College of Natural Science and Mathematics

Degree Candidates

Joan Braddock, Dean

BACCALAUREATE

Buck S. Barbieri
B.S., Biological Sciences

Christopher Paul Barger**
B.S., Biological Sciences

Walter Barnes
B.S., Computer Science

Patrick Baum**
B.S., Biological Sciences. *Golden Key Honor Society*

Daniel J. Beck
cum laude, B.S., Biological Sciences

James Robert Becwar
B.S., Mathematics

Jessica J. Beecher
magna cum laude, B.S., Biological Sciences. *Golden Key Honor Society*

Tomas Belik
B.S., Wildlife Biology

John S. Bittle
B.A., Physics

April Louise Blandford
B.S., Biological Sciences

Finely Myman Bock
B.A., Earth Science

Amanda Brennan**
B.S., Geology

Cord Brundage
B.S., Biological Sciences

Rebecca Louise Bryan
B.S., Wildlife Biology

Brian Buechler
B.S., Computer Science

Justin C. Buehner
B.S., Biological Sciences

Rosanna A. Campi*
B.S., Geology

Lilia Canady
B.S., Computer Science

Jannifer Suk Chang
B.S., Biological Sciences. *Golden Key Honor Society*

Robin Dawn Chapman**
cum laude, B.S., Mathematics

Charles Edwin Clark**
B.S., Computer Science

Garrison Collette
B.S., Chemistry

Megan Lynn Conley
B.S., Biological Sciences

Lyle Croft**
B.S., Biological Sciences

Andrea E. Croll**
magna cum laude, B.S., Biological Sciences

Jolie Dara Crow
B.S., Chemistry: Biochemistry/Molecular Biology

Maegan Marie Daniello-Weltzin
B.S., Chemistry: Biochemistry/Molecular Biology

Michelle M. Das
B.A., Biological Sciences

Sunit M. Das
B.S., Computer Science; Mathematics

Christina Marie DeHaven
B.S., Biological Sciences

Tania Hillary Deisher
magna cum laude, B.S., Chemistry: Biochemistry/Molecular Biology. *Phi Kappa Phi Honor Society, Golden Key Honor Society, Student Leadership Honors*

Claire Marie Doran**
B.S., Biological Sciences

Wally Drumhiller*
B.S., Marine Medical Pharmacology: Interdisciplinary Program

Sarah Lynne Duncan
B.A., Biological Sciences

Kim Fackler
cum laude, B.S., Biological Sciences.

Jackson C. Fox
B.S., Wildlife Biology

Emily Rose Glowacki
B.S., Chemistry. *Golden Key Honor Society*

Paul D. Gradney**
B.S., Physics

Hope Marie Gray
B.S., Biological Sciences

Jill Christine Grogan
B.S., Biological Sciences. *Student Ambassador*

John Gabriel Hagood
B.S., Wildlife Biology

Alexis Marie Hansen
cum laude, B.S., Biological Sciences. *Golden Key Honor Society*

Matthew Hanson
B.S., Geology

Danielle Gray Harris
B.S., Chemistry: Biochemistry/Molecular Biology

Quinton Harris
B.S., Computer Science

Michael Hazlett
B.S., Mathematics

Diana Marie Heimerl
cum laude, B.A., Mathematics. *Golden Key Honor Society*

Aaren Elyse Heuer
B.S., Biological Sciences

Kyndall Hildebrandt
B.S., Biological Sciences

Zachary Benjamin Hill
magna cum laude, B.S., Chemistry: Biochemistry/Molecular Biology

Kristie Hilton**
B.S., Biological Sciences

Travis C. Hines**
B.A., Earth Science

Megan Hoffman
B.S., Biological Sciences

Darce Holcomb
B.S., Wildlife Biology

Raena Kali Hollingsworth**
B.S., Geology

Jimie Horath
B.S., Mathematics

Weston William Howe
B.S., Biological Sciences

Todd Vince Hughes
B.S., Mathematics; Mining Engineering

Lysandra Hutton
B.S., Biological Sciences

Dennis L. Jackson
B.S., Mathematics; Physics

Betsy Ann James**
B.A., Mathematics

Michael Jaramillo
B.S., Chemistry

Jason E. Jones
magna cum laude, B.S., Computer Science

Alice Kangas*
B.S., General Science

Yumi Kawaguchi
B.S., Wildlife Biology

Scott J. Kawasaki
B.S., Biomedical Science: Interdisciplinary Program

Kimberly Anne Kightlinger**
B.S., Biological Sciences

Anya F. Kircher*
magna cum laude, B.S., Geology

Anna Marjorie Kober**
B.S., Biological Sciences. *Honors Program*

Danielle Louise LaVictoire
B.S., Chemistry: Biochemistry/Molecular Biology

Celeste Jocelyne Leroux
B.S., Biological Sciences. *Student Ambassador*

Kari Maakestad**
B.S., Wildlife Biology

Clifford P. Manning*
B.S., Computer Science

Anastasia M. Marx
magna cum laude, B.S., Biological Sciences

Todd Arthur McLaughlin
B.S., Wildlife Biology

Adam Charlton McMahan
B.A., Integrative Premedical Studies: Interdisciplinary Program

Marcus John Miller
B.A., Biological Sciences

Giulietta Elizabeth Minerva**
B.S., Biological Sciences

Eric Mtika
B.S., Biological Sciences

Alexis Lore Murphy**
B.S., Biological Sciences

Amanda Josephine Nebert**
cum laude, B.S., Mathematics

Kristine Niles
magna cum laude, B.S., Biological Sciences. *Phi Kappa Phi Honor Society*

Ian Pennell-Walklin
B.S., Biological Sciences

Nicole M. Phillips
B.S., Wildlife Biology

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B.S., Geology

Michael P. Redmond
B.S., Biological Sciences

William Joseph Rhodes
B.S., Geology

Vanessa Ritchie**
magna cum laude, B.S., Chemistry: Environmental Chemistry

Michelle Russell
B.S., Chemistry

Shawna Lee Sastamoinen
magna cum laude, B.S., Geology. *Golden Key Honor Society*

Rachael M. Shoulder
B.S., Physics

Tanner Joshua Smith
cum laude, B.S., Biological Sciences

Eric C. Spade
B.S., Biological Sciences

Craig R. Stephenson
B.S., Computer Science

Richard John Stevens III
B.S., Physics

Mika Michelle Straub
B.A., Biological Sciences

James Michael Tapp II*
B.S., Geology

Albert Tedja
B.S., Computer Science

Adrian Terry
cum laude, B.S., Biological Sciences

Linda Ahmedovna Tomisser
magna cum laude, B.S., Biological Sciences

Carla Susanne Tomsich*
B.S., Geology. *Golden Key Honor Society*

Abraham Matthew Tsigonis**
summa cum laude, B.S., Chemistry: Biochemistry/Molecular Biology. *Golden Key Honor Society*

Katherine Van Duine
magna cum laude, B.S., Biological Sciences

Scott Gordon Vockeroth**
B.S., Wildlife Biology

Rayna S. Walker
B.S., Mathematics

Benjamin Warlick
cum laude, B.S., Chemistry: Biochemistry/Molecular Biology

Jessica Rae Weed**
B.S., Mathematics

Jerrod Whitney
B.S., Biological Sciences

Erik Wickstrom
magna cum laude, B.S., Biological Sciences

Theresa Marie Woldstad
magna cum laude, B.S., Biological Sciences

Andrew Wu
cum laude, B.S., Wildlife Biology

Jia Wu
cum laude, B.S., Computer Science

Elyse Christine Yeager
cum laude, B.S., Mathematics

Joshua M. Zwart**
B.S., Biological Sciences

MASTER'S

Michael Z. Abrams II**
M.S., Computational Physics. *B.S., Chadron State College (Nebraska), 2002*

Jason Amundson
M.S., Geophysics. *B.S., University of Minnesota, 2003; B.S., University of Minnesota, 2003*

Carl Stephen Andersen**
M.S., Physics. *B.A., Boston University (Massachusetts), 2003*

Antony Ray Berthelote*
M.S., Geophysics. *B.S., University of Montana, 2003*

Eleanor S. Boyce
M.S., Geophysics. *B.A., Colby College (Maine), 2003*

Anna Bulanova
M.S., Mathematics. *Diploma, St. Petersburg State University (Russia), 2002*

Xi Chen*
M.S., Statistics. *Phi Kappa Phi Honor Society. B.S., Anhui University (China), 2003*

Bongchu Chi**
M.S., Chemistry. *B.S., University of Alaska Fairbanks, 2002*

John McAllister Clark**
M.S., Geology. *B.S., Colorado School of Mines, 1998*

Gregory William Cushing
M.S., Chemistry. *B.S., University of Alaska Fairbanks, 2004*

Kathleen Melissa Davis
M.S., Geology. *B.S., Olivet Nazarene College (Illinois), 2003*

Julie L. Elliott*
M.S., Geophysics. *B.S., Whitman College (Washington), 1999*

Hans Mathias Eriksson
M.S., Wildlife Biology. *B.S., University of Tromso (Norway), 2002*

Mihailo Jankov*
M.S., Atmospheric Sciences. *B.S., University of Belgrade (Serbia), 1998*

Christopher Thomas Johnston
M.S., Computer Science. *B.S., University of Alaska Anchorage, 2004*

Rachel Rands Jones*
M.S., Wildlife Biology. *B.S., University of Nebraska, 2001*

Courtney S. Kearney*
M.S., Geology. *B.S., University of Georgia, 2002*

Russell A. Kirkham**
M.S., Geology. *B.S., University of Alaska Fairbanks, 1998*

Andrew Lee Krohn*
M.S., Biochemistry and Molecular Biology. *B.S., University of Alaska Fairbanks, 2002*

Elsbeth M. Kuriger*
M.S., Geophysics. *Diploma, Schwesternschule Theodosianum (Switzerland), 1991; M.S., Swiss Federal Institute of Technology Zurich, 2002*

Bryce Cameron Lake*
M.S., Wildlife Biology. *B.S., University of Alaska Fairbanks, 2002*

Lance W. Latham
M.S., Computer Science. *B.A., University of Texas, 1983*

Nicholas J. Lisuzzo**
M.S., Botany. *B.S., Michigan State University, 2001*

Anahit Mailyan**
M.S., Computer Science. *B.S., Yerevan State University (Armenia), 1982*

James Michael Maley
M.S., Biology. *B.S., University of Alaska Fairbanks, 2002*

John Robert Manes
M.S., Computer Science. *B.S., Texas A & M University, 2003*

Jacob Mongrain
M.S., Geology. *B.S., University of Maine, 2001*

Rebecca Morgan*
M.S., Geology. *B.S., Central Washington University, 2001*

Julie Anne Morse**
M.S., Wildlife Biology. *B.S., Earlham College (Indiana), 1995*

Rawshan Muna
M.S., Atmospheric Sciences. *B.S., Jahangirnagar University (Bangladesh), 1995; M.S., Jahangirnagar University (Bangladesh), 1997; M.Phil., University of Bergen (Norway), 2001*

Santosh Kumar Murki
M.S., Computer Science. *B.T., Jawaharlal Nehru Technological University (India), 2004*

Colin Patrick Murray
M.S., Atmospheric Sciences. *M.S., Florida State University, 1999; B.S., Louisiana State University, 1993*

Balachandrudu Narapusetty*
M.S., Atmospheric Sciences. *B.E., Osmania University (India), 1997; M.S., Kettering University (Michigan), 2003*

Erik Peterson**
M.S., Computational Physics. *B.S., University of Northern Colorado, 2003*

Laura Phillips*
M.S., Wildlife Biology. *B.S., University of Florida, 1997*

Roger F. N. Rothschild**
M.S., Chemistry. *B.S., University of Alaska Fairbanks, 2003*

David E. Safine*
M.S., Wildlife Biology. *B.S., University of California, 1998*

David Shaw
M.S., Wildlife Biology. *B.S., Evergreen State College (Washington), 1998*

Andrea Marie Steffke*
M.S., Geology. *B.S., College of Charleston (South Carolina), 2001*

Kara Sterling
M.S., Atmospheric Sciences. *M.S., University of Colorado, 2002; B.A., Luther College (Iowa), 2000*

Kristian E. Swearingen**
M.S., Chemistry. *B.S., University of Alaska Fairbanks, 2003*

Miranda Terwilliger*
M.S., Wildlife Biology. *B.S., Humboldt State University (California), 1999*

Deborah D. Webb
M.S., Wildlife Biology. *M.S., University of Berne (Switzerland), 1997*

Nancy R. Werdin-Pfisterer
M.S., Biology. *B.S., University of Wisconsin, 1995*

Chia Yang Troy Wu
M.S., Computer Science. *B.S., University of British Columbia (Canada), 2002; M.S., Lawrence Technological University (Michigan), 2003*

Yingte Zhang
M.S., Statistics. *B.S., Tianjin University of Commerce (China), 1999; M.A., University of New Brunswick (Canada), 2004*

DOCTORAL

Anthony Arendt
Ph.D. Geophysics
B.S., University of Alberta (Canada), 1995; M.S., University of Alberta (Canada), 1997

Thesis: Volume Changes of Alaska Glaciers: Contributions to Rising Sea Level and Links to Changing Climate
Alaska glaciers contributed 10 percent to the rate of global sea level rise during the last half-century. The rate of mass loss has approximately doubled during the past decade, primarily due to increased summer air temperatures. Independent extrapolation methods were found to produce similar estimates of regional volume changes.
Major Professor: Dr. Keith A. Echelmeyer

John Eugene Chappelow **
Ph.D. ***Geophysics***
B.S., University of Vermont, 1987; M.S., University of Vermont, 1998

Thesis: Three Studies of Impact Phenomena in the Solar System
Meteoritic activity affects every body in the solar system; its effects are ubiquitous and therefore very useful in the exploration of many planetary bodies. This work addresses two different current problems associated with the use of impact phenomena in the study of other planetary bodies in our solar system.
Major Professor: Dr. Virgil L. Sharpton

Larissa Dehn *
Ph.D. ***Biological Sciences: Biology***
B.S., University of Goettingen (Germany), 1992; M.S., University of Kiel (Germany), 1997

Thesis: Trophic Relationships in an Arctic Marine Foodweb and Implications for Trace Element Dynamics
Tissues of Arctic marine biota were analyzed for stable carbon and nitrogen isotopes and selected trace elements describing contaminant pathways in the food chain. Trace elements in Alaska harvested animals were generally lower than reported for other Arctic regions. Biomagnification of trace elements in the Arctic foodweb was not significant.
Major Professor: Dr. Erich H. Follmann

Fred Hall IV
Ph.D. ***Space Physics***
B.S., Ohio University, 1991; M.S., University of Colorado, 1995

Thesis: A Mechanism for Current Sheet Thinning in the Growth Phase of Magnetospheric Substorms
The thinning of the current sheet in the near-Earth magnetotail during the growth phase is one of the last outstanding problems of magnetospheric substorm physics. This dissertation examines a new mechanism capable of quantitative predictions of the location and duration of the thinning. Results are consistent with satellite observations.
Major Professor: Dr. Antonius Otto

Anja Kade
Ph.D. ***Biological Sciences: Biology***
B.S., University of Oldenburg (Germany), 1999; M.S., Colorado State University, 2001

Thesis: Biocomplexity of Nonsorted Circles in the Low Arctic, Alaska
Nonsorted circles are small, barren patterned-ground features and represent a common component of landscapes in most low arctic tundra regions. This thesis examines the complex interactions among vegetation, soil and disturbance through cryogenic processes of nonsorted circles in the Alaskan arctic tundra and discusses the implications of climate change.
Major Professor: Dr. Donald A. Walker

Matthew P. Krynicki
Ph.D. ***Physics***
B.S., Wayne State University (Michigan), 1993

Thesis: A Search for Thermospheric Composition Perturbations Due to Vertical Winds
Vertical winds in the high-latitude thermosphere due to auroral-related energy inputs modify the local thermosphere's composition from its equilibrium configuration. My thesis compares upper-thermospheric vertical wind measurements to vertical displacements determined from FUV-wavelength auroral brightness observations by POLAR spacecraft's Ultraviolet Imager. The vertical displacement modifies composition in the auroral model.
Major Professor: Dr. Mark Conde

Cheryl Rosa
Ph.D. ***Biological Sciences: Wildlife Biology***
B.S., University of Massachusetts, 1993; D.V.M., Tufts University (Massachusetts), 1997

Thesis: Health Assessment in the Bowhead Whale
This study investigated the health of the Bering-Chukchi-Beaufort Sea stock of bowhead whales using histological, toxicological, biochemical and physiological indices. Tissue samples and morphometric data were collected from 64 whales during Native subsistence hunts (1998–2002). The bowhead whales studied were found to be healthy, with very few pathological findings/abnormalities noted.
Major Professor: Dr. John E. Blake

Austin P. Ross *
Ph.D. ***Biochemistry and Molecular Biology***
B.A., University of Vermont, 1994; M.A., University of Alaska Fairbanks, 2002

Thesis: Neuroprotection in Hippocampal Slices from the Hibernating Species Arctic Ground Squirrel *(Spermophilus parryii)*
Hibernating species, such as Arctic ground squirrel (AGS), *Spermophilus parryii*, are a natural model of tolerance to ischemia and a novel model for investigating much needed stroke therapeutics. Here, hippocampus of hibernating AGS is shown to tolerate oxygen and nutrient deprivation due to intrinsic tissue properties including ion channel modifications.
Major Professor: Dr. Kelly L. Drew

Sandra Looman Talbot
Ph.D. ***Biological Sciences: Biology***
B.S., Brigham Young University, 1981; M.S., Brigham Young University, 1985

Thesis: Molecular Population Genetics and Systematics of Alaska Brown Bear *(Ursus arctos L.)*
Genetic data from the mitochondrial genome were used to infer a phylogeny of the Ursidae, characterize phylogeographic relationships among Alaskan brown bear populations, and test current subspecies hypotheses. Comparative data from the nuclear genome were used to determine processes driving structure among populations of brown in Alaska and worldwide.
Major Professor: Dr. Erich H. Follmann and Dr. Joseph Cook

Katey Walter
Ph.D. ***Biological Sciences: Biology***
B.A., Mount Holyoke College (Massachusetts), 1998; M.S., University of California, 2000

Thesis: Methane Emissions from Lakes in Northeast Siberia and Alaska
Bubbling of methane, an important greenhouse gas formed by anaerobic decomposition in lake sediments, is quantified by a new method of mapping bubble clusters in lake ice. Thawing permafrost along expanding lake margins enhances methane bubble emissions by releasing Pleistocene-aged organic substrates from permafrost into lake bottoms where it decomposes.
Major Professor: Dr. F. Stuart Chapin

Ted Wu
Ph.D. ***Environmental Chemistry***
B.S., Texas Tech University, 1998

Thesis: An Analysis of Using Semi-Permeable Membrane Devices to Assess Persistent Organic Pollutants in Ambient Air of Alaska
Passive air samplers were used to measure organic pollutants at five locations in Alaska. Air samples from Barrow were distinct from the sub-Arctic samples. This distinction suggests different air masses are being sampled by the passive samplers. Lower concentrations of contaminants were measured at coastal sites than Interior sites.
Major Professor: Dr. Catherine F. Cahill

Huiwen Zhao **
Ph.D. ***Biochemistry and Molecular Biology***
B.S., Liaoning College of Traditional Chinese Medicine (China), 1993

Thesis: NMDA Receptors in Hibernating Arctic Ground Squirrels
Hibernating Arctic ground squirrels (hAGS) tolerate oxygen nutrient deprivation and N-methyl-D-aspartate (NMDA) toxicity better than inter-bout-euthermic AGS, suggesting that down-regulation of NMDA receptors (NMDAR) contributes to this tolerance. In this project, I provided evidence that NMDAR function is decreased in hAGS, which may be due to decreased phosphorylation of NR1.
Major Professor: Dr. Kelly L. Drew

Xiaoming Zhao **
Ph.D. ***Biochemistry and Molecular Biology***
B.S., Liaoning College of Traditional Chinese Medicine (China), 1992

Thesis: Culturability, Temporal Change, Phylogenetic Analysis, and Yield of Bacterial Communities in a Subarctic Lake—Harding Lake
Culturabilities could approach 10 percent in unamended lake water. Comparative analyses of 16S rDNA genes showed that all bacterial species have similar lengths in the phylogenetic tree, suggesting similar evolution rates. Our *in situ* values for bacterial growth yield from an amino acid mix were closer to 50 percent and 70 percent.
Major Professor: Dr. Don K. Button