Blame and Social Reactions to Scenarios of Sexual Assault of Adult Women

Sexual assault is a serious issue in Alaska and at UAF. An experimental design examined UAF students' attributions and reactions toward stranger and acquaintance rape victims. Attributional processes, rather than assault type, influenced reactions to the victim. Qualitative analysis examined how UAF can improve sexual assault prevention and intervention.

Major Professors: Dr. Inna Rivkin and Dr. Ellen Lopez

Emilie Springer *

Ph.D. Anthropology

B.A., Stanford University, 2000; B.A., University of Washington, 2000; M.A., University of Washington, 2006.

Thesis: Sea Change, Know Fish: Catching the Tales of Fish and Men in Cordova, Alaska

This dissertation collects oral history interviews from residents in the commercial fishing community of Cordova, Alaska. Interviews were used to construct character portraits that were later performed in front of the community with the intent of improving mutual understanding in a field that sometimes elicits conflict related to harvest rights.

Major Professor: Dr. William Schneider

College of Natural Science and Mathematics

Dr. Kinchel C. Doerner, Dean

Dina Abdel-Fattah

Ph.D. ***Natural Resources and Sustainability***

B.A., College of William and Mary, 2010; M.S., University of Amsterdam, 2011.

Thesis: Stakeholder Needs and Information Use in Cryospheric Hazard Planning and Response: Case Studies from Alaska

This dissertation investigated stakeholder use of various information products and resources in three cryospheric hazard-prone communities in Alaska that experience glacial lake outburst floods or anomalous high-speed sea ice motion events. This dissertation also tested whether a structured decision-making methodology could be useful and applicable in a cryospheric hazard context.

Major Professor: Dr. Sarah Trainor

Katherine Lynn Anderson *

Ph.D. ***Geology***

B.S., University of Michigan-Ann Arbor, 2012.

Thesis: Paleobiology of Icthyosaurs: Using Osteohistology to Test Hypotheses of Growth Rates and Metabolism in a Clade of Secondarily Aquatic Marine Tetrapods

Ichthyosaurs are a group of secondarily aquatic reptiles that globally dominated the oceans during the Mesozoic Era. Multiple lines of evidence suggest ichthyosaurs experienced elevated growth rates, body temperatures and metabolic rates. This thesis sought to test these hypotheses using osteohistological methods and examination of bone microstructure.

Major Professor: Dr. Patrick Druckenmiller

Till Martin Baumann **

Ph.D. ***Atmospheric Sciences***

B.S., University of Kiel, 2012; M.S., University of Kiel, 2015.

Thesis: Response of Major Modes of Eastern Arctic Ocean Variability to Climate Change

The Arctic Ocean plays a central role in ongoing climate change. Using observations from moorings in the eastern Arctic Ocean, the study investigated hydrographic seasonality and high-frequency current dynamics. Findings indicated a new, more dynamic eastern Arctic Ocean with direct implications for the ecosystem and further sea ice reduction.

Major Professor: Dr. Igor Polyakov

* *Summer degree recipient*
** *Fall degree recipient*

Brandon Burkholder *

Ph.D. Space Physics

B.S., Clemson University, 2015.

Thesis: Solar Magnetic Fields — Source, Evolution, and Interaction with Planetary Magnetospheres

Using a magnetohydrodynamic model of the solar magnetic carpet, the structure of boundaries in the sun's atmosphere was found to be similar to the structure of the solar wind near Earth. At Saturn, viscous interactions with the solar wind were modeled using a hybrid model to understand transport and heating.

Major Professor: Dr. Peter Delamere

Mitali Chandnani **

Ph.D. Geology

B.T., Indian Institute of Technology Roorkee, 2013.

Thesis: Effects of Target Properties on the Formation of Lunar Impact Craters in the Simple-to-Complex Transition

Impact cratering is ubiquitous on the planets, and different bodies serve as natural laboratories for studying this geologic process. A study of lunar craters of similar size enabled impactor energy to be held constant so that the effects of target and impactor properties on the final crater could be explored.

Major Professor: Dr. Robert Herrick

Tracie Nicole Curry *

Ph.D. Natural Resources and Sustainability

B.S., University of Pennsylvania, 2007; M.L.A., Harvard University, 2013.

Thesis: Learning from the Local Scale: Identifying and Addressing Local Blind Spots in Arctic Environmental Governance

Three qualitative and mixed methods studies were undertaken to address information blind spots impacting adaptation governance efforts concerning climate change in Alaska's Arctic. The research outcomes contribute to the availability of more comprehensive information that is inclusive of the range of perspectives and knowledge systems relevant for decision-making.

Major Professors: Dr. Sarah Trainor and Dr. Chanda Meek

Sean David Egan **

Ph.D. Environmental Chemistry

B.S., University of Alaska Fairbanks, 2010.

Thesis: Modeling Volcanic Ash and Sulfur Dioxide with the Weather Research Forecasting with Chemistry (WRF-Chem) Model

The Weather Research Forecasting with Chemistry (WRF-Chem) model was validated for the modeling of volcanic ash and sulfur dioxide using three cases: the 2008 eruption of Kasatochi, the 2010 eruptions of Eyjafjallaökull and the 2019 eruption of Raikoke. The model was also modified to include volcanic ash aggregation processes.

Major Professors: Dr. Martin Stuefer and Dr. Catherine Cahill

Joseph Eisaguirre

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

B.A., Colorado College, 2015.

Thesis: Movement and Migration Ecology of Alaskan Golden Eagles

This research studied how the movement and migration ecology of long-distance migratory golden eagles (*Aquila chrysaetos*) were affected by dynamic environmental conditions during migration and on the breeding grounds. It utilized novel statistical techniques that revealed how weather, habitats and anthropogenic landscape features affected the movement of a soaring bird.

Major Professor: Dr. Greg Breed

Carla Frare *

Ph.D. ***Biochemistry and Neuroscience: Neuroscience***

B.A., University of Padova, 2007; M.A., University of Trieste, 2010.

Thesis: Mechanisms Regulating the Circannual Rhythm of Hibernation

This research investigated the neuronal pathways activated in adenosine A1 receptor agonist-induced hibernation in the arctic ground squirrel (*Urocitellus parryii*). Thermoregulatory pathways are modulated to reduce body temperature and increase vasoconstriction during the hibernation season, thus adenosine A1 receptor agonist promotes hibernation by the further suppression of thermogenesis and wakefulness.

Major Professor: Dr. Kelly Drew

Graham G. Frye

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

B.S., Montana State University-Bozeman, 2009; M.S., Boise State University, 2012.

Thesis: Population Ecology of Willow Ptarmigan (*Lagopus lagopus*) in the Presence of Spatially Concentrated Harvest

This dissertation explores the effects of spatially concentrated harvest on willow ptarmigan population dynamics. Results suggested a lack of seasonal compensation for harvest mortality and limited permanent immigration distances. However, seasonal movements away from breeding territories may dampen the effects of concentrated harvest on local breeders during winter and spring.

Major Professor: Dr. Mark Lindberg

Juliette Funck

Ph.D. ***Biogeochemistry and Paleoecology: Interdisciplinary Program***

B.A., University of British Columbia, 2013; M.S., Universiteit Leiden, 2014.

Thesis: Investigating Ancient Bison Migration in Alaska: A Bottom Up Approach Using Isotopes

This thesis investigates the ecology and landscape use of both the present-day wood bison (*Bison bison athabascae*) and the ancient steppe bison (*Bison priscus*) in Alaska using isotopes for dietary and migratory geolocation analysis. It introduces new methodologies to bridge the gap between how we study the present day and the past.

Major Professor: Dr. Matthew Wooller

Kristin Rose Gagné

Ph.D. Environmental Chemistry

B.S., Arcadia University, 2015.

Thesis: Influence of Permafrost Extent on Photochemical Reactivity, Functional Group Composition, and Geochemical Cycling of a Sub-Arctic Discontinuous Permafrost Alaskan Watershed

This study observed how permafrost leaching affected surface waters. Observations saw permafrost was heterogeneous and waters had seasonal variability. Winter had increased photoproduction of reactive oxygen species and metal concentrations. Finally, this study observed that the combination of metal and optical data aided in resolving the possible permafrost extent beneath lakes.

Major Professor: Dr. Jennifer Guerard

Jesse Elliott Grunblatt

Ph.D. Environmental Science and Communication: Interdisciplinary Program

B.A., Middlebury College, 1975; M.S., Colorado State University, 1980.

Thesis: Science, Perception, and Scale: An Interdisciplinary Analysis of Environmental Change and Community Adaptive Capacity

The gap between science-based assessments and local perceptions of environmental and climate change was explored through three separate but interrelated studies: 1) an assessment of community perception of change, 2) a science-based assessment of environmental change, and 3) an evaluation of the role news media plays in communicating science.

Major Professors: Dr. Mark Wipfli and Dr. Barbara Adams

Diane Christine Huebner

Ph.D. Biological Sciences

B.F.A., School of the Art Institute of Chicago, 1982; M.S., Northwestern University, 2009.

Thesis: Seedling Recruitment, Genetic Diversity, and Secondary Growth of Deciduous Shrubs in Arctic Tundra Disturbed by Retrogressive Thaw Slump Thermokarst on Alaska's North Slope

A study of deciduous shrub response to retrogressive thaw slump (RTS) disturbance at two North Slope, Alaska, sites found higher seedling recruitment, species richness and secondary growth in RTS. Willows showed high genetic diversity and low clonal spread regardless of disturbance. North Slope RTS may support enhanced tundra shrub growth.

Major Professor: Dr. M. Syndonia Bret-Harte

Alexander Kotlarov

Ph.D. Natural Resources and Sustainability

B.S., Northeastern University, 1990; M.S., London School of Economics and Political Science, 1992.

Thesis: Retrospective Analysis of the Alaska Halibut and Sablefish Individual Fishing Quota Fisheries Comparing the Program with the Anticipated Outcomes and Other Limited Entry Fisheries

The thesis first describes and analyzes the development and evolution of the Alaska halibut and sablefish fishery. It then reports on surveys of halibut and sablefish quota share holders. It ends with a review of the community support measures included in Alaska fisheries and opinions for rebuilding communities.

Major Professor: Dr. Keith Criddle

Don Larson **

Ph.D. Biological Sciences

B.S., University of Alaska Fairbanks, 2011.

Thesis: Host-Parasite Ecophysiology of Overwintering

This thesis investigates the interrelations between host-parasite overwintering physiology and behavior in the trematode *Ribeiroia ondatrae* and its host, the wood frog (*Lithobates sylvaticus*), in Alaska. Host physiology in winter both hinders (through freezing) and facilitates (through cryoprotectant production) parasite survival.

Major Professor: Dr. Brian Barnes

Jintai Li *

Ph.D. Atmospheric Sciences

B.S., University of Science and Technology of China, 2013.

Thesis: Radar Studies of Turbulence and Lidar Studies of the Nickel Layer in the Arctic Mesosphere

Gravity wave and turbulence studies in the Arctic middle atmosphere were presented. The studies employ lidars and radar to characterize wave activity, instability and turbulence. In the lidar-based studies, turbulence and wave activity in the mesosphere-lower-thermosphere region were analyzed. In the radar-based study, turbulent parameters in the mesosphere were retrieved.

Major Professor: Dr. Richard Collins

Robert W. Lichvar **

Ph.D. Phylogenetic Evaluation of Intermountain Lepidium: Interdisciplinary Program

B.S., California University of Pennsylvania, 1976; M.S., University of Wyoming, 1979.

Thesis: Phylogenetic Relationships Within the Western United States Species of *Lepidium L.*

Lepidium L. has been assessed using nuclear and chloroplast DNA showing incongruences. Internal transcribed spacer (ITS) regions were compared to a cladistic tree of 123 morphological traits. A comprehensive ITS tree and ploidy levels of 22 taxa were developed. Neither ITS nor ploidy levels provided an understanding into the current taxonomic.

Major Professors: Dr. Gary Laursen and Dr. Lawrence Duffy

James Sydney Magdanz

Ph.D. Natural Resources and Sustainability

B.J., University of Missouri-Columbia, 1973.

Thesis: It's so Good to Be Back: Explorations of Subsistence in Alaska

This research explored rural Alaska's subsistence economies since 1980, using data from more than 18,000 household surveys. Contrary to popular narratives, data describe stable harvests, stable populations, dense subsistence sharing networks and high levels of food security. Road access has strong negative effects on harvests but little effect on personal incomes.

Major Professors: Dr. Joshua Greenberg and Dr. Courtney Carothers

David B. McAlpin *

Ph.D. Geology

B.B.A., Stetson University, 1980; M.S., Arizona State University, 2008.

Thesis: Multi-Sensor Techniques for the Measurement of Post Eruptive Volcanic Deformation and Depositional Features

Remote sensing of volcanic activity is an increasingly important tool for scientific investigation, hazard mitigation and geophysical analysis. These techniques describe new strategies to combine remote sensing data in multisensor analyses that improve our understanding of volcanic activity, depositional behavior and the evolutionary history of past eruptive episodes.

Major Professors: Dr. Franz Meyer and Dr. James Begét

Jaspreet Kaur Osan

Ph.D. Biochemistry and Neuroscience: Biochemistry

B.S., Bangalore University, 2009; M.S., Institute of Science-Mumbai, 2012.

Thesis: Biophysical Characterization of Class II Major Histocompatibility Complex (MHC) Molecules

Major histocompatibility complex II (MHCII) molecules are proteins which present antigens to CD4+ T cells, thus generating immune response against the antigen. This study aimed to understand biophysical features of MHCII molecules and HLA-DM, a nonclassical MHCII molecule, thus generating tools which identify antigenic epitopes in novel pathogens. This can help us generate an effective vaccine.

Major Professors: Dr. Andrea Ferrante and Dr. Thomas Kuhn

Jayme Parker *

Ph.D. Biological Sciences

B.S., Montana State University-Bozeman, 1999; M.S., Walden University, 2008.

Thesis: Application of New Technology for the Diagnosis of Viral Infection

New technologies, including electrochemical detection and next-generation sequencing, outperform conventional laboratory methods when characterizing human pathogenic viruses in clinical specimens and enhance our ability to evaluate current pharmaceutical interventions more closely for their ability to prevent and treat actively circulating infectious diseases.

Major Professor: Dr. Jackson Chen

Liran Peng **

Ph.D. Atmospheric Sciences

B.S., Nanjing University, 2008; M.S., University of Wyoming, 2013.

Thesis: Impacts of Storm on Sea Ice: From Case Study to Climate Scale Analysis

This study presents a multiscale examination of how storms impact sea ice, consisting of an observation-based case study, model-based study and a new composite analysis to investigate the storm impact on sea ice over seven regions for all storms from 1979 to 2018.

Major Professor: Dr. Xiangdong Zhang

Kyle Ken Smith

Ph.D. ***Geophysics***

B.S., New Mexico Institute of Mining and Technology, 2012.

Thesis: The Seismic Wavefield in Nenana Basin and Cook Inlet Basin of Alaska

Seismic instruments were deployed on the Nenana basin and Cook Inlet basin of Alaska to study amplification from local earthquakes. Both basins amplified earthquake waves by at least a factor of two, and similar levels occurred for noise. Seismic noise needed to account for wind and a nearby river.

Major Professor: Dr. Carl Tape

Lisa Smith

Ph.D. ***Biochemistry and Neuroscience: Biochemistry***

B.S., University of Alaska Fairbanks, 2008.

Thesis: Role of Neurotropism in HIV-1 Gp120 Induced Oxidative Stress and Neurodegeneration

Thirty-50% of individuals with long-term HIV infection are affected by a spectrum of neurocognitive dysfunctions for which the molecular mechanisms of pathogenicity remain poorly understood. This research identified a previously unknown role for HIV envelope protein gp120 in the induction of neurotoxic actin-cofilin rods leading to synaptic dysfunction.

Major Professor: Dr. Thomas Kuhn

Yang Yang

Ph.D. ***Atmospheric Sciences***

B.S., Nanjing University of Information Science and Technology, 2008; M.S., University of Wyoming, 2013.

Thesis: Characteristics of Arctic Storms and Their Impact on Surface Climate

Increase of the southerly wind associated with the intense storms from the North Pacific into the Chukchi and Beaufort seas plays a key role in decline of thin sea ice. Enhanced baroclinity in the low sea ice years plays a dominant role in the development of intense storms. Stronger potential vorticity anomaly of intense storms is associated with the QBO west phase.

Major Professor: Dr. Xiangdong Zhang

Joanna C. Young

Ph.D. ***Geophysics***

B.A., University of British Columbia, 2008.

Thesis: Alaska's Shrinking Glaciers: Integrated Glaciological Research for Hydrological, Ecological, and Environmental Education Applications

As air temperatures rise, glacier melt is accelerating, with impacts for hydrology, ecology and people. This interdisciplinary research revealed that glacier runoff from the western Juneau Icefield increased between 1980-2016, in turn modifying nearshore oceanographic conditions. The research also found that youth who experience climate-impacted glacier landscapes develop stronger pro-environmental motivation.

Major Professor: Dr. Erin Pettit

Samaneh Yourdkhani

Ph.D. Mathematics

B.S., Semnan University, 2002.

Thesis: Investigations in Phylogenetics: Tree Inference and Model Identifiability

This research presents two projects in mathematical phylogenetics. The first is a new, statistically consistent, fast method for inferring species trees from topological gene trees under the multispecies coalescent model. The second establishes that the tree and numerical parameters of the Profile Mixture Model of protein sequence evolution are generically identifiable.

Major Professors: Dr. John Rhodes and Dr. Elizabeth Allman

College of Rural and Community Development

Mr. Evon Peter, Vice Chancellor

Mr. Bryan Uher, Acting Dean

Sharon Guenther Lind **

Ph.D. ***Indigenous Studies***

B.B.A., Warner Pacific University, 1989; MBA, University of Alaska Anchorage, 2008.

Thesis: Definitions of Success for Alaska Native Corporations

The elements that define success in a typical corporation have parameters that usually fixate on financial performance or value added to an investment portfolio. At an Indigenous organization, the word success takes on a new meaning. This work examines key elements in the definitions of success in Alaska Native corporations.

Major Professors: Dr. Beth Leonard and Dr. Michael Koskey

School of Education

Dr. Amy Vinlove, Director

Havala Jessamyn Hanson **

Ph.D. Statistics and Policy in Education: Interdisciplinary Program

B.S., University of Wisconsin-Whitewater, 2005; M.A., Brown University, 2010.

Thesis: Paving the Road to College: Impacts of Washington State Policy on Improving Equitable Participation in Dual Credit Courses

This quasi-experimental study evaluated a 2015 Washington state policy to increase participation in dual-credit courses. The policy positively impacted participation for 10th graders but did not impact participation for students attending schools near eligibility cutoffs for tuition subsidies. The findings identify places to strengthen implementation and guide future research.

Major Professor: Dr. Amy Vinlove

Gary E. Leiter

Ph.D. Educational Studies: Interdisciplinary Program

B.S., Grace College, 1984; E.D.E., Cedarville University, 1989; M.S., Corban University, 2008; M.Ed., University of Alaska Southeast, 2014.

Thesis: Instructor-Student Relationships and Attrition Rates Among Students Enrolled in Developmental Asynchronous Online Courses

Attrition rates in asynchronous online developmental courses were explored using student interviews to clarify challenges and offer applicable solutions to course dissatisfaction and attrition. Three themes emerged as central to student dissatisfaction: the instructor's lack of communication, being impersonal with students, and a confusing and complicated course structure.

Major Professor: Dr. Susan Renes

School of Management

Dr. Mark Herrmann, Dean

Allen Christopher Molina *

Ph.D. ***Natural Resources and Sustainability***

B.S., San Francisco State University, 2007; M.S., University of Alaska Fairbanks, 2015.

Thesis: Wildfire in Alaska: The Economic Role of Fuel Treatments and Homeowner Preferences in the Wildland Urban Interface

Homeowner preferences for wildfire risk reduction were explored via electronic survey and choice experiment. Homeowners had a significant willingness to pay for thinned public fuel treatments, as well as moderate private fuel reduction participation. These results can help inform land management agencies' decision-making, as well as community capacity-building organizations such as Firewise.

Major Professor: Dr. Joseph Little

Robert Guenther Snigaroff *

Ph.D. ***Economic Sociology: Interdisciplinary Program***

B.S., Warner Pacific University, 1986.

Thesis: Alaska Native Corporations: The Long Run

Alaska Native corporation economic results are reviewed, including business stability, longevity and the tradeoffs made for, or in relation to, ANCs' common mission of cultural continuation. ANC endowment models are more attractive after new legislation. ANC endowments invest in stocks; hence, the research studied stock returns and liquidity in relation to ANCs' goals.

Major Professors: Dr. Joseph Little and Dr. Michael Koskey