Thank you for attending the 16th Annual McNair Forum.

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McNair Research Presentations

16th Annual McNair Forum
Thursday, April 15
Oral Presentations, Memorial Union—River Valley Room
9:20 am to 3:00 pm

9:20-9:40 a.m. Sierra Davis
GoodHealth TV as a Tool for Health Education

9:40-10:00 a.m. Amber Annis-Bercier
Educating America: American Indian History as a Continued Stereotype

10:00-10:20 a.m. Jason Champagne
A Literature Review of American Indian Diets

10:20-10:40 a.m. BREAK

10:40-11:00 a.m. Renee Beausoleil
Efficacy of Accell siRNA’s to knockdown cofilin and ADF in Neurons

11:00-11:20 a.m. Shea Thomas
Perceptions of Professor-Student Sexual Harassment

11:20-11:40 a.m. Mohamud Ahmed
Studying the Reaction Kinetics and Mechanical Properties of Pvac and its Copolymers

11:40 a.m.-12:00 p.m. Julia Beard
Hymenopteran Communities in Fragmented Prairie Biomes

12:00 p.m. to 1:00 p.m. LUNCH (On your own)

1:00-1:20 p.m. Robert “BJ” Rainbow
Music and Healing: American Indian Songs and Their Uses in Medicine

1:20-1:40 p.m. Elizabeth Luger
Alpha-1A Adrenergic Receptor Stimulation Reduces Anxiety in Mice

1:40-2:00 p.m. Austin Luebke
The Problem of ‘Revelation’ in Feminist Interpretations of Islam

2:00-2:20 p.m. Matthew Fahrenbruch
Using Remote Sensing to Estimate Common Tansy Distribution: Woodside Prairie Restoration Site, Minnesota

2:20 p.m. to 2:40 p.m. Katie Collette
Norepinephrine, through activation of α₃ARs, stimulates the production of new neurons, leading to alleviation of depression and anxiety

2:40-3:00 p.m. Matthew Munoz
The Impact of Service as a Fraternity/Sorority Traveling Consultant on an Individual’s Eventual Choice of Profession

2009-10 McNair Scholars and Mentors

Mohamud Ahmed
Chemical Engineering
Mentors: Brian Tande
Edward Kolodka

Isaac Allmaras
Marketing
Mentor: Robert Tangsrud

Amber Annis
History & Indian Studies
Mentor: Birgit Hans

Julia Beard
Biology
Mentor: Brett Goodwin

Renee Beausoleil
Biology
Mentor: Peter Meberg

Desiree Bernal
Elementary Education
Mentor: Myrna Olson

Cory Bowers
Computer Science

Arlene Brown
Indian Studies & Criminal Justice
Mentor: Wendelin Hume

Jason Champagne
Community Nutrition
Mentor: Jacqueline Gray

Katie Collette
Chemistry
Mentor: Van Doze

David Cookman
Biology
Mentor: Brett Goodwin

Sierra Davis
Psychology & Indian Studies
Mentor: Jacqueline Gray

Andrea Estling
Spanish
Mentor: Gene DuBois

Matthew Fahrenbruch
Geography
Mentor: Bradley Rundquist

Tyrone Grandstrand
Political Science
Mentor: Jeffrey Sun

Brandon Helseth
Psychology
Mentor: Ric Ferraro

Austin Luebke
Sociology
Mentor: Gayle Baldwin

Elizabeth Luger
Psychology & Indian Studies
Mentor: Van Doze

Matthew Munoz
Communication
Mentors: Cassie Gerhardt
Margaret Healy

BJ Rainbow
Indian Studies & Criminal Justice
Mentor: Birgit Hans

Seinquis Slater
Sociology
Mentor: Jeffrey Langstraat

Logan Stundal
Political Science
Mentor: Steven Light

Shea Thomas
Psychology
Mentor: Cheryl Terrance

Matthew Munoz
Communication
Graphic Design Technology
Mentors: Cassie Gerhardt
Margaret Healy

John Neis
Physics
Mentor: Ju Kim

Katie Collette
Spanish
Mentor: Gene DuBois

McNair Research Presentations

McNair Research Presentations
Abstract
The purpose of this study was to assess the response to GoodHealth TV in the waiting areas of IHS Clinics in the Aberdeen Area. GoodHealth TV is a health education programming service that promotes healthy behaviors and lifestyles through culturally appropriate health education videos, wellness tips, human interest stories, and local health happenings. GoodHealth TV programming was broadcast on 42” plasma screens in 23 IHS clinic waiting areas in the Aberdeen Area. One hundred twenty-seven people (43 male and 84 female) spending time in the waiting area completed a 10 item survey and returned it to the reception desk. They ranged in age from 18 to 85 years of age. Information was gathered on content, value of information, other areas of interest for content, and general comments about the programming. IHS Clinic front desk staff distributed and collected the surveys and returned them to Aberdeen IHS Headquarters. The completed surveys were sent to the Center for Rural Health at the University of North Dakota for analysis. Seventy-eight percent of participants indicated they had watched GoodHealth TV that day. Seventy percent indicated they received new information. Over 45% spent over one hour in the waiting area. GoodHealth TV makes use of a previously missed health education opportunity while patients are in IHS waiting areas. More culturally appropriate health education materials are needed for programming.

Hello my name is Sierra Davis and I am an enrolled member of the Mandan, Hidatsa, & Arikara Nation. I have been a research assistant for Dr. Jacqueline Gray over the past two years as a McNair and REFUNDU Scholar, working on the Good HealthTV evaluation project. I have interned under the supervision of Dr. Jessica White Plume with the Sunka Wakan Ah-ku (Bringing Back the Horses Program) out at the Spirit Lake Dakota reservation. I am currently working on my undergraduate degree, majoring in psychology and Indian Studies with a minor in nonprofit leadership. I plan to attend graduate school and work in the area of health policy and pursue ethical research with American Indian communities.

Mentor: Dr. Jacqueline Gray is assistant professor at the Center for Rural Health at the University of North Dakota (UND) School of Medicine and Health Sciences. Dr. Gray works with several projects including the UND Campus Suicide Prevention Project, the Northern Plains Native American Research Center for Health (NARCH) Mood Disorder Assessment Validation Study with Northern Plains Indians, the North Dakota State Epidemiology Outcomes Workgroup (SEOW) on Substance Use, the Idea Network for Biomedical Research Excellence (INBRE) Cankdeska Cikana Community College (CCCC; Spirit Lake) Research Capacity Building and the UND American Indian Research Forum. Dr. Gray is from Oklahoma and of Choctaw and Cherokee descent. She has worked with tribes in throughout Indian Country over the past 25 years in the areas of health, education, counseling, and program development. She also has experience in medical research at the Oklahoma Health Sciences Center in Oklahoma City and at the Norman Regional Hospital. Dr. Gray worked for over 8 years providing counseling, assessment, and program development services through the Creek County Health Department in Oklahoma. She came to North Dakota in 1999 as a visiting professor in the UND Department of Counseling. In 2001, she became a post-doctoral fellow at the Grand Forks Human Nutrition Research Center of the USDA Agricultural Research Service.
Hello, my name is Amber Rainbow Woman Annis-Bercier and I extend to you my hand with a good heart. I am Mnicoujou/Itazipco Lakota and German from Russia as well as English. I was born on the Cheyenne River reservation in South Dakota.

I am the President of the Indian Studies Association here at UND. I will be graduating this coming May with my B.A. in History and Indian Studies. I have recently been accepted to the University of North Dakota’s graduate program in History for my M.A. I will be pursuing my PhD in History, with my emphasis focusing on American Indian history, and after I hope to teach American Indian Studies at the college level.

*Mentor: Birgit Hans* has been a member of the Indian Studies Department at UND since 1991. Her specialty is American Indian Literature and oral traditions, but she also teaches writing and history courses and has an interest in popular literature. As a former German citizen, she is interested in, and has conducted long-term field research on European perceptions of American Indian cultures. Dr. Hans is also interested in historical and contemporary quilting, particularly star quilts.

Dr. Hans has published extensively on D’Arcy McNickle, including a collection of his unpublished short stories, called The Hawk is Hungry. Other publications include papers in studies in American Indian Literatures, the North Dakota Quarterly, and studies in the wester, as well as various edited collections. Her newest book D’Arcy McNickle’s the Hungry Generations: The Evolution of a Novel, was released by the University of New Mexico press in spring of 2007.

**Abstract**

When one begins their education in any public system in the United States one of the core areas they are taught is History. The learning of any historical era begins at an early age and a part of that is the introduction of American Indian history. The education that a young child receives of American Indians is full of misconceptions and stereotypes and often keeps the image of Native people as only existing in the past. For this research project I examined the type of history that is taught in the public school systems regarding Native peoples and how these stereotypical and archaic lesson plans only perpetuate misconceptions and lead to one of the biggest issues that face Indian people today, which is the lack of knowledge that non-Indians have about Native people.

The research involved studying lesson plans on American Indian history, studying history text books that are used in the school system and using scholarly sources that address the issues of children’s education today. The goal of this research is to gain a greater understanding of why the original inhabitants of this land are taught about in mere fragments once children enter school and why the teachings continue to represent American Indians as people of the past.
Jason Champagne

A Literature review of American Indian diets

Major:
Community Nutrition

Mentor:
Jaqueline Gray, Ph.D.

Graduation date:
May 2011

Abstract
Current issues that are major concerns on American Indian reservations these days are problems regarding obesity, diabetes, and coronary heart disease. These health problems have led to increased medical and prescription costs throughout these reservations. A literature review of American Indian diet research will identify certain nutritional habits that may have contributed to current medical problems. It will also show gaps in the research that may need to be addressed. Literature searches using Pubmed, and Scopus will be conducted for research addressing the diets of American Indians to identify a traditional diet and the modern American Indian diets. Searches will include foods that are indigenous to certain tribes, the current health concerns on reservations, and details of foods supplied by commodities to reservations.

Hello, my name is Jason Champagne, I grew up in eastern Kansas most of my life, and I am a member of the Red Lake Band of Chippewa out of Minnesota. After graduating from Baldwin High School, I attended Haskell Indian Nations University, obtained a Liberal Arts degree, and graduated Magna Cum Laude. From there I pursued a lifelong dream of mine and attended Le Cordon Bleu Culinary Arts School in Minneapolis, MN to become a chef. Upon graduation requirements, I participated in a college program internship at Walt Disney World where I gained 2 years of culinary experience. I am currently a junior studying Community Nutrition and Indian Studies, and am planning on beginning work on a senior thesis this summer. I am a participant of the Multicultural Scholars into Dietetics Program at UND.

Upon graduating from UND, I plan to pursue a Master’s degree in Public Health and a PhD in Epidemiology. My long term goals include serving current nutrition and diabetic programs in existence; and helping to identify additional funding through federal grant sources aimed at developing and implementing diabetes and obesity programs that are tailored for Native American populations.

Mentor: Dr. Jacqueline Gray is assistant professor at the Center for Rural Health at the University of North Dakota (UND) School of Medicine and Health Sciences. Dr. Gray works with several projects including the UND Campus Suicide Prevention Project, the Northern Plains Native American Research Center for Health (NARCH) Mood Disorder Assessment Validation Study with Northern Plains Indians, the North Dakota State Epidemiology Outcomes Workgroup (SEOW) on Substance Use, the Idea Network for Biomedical Research Excellence (INBRE) Cankdeska Cikana Community College (CCCC; Spirit Lake) Research Capacity Building and the UND American Indian Research Forum. Dr. Gray is from Oklahoma and of Choctaw and Cherokee descent. She has worked with tribes in throughout Indian Country over the past 25 years in the areas of health, education, counseling, and program development. She also has experience in medical research at the Oklahoma Health Sciences Center in Oklahoma City and at the Norman Regional Hospital. Dr. Gray worked for over 8 years providing counseling, assessment, and program development services through the Creek County Health Department in Oklahoma. She came to North Dakota in 1999 as a visiting professor in the UND Department of Counseling. In 2001, she became a post-doctoral fellow at the Grand Forks Human Nutrition Research Center of the USDA Agricultural Research Service.
Efficacy of Accell siRNA’s to knockdown cofilin and ADF in Neurons

Major: Biology

Mentor: Peter Meberg, Ph.D.

Graduation date: December 2010

Abstract
Neurons have specialized regions called growth cones, the growing tips of axons and dendrites. These growth cones contain actin filaments, which help maintain growth cone morphology and motility. Cofilin and actin depolymerizing factor (ADF) are also present in growth cones, and regulate actin polymerization. It is also known that over expression of cofilin/ADF causes an increased rate of outgrowth. It is not yet known what the effects of decreased cofilin/ADF are on actin filaments and growth cone dynamics. Preliminary studies of reduced cofilin in the neuron show an increase in growth cone collapse and fewer filopodia, but only a 50% knockdown of cofilin was achieved. Cofilin and ADF may have individual roles as well as overlapping roles. What effects they have when knocked-down individually, as well as together on growth cones is not yet known. To determine this, we used a new delivery system that uses Accell siRNAs to knockdown cofilin/ADF levels in cultured rat cortical neurons. This new system does not require transfection reagent, is a cleaner method and has less toxicity. The Accell siRNAs resulted in a 90% knockdown of cofilin and a 70-90% knockdown of ADF, as determined by western blots. A timecourse was also performed, its results showed that day three neared maximum knockdown, but day four was the maximum day for cofilin/ADF knockdowns. We also determined if there were any compensatory effects in cofilin expression or phosphorylation if ADF was knocked down and vice versa, but it appeared that there is not much compensation for either protein. The Accell siRNA delivery method is a more effective that previous methods used.

Hello, my name is Renee Beausoleil. I am currently a senior at the University of North Dakota. I am a biology major, currently working in the neuroscience field. Before transferring to the University, I received my associate degree in Liberal arts from Lake Region State College in Devils Lake, North Dakota. My current field of study has been very enlightening. My mentor Dr. Peter Meberg, has allowed me to explore many possibilities by working in his laboratory. My current project on growth cone morphology is very interesting yet complex. This research will allow myself, as well as others, to explore and get an enlightening sense of how basic neurons can function after injuries. Can neurons regain function and how, or does the neuron ever fully recover at all.

Mentor: Peter Meberg, Ph.D., completed his B.S. in 1982 at the University of North Dakota, his M.S. (1990) and Ph.D. (1993) at Northwestern University. He was a Postdoctoral Fellow at Colorado State University. He is currently an Associate Professor of Biology. His general interests include: molecular and cellular neurobiology, neural plasticity, and regulation of the actin cytoskeleton. Current projects: a) the function of ADF/ cofilin in growth cones, and b) changes in actin and actin-binding proteins related to seizure-induced mossy fiber sprouting, using a proteomics approach.
Hello my name is Shea Thomas. I am currently a junior at the University of North Dakota. I am from Mandan, North Dakota. This is my first year as a McNair Scholar and I am very excited about my research in the social psychology area. I plan to attend graduate school for psychology and law and obtain my PhD/JD. In my free time I enjoy going to sporting events such as, football hockey, and basketball. I also enjoy spending time with my friends and visiting my family.

**Mentor: Cheryl Terrance, Ph.D.,** is an Assistant Professor in the Psychology Department at the University of North Dakota. She received her Ph.D. at Carleton University, Ottawa, Ontario Canada. Dr. Terrance’s research interests include social psychological issues in relation to law, gender issues, and discrimination in the court room. She teaches courses in social psychology, forensic psychology, and statistics.

**Abstract**
This study investigated perceptions of a sexually ambiguous interaction within the context of a professor-student relationship. Participants (N=135) were randomly assigned to read one of four vignettes that varied both the gender of the professor and the student. Following the vignette, participants responded to a number of questions assessing their perceptions of the interaction. Preliminary results indicated that participants were less inclined to view the interactions involving the male student as sexually harassing. As well, participants were less likely to rate the interactions involving the female as opposed to the male professor as serious. In addition, participants were more inclined to suggest that the student confront the professor and department head when the professor was male rather than female. Implications are discussed.
model PVAc were 39°C and 34°C respectively. The literature Tg value for PVAc is 38-40°C. Also the Tg of vinyl acetate copolymerized with vinyl propionate in weight proportions of 1 to 2 and the Tg of vinyl acetate copolymerized with vinyl butyrate in weight proportions of 1 to 2 and 1 to 3 were determined. The Tgs were 19 °C, -14 °C, and -16 °C respectively. The experimental procedure is thus far promising. However, more data points will be taken for a complete statistical analysis. The second phase of the research will involve studying the reaction kinetics, tensile strength, and molecular weight of PVAc and the copolymers generated.

Polyvinyl acetate is an important and a highly versatile polymer. Some of its applications include adhesives, shoes, and coatings. The monomer, vinyl acetate is often copolymerized with acrylic monomers.

Hello my name is Mohamud Ahmed and I am a chemical engineering student at UND. I am originally from Somalia and have lived in the USA for the past 10 years. I went to high school in Minneapolis, MN where I have lived most of the time I have been in the USA. I have been a member of the McNair program since October 2007. In the summer of 2008, I started working on research for Dr. Brian Tande and Dr. Edward Kolodka. My research involves developing bio-based polyvinyl acetate. Working on this research has been a learning experience for me. The research helped me grow and learn more about the field of chemical engineering. Upon graduating next year, I plan on continuing with a graduate degree here at UND. On my spare time, I like to play soccer, ping pong, and pool.

Mentor: Brian Tande, Ph.D., received his B.S. in Chemical Engineering and Chemistry from the University of Minnesota in 1998 and his Ph.D. from the University of Delaware in 2002. Dr. Tande is currently an Assistant Professor in the Department of Chemical Engineering. His Current research interests are working with bio-based polymers and transport in polymers system.

Mentor: Edward Kolodka, Ph.D., received his B.S. in Chemical Engineering from the University of North Dakota in 1996 and his Ph.D. from McMaster University in 2002. Dr. Kolodka is currently an Associate Professor in the Department of Chemical Engineering. His Current research interests include: polymer reaction engineering, synthesis and rheological and mechanical properties of novel polyolefins and biodegradable polymers.
**Abstract**

Hymenopteran Communities in Fragmented Prairie Biomes

The prairie biome in North America has been fragmented considerable by anthropogenic land use in the last 100 years. This fragmentation causes habitat loss and leaves small pockets of native prairie surrounded by disturbed landscapes. How the biota of native prairies respond to habitat loss through fragmentation and land use will be analyzed by studying hymenopterans found in prairie fragments. Hymenopterans were trapped using pitfalls, sweep nets, and malaise traps, at 20 native prairie fragments in western Minnesota and eastern North Dakota in the summer of 2004. The hymenopterans were sorted to morphospecies, based on distinctive morphological differences. Currently 17% of the alcohol samples for the prairie fragments have been sorted; the other trap types have not been examined yet. I have sorted 2205 individual hymenoptera into 20 different morphospecies. Hymenopteran abundance and diversity was calculated for a small sample size of n=5, and found that Clinton Prairie has the greatest diversity of hymenopterans and Glynn Prairie has the greatest abundance seen thus far. Further research with a bigger sample size will produce more robust measurements of diversity and abundance. Degree of nestedness will be tested to see if the patch area is related to the number of species present in the patch. If there is a positive correlation to patch area and species diversity then surrounding landscape features do not need to be tested for nestedness, because it is explained by patch area. If there is no correlation seen in patch area and species diversity then landscape composition factors; such as shape, configuration and diversity, determined from aerial photographs, need to be considered for explaining the species diversity in these prairies.

**Hello, my name is Julia Beard.** I am from Watford City, ND. I am currently a senior at UND working towards my bachelors in Biology. This is my first year as a McNair Scholar and I am thrilled at the opportunities that have been presented to me through this program. My emphasis in biology is ecology and evolutionary studies, and I planned to attend graduate school for environmental science. After my graduate education I would like to obtain my PhD in biological science and focus on research. In my free time I enjoy camping and can be found most weekends during the summer fishing at a river or lake. I also enjoy traveling, rafting and canoeing, bike riding and spending time with friends and family.

**Mentor: Brett Goodwin, Ph.D.,** is an Assistant Professor in the Department of Biology. He received his bachelor’s degree from McMaster University, and later his Ph.D. from Carleton University in 2000. He has served as a visiting scientist and a postdoctoral research associate at the Institute of Ecosystem Studies, NY. He has also served as a visiting instructor at Okanagan University College, BC. His current research focuses on how landscape structure or spatial heterogeneity impacts individual behavior, population dynamics, and/or community structure.
Abstract
This research focuses on how American Indian ceremonial songs are used traditionally in both historical and contemporary ways to help people heal. The goal is to find different ways that American Indian ceremonial music affects healing. This will be a two stage process; the first stage consists of a literature review of different articles and books pertaining to the topic of American Indian ceremonial music and its effects on the healing processes. The second stage will consist of conducting personal interviews with many different American Indian singers, song makers, and spiritual leaders. Another component that I will explore will include listening to lectures about American Indian ceremonial music and its uses in the healing process. After the first stage of research is completed, a predetermined set of questions will be established for the personal interviews. These questions will be directed towards American Indian singers, song makers and spiritual leaders to find out what they think about the influence that American Indian ceremonial music has on healing processes.

After the information from both stages is compiled, it will ultimately increase the knowledge available concerning the influence and affect of American Indian ceremonial music.

Hau Mitakuyapi. My name is Robert ‘BJ’ Rainbow and I am from the Standing Rock, Turtle Mountain and Spirit Lake Nations. my Dakota name is Long Buffalo (Tatanka Hanska). I am currently a Junior/Senior at UND, I am double majoring in Criminal Justice and Indian Studies. I have been a McNair Scholor for about a year now and they have helped me with a direction in my career. After recieving my degrees from UND I plan on pursing my PhD. in Ethnomusicology, becuase my love for my traditions is very important to me. The culture of our people has been through a lot and was once barely hanging on by a thread, now I want to be apart of the revitalization process of learning and teaching our American Indian Music and songs.

Hau Mitakuya oyasin

Mentor: Birgit Hans has been a member of the Indian Studies Department at UND since 1991. Her specialty is American Indian Literature and oral traditions, but she also teaches writing and history courses and has an interest in popular literature. As a former German citizen, she is interested in, and has conducted long-term field research on European perceptions of American Indian cultures. Dr. Hans is also interested in historical and contemporary quilting, particularly star quilts.

Dr. Hans has published extensively on D’Arcy McNickle, including a collection of his unpublished short stories, called The Hawk is Hungry. Other publications include papers in studies in American Indian Literatures, the North Dakota Quarterly, and studies in the wester, as well as various edited collections. Her newest book D’Arcy McNickle’s the Hungry Generations: The Evolution of a Novel, was released by the University of New Mexico press in spring of 2007.
Elizabeth Luger

Alpha-1A Adrenergic Receptor Stimulation Reduces Anxiety in Mice

Major:
Psychology & Indian Studies

Mentor:
Van Doze, Ph.D.

Graduation date:
May 2010

Abstract

Norepinephrine (NE) is a neurotransmitter that when released can relay its actions on behavior such as anxiety. NE mediates its effects through the activation of adrenergic receptors (ARs). We examined the behavior of mice with an increased $\alpha_{1A}$ AR activation on the elevated zero and plus mazes. The results, when compared to wild type (WT) and knockouts (KO’s) of those AR’s, showed that mice with the constitutively active mutant $\alpha_{1A}$ adrenergic receptor (CAM $\alpha_{1A}$ AR) spent more time in the open sections. On the other hand, CAM $\alpha_{1B}$ AR did not spend significantly less time in the open than the wild type mice (data is not shown). This concludes that mice with overly expressed $\alpha_{1A}$ ARs were less anxious.

Hello my name is Elizabeth Luger and I am an enrolled member if the Turtle Mountain reservation. I am a senior at the University of North Dakota and major in Psychology and Indian Studies. I am particularly interested in the psychological health of American Indian people and certain issues that may be unique to them that mainstream psychologists often don’t have reasons to delve into. Another aspect of psychology that is fascinating to me is autism and other pervasive developmental disorders. I acquired this interest recently while taking a behavior modifications course at UND and other experiences I have had the pleasure to have. My research is also interesting to me because it ties in physiology with psychology. Our most recent research project in my lab has been investigating how the alpha $\alpha_{1A}$ adrenergic receptor modulates anxiety and depression in mice. I hope to learn more about all of these issues in graduate school which I hopefully will be attending in 2010 for clinical psychology.

Mentor: Dr. Van Doze received his Ph.D. degree in Molecular and Cellular Physiology and completed two postdoctoral fellowships in Neuroscience at Stanford University. Beginning in 2001, Dr. Doze and his laboratory have mentored forty undergraduate students in basic science research. Among these, nine have been American Indians, one Hispanic, and one Asian. While under Dr. Doze’s mentorship, these students/trainees have given more than seventy presentations at local/regional conferences, presented over thirty abstracts at national and international meetings, and received numerous research awards. This research has generated eight peer-reviewed publications, two papers in submission, and several additional manuscripts in preparation. Of the nineteen students who have since graduated, seven are in graduate school (two have already received their Ph.D. degree), five are in medical school, one has a M.S. degree and is in medical school, one in pharmacy school, two are lab technicians, and one is a high school science teacher.

Dr. Doze has two summer 2009 research projects. The first is studying Adrenergic Regulation of Neurogenesis & Cognition. Neurogenesis is the production of new nerve cells in the brain. Norepinephrine (NE), an endogenous neurotransmitter, may be involved in promoting neurogenesis through the activation of alpha $\alpha_{1A}$ adrenergic receptors (ARs). The goal of this project is to obtain additional evidence for a possible role of alpha $\alpha_{1A}$ ARs in adult neurogenesis. The second is RGS Proteins in alpha $\alpha_{2A}$ Adrenergic Receptor-Mediated Antiepileptic Actions. The long-term goal of this research is to identify new epileptic therapies by characterizing the effects of norepinephrine (NE) on epileptiform activity in the hippocampus, a cortical structure important for learning and memory and often involved in seizures.
Abstract

In this paper I examine the application of the concept of ‘revelation’ in Islam. The specific question that arises from this inquiry is whether ‘revelation’ is a static, concrete occurrence which is meant to color or, perhaps, govern future understandings of personal and social practices of religion or, if ‘revelation’ is evolutionary, its meaning and application evolves in the depth of understanding concomitant with its social and historical context. Islamic Feminist theologian Kecia Ali in her book, Sexual Ethics and Islam: Feminist Reflections on Qur’an, Hadith, and Jurisprudence, argues that ‘revelation’ is evolutionary in the particular sense that it permits a collective of religious practicing individuals to develop into the most full humans, or actualize the entire extent of the individual’s potential. Thus one may reinterpret certain aspects of Islamic Law judging it by the standard of its facilitation for the full development and growth of human beings. The feminist position on interpretation of Islamic Law and the role of ‘revelation,’ however, can be argued against by more conservative scholars. The crux of the issue is what does it mean to be fully human or a wholly integrated and developed being? A conservative scholar would argue that the full revelation of God came during the time of the Prophet of Allah and that the Prophet and his community were the best and most complete of humanity. So to assert that ‘revelation’ can be read in an evolutionary sense and in a way that threatens certain rulings or interpretations of Islamic jurisprudence requires a reinterpretation or renewed understanding of the original Islamic community. These competing viewpoints require the religious individual to make personal decisions about the intentions of God, the meaning of revelation, and the application of religious obligations.

Hello, my name is Austin Luebke. What has now become my project is centered on the notion of two different perspectives as to the nature of the telos, or purpose, of Islam. One’s conception of the telos of Islam, one could say, heavily influences, if not dictates, one’s interpretation of other important religious principles. These principles in Islam include: which supporting religious texts one aligns oneself with, which hermeneutical methods one aligns oneself with, interpretations of the first community, i.e. the Prophet and his Companions and so on. Thus, this paper concludes that Islamic Feminist Theologians allocate increased significance to the social justice and notions of equality implicit in the principles of Islam and the Qur’an. Islamic Feminist Theologians are typically challenged or dismissed by more conservative scholars. The scholars of whom I label ‘conservative’ however, do not necessarily oppose Islamic Feminist Theologians’ principles and interpretations on their own patriarchal principles. The conservative scholars on whom I focus are either Sufi or aligned with Sufis and therefore their conception of the telos of Islam is broader and more encompassing than the Feminists. This means that some Sufi scholars, who would be considered very conservative, oppose certain Feminist ideals and recommendations based on principles wholly unrecognized and unconsidered by the Feminist theologians whom I read. This does not mean the Islamic Feminist Theologians are necessarily wrong but, I argue, that this is the reason why some Feminist Theologians are quick to dismiss certain aspects of Islam and is the reason why some conservative scholars are quick to dismiss aspects of Islamic Feminist Theology. One’s conception of the ultimate telos in Islam can account for some of the discrepancies between these scholars and affects how one identifies and practices the religion and so on.

Currently, I am deciding among Master of Arts programs in Religious Studies at the University of Chicago, the University of Washington, and the University of Georgia. At this particular moment in time (meaning as I write this), I plan to study Arabic, Islamic mysticism, and comparative philosophical theology. In my spare time I search for religious truth and play internet flash games.

Mentor: Gayle Baldwin is an Associate Professor in the Philosophy and Religion department. She holds a Ph.D. in Religious Studies from Marquette University. Her research area is sex, gender, religion and race. Her current research project is Black Butterfly: Religious Responses to the Murder of Sakia Gunn which examines race and homophobia in the Newark, New Jersey community and the increased awareness of the link between homophobia, religion and violence.
Hello, My name is Matthew Fahrenbruch. I was born and raised in Colorado, but I currently live with my wife Melissa in Gilby, ND. Before moving to North Dakota, my wife and I spent 2 years in Southern Nevada where I earned my associates degree across the border at Dixie State College in St. George, Utah. In 2006 we moved to North Dakota to escape the economic and housing crisis that would soon plague the west including Nevada. I entered UND in Fall 2008.

My major is Environmental Geography with a minor in Biology. Some of my academic interests are: developing green building strategies that are tailored to specific climates, and assessing the perceived value of natural areas by people, based on their proximity to those areas and the amount of time they spend utilizing them (recreation). I am also growing increasingly interested in environmental management and how our federal and state agencies might manage public lands more efficiently and more effectively.

After I graduate, I plan on applying to graduate school where I will most likely further my studies in geography concentrating on the fields of conservation and sustainable development. As can be seen by my interests above, I have an interest in keeping our green spaces green, and making sure that we do not destroy our resources in the name of development. My graduate study will most likely be related to these interests. Graduate schools I am currently considering include: The University of New Mexico, Northern Arizona University, Utah State University, and The University of North Dakota.

After graduate school I would like return to the west where there are boundless opportunities to satisfy my appetite for the outdoors. Two career paths I can see myself taking are: working in the management and conservation of our public land through the development of land use policy and programs, or working to increase the use of green building techniques in our urban and suburban areas through the development of green building strategies and policy.

Abstract
Tanacetum vulgare (Common Tansy) is an invasive plant species that has an impact on grassland ecosystems throughout North America. In prairie restoration projects such as Woodside Prairie Restoration Site in Northwest Minnesota, Common Tansy is spreading and out-competing native species for space and resources, thereby undermining efforts to rehabilitate the area. Unfortunately, because of insufficient labor, time, and monetary resources, land managers are the underdogs in this fight. Remote sensing offers an opportunity to level the playing field by providing spatial data on Infestations without the time and labor commitment of mapping in the field. To conduct this study, aerial imagery of the study site was collected by the UND Upper Midwest Aerospace Consortium with their AEROCam system in Summer 2009. The AEROCam imagery has 1m and 0.25m spatial resolution. Green, red, and near-infrared bands were collected and used to produce false-color composites. The 1m resolution data were geo-referenced to a 2004 Farm Service Agency digital aerial photo of the study site. The 0.25m data were then registered to the 1m AEROCam data. A mosaic of the 0.25m imagery was then produced. Once the mosaic was created a supervised classification was developed using field data, including notes and GPS points. All image processing was done in ERDAS Imagine 9.3 (Leica Geosystems, Atlanta, GA). After the classification was done, it was loaded into ArcGIS 9.3.1 (ESRI, Redlands, CA) and a map was designed. The results of this study suggest that land infested with Tansy accounts for approximately 24.6 acres out of a total of 299.1 acres in the Woodside study site, or approximately 8% of the total land area.

Mentor: Dr. Bradley Rundquist, Ph.D., an Associate Professor in the Department of Geography, received his Ph.D. from Kansas State University in 2000. His master’s was completed at Kansas State in 1995 and his bachelor’s at the University of Nebraska-Lincoln in 1991. In 1995-96, he worked as an associate scientist for Lockheed Martin at the NASA Johnson Space Center supporting the Human-Directed Earth Observations (astronaut photography) program. Dr. Rundquist teaches remote sensing, geographic information systems, and physical geography courses. His research interests are spatial and temporal variation in vegetation dynamics, vegetation response to climate change, environmental remote sensing and modeling with geographic information systems, and proximal environmental remote sensing. Dr Rundquist, who has been at UND since August 2000, holds adjunct appointments in the departments of Space Studies and Earth System Science and Policy.
Norepinephrine, through activation of $\alpha_{1A}$ARs, stimulates the production of new neurons, leading to alleviation of depression and anxiety.

**Major:**
Chemistry

**Mentor:**
Van Doze, Ph.D.

**Graduation date:**
May 2010

**Abstract**

Norepinephrine (NE) has been strongly implicated in anxiety and depression and works through activation of adrenergic receptors (ARs). A number of antidepressants increase NE in the brain and also have been shown to increase neurogenesis, the birth of new neurons. Two $\alpha_1$AR subtypes, $\alpha_{1A}$ and $\alpha_{1B}$, regulate neurogenesis with over-activation of the $\alpha_{1A}$ AR subtype causing increased neurogenesis. However, the behavioral effects of this increase have not been fully examined. In this study, we examined the depression and anxiety behavior in mice with an overactive form of the $\alpha_{1A}$AR (CAM $\alpha_{1A}$AR), mice with no $\alpha_{1A}$AR ($\alpha_{1A}$AR KO), and wild type mice. We used three validated models for depression and anxiety in mice: the Tail Suspension Test, Marble Burying Test, and Light Dark Exploration. The CAM $\alpha_{1A}$AR mice showed a significant decrease in depression and anxiety behaviors while the $\alpha_{1A}$AR KO performed similarly to the wild type animals. The results suggest that activation of $\alpha_{1A}$ARs, and the subsequent increase in adult neurogenesis, may be one mechanism of alleviating depression and anxiety behaviors.

Hello my name is Katie Collette and I’ve lived in Grand Forks since 1997 with my son, Kurt, who is 14 years old. I am currently a Senior in the Chemistry program at UND. I will graduate in August 2010 with a major in Chemistry (Health Sciences emphasis) and Minors in Psychology and Visual Arts. I will be pursuing doctoral work in Pharmacology, Physiology, and Therapeutics (PPT) here at UND starting in August. My career plans are to perform biomedical research on the neurobiology of mental illness. In my spare time, I like watching movies and hanging out with my son, knitting with friends, cooking, and reading books when I have the time.

**Mentor:** Dr. Van Doze received his Ph.D. degree in Molecular and Cellular Physiology and completed two postdoctoral fellowships in Neuroscience at Stanford University. Beginning in 2001, Dr. Doze and his laboratory have mentored forty undergraduate students in basic science research. Among these, nine have been American Indians, one Hispanic, and one Asian. While under Dr. Doze’s mentorship, these students/trainees have given more than seventy presentations at local/regional conferences, presented over thirty abstracts at national and international meetings, and received numerous research awards. This research has generated eight peer-reviewed publications, two papers in submission, and several additional manuscripts in preparation. Of the nineteen students who have since graduated, seven are in graduate school (two have already received their Ph.D. degree), five are in medical school, one has a M.S. degree and is in medical school, one in pharmacy school, two are lab technicians, and one is a high school science teacher.

Dr. Doze has two summer 2009 research projects. The first is studying Adrenergic Regulation of Neurogenesis & Cognition. Neurogenesis is the production of new nerve cells in the brain. Norepinephrine (NE), an endogenous neurotransmitter, may be involved in promoting neurogenesis through the activation of $\alpha_{1A}$ adrenergic receptors (ARs). The goal of this project is to obtain additional evidence for a possible role of $\alpha_{1A}$ARs in adult neurogenesis. The second is RGS Proteins in alpha$_{2A}$ Adrenergic Receptor-Mediated Antiepileptic Actions. The long-term goal of this research is to identify new epileptic therapies by characterizing the effects of norepinephrine (NE) on epileptiform activity in the hippocampus, a cortical structure important for learning and memory and often involved in seizures.
Abstract
The research conducted for the Ronald E. McNair Program is related to the field of Educational Leadership. The intent of this research project is to better understand the outcomes associated with serving as a traveling consultant for a social fraternity or sorority. The results of this research project further the literature related to involvement with social fraternities and sororities. More specifically, this study will add to the literature as little is known about the impact service as a traveling consultant has on an individual's eventual career choice.

Data for this study will be collected via a questionnaire to be distributed to and completed by individuals who have previously served as traveling consultants for their fraternity/sorority. The data collected will provide:
1. A better understanding of the undergraduate experiences of individuals choosing to serve as traveling consultants.
2. Information regarding the skills gained from serving as a traveling consultant.
3. Information regarding the eventual choice of profession of individuals who have served as traveling consultants. Results will provide a better understanding of the leadership skills, professional interests, and alumni involvement of individuals who have served as traveling consultants for their fraternity or sorority.

Hello, my name is Matthew Munoz, from Arvada, Colorado. I will be graduating with a double major in the fields of Communication and Graphic Design Technology and will receive an Entrepreneurial Certificate from the College of Business. During my time at the University of North Dakota, I have been a part of Delta Tau Delta fraternity as well as the Ronald E. McNair Program within TRIO programs. Using both to conduct research in regards to traveling chapter consultants within social fraternities and sororities, I have the opportunity to work within my organization as a consultant to better understand the experiences and opportunities of the profession. My focus is to survey current and previous consultants to gauge their experiences which led them into the profession and determine whether or not the position would lead them to work in the field of higher education.

I plan on spending two years working for my fraternity before returning to the University of North Dakota to work towards earning a Masters degree and eventually a doctorate in the field of Educational Leadership. My overall goal is to one day work with students through a setting such as a Memorial Union or within the field of Student Involvement on a college campus.

Mentor: Cassie Gerhardt, Ph.D., currently serves as the Program Director for Student Involvement in the UND Memorial Union. Cassie graduated from UND in 1996 with a Bachelor of Arts Degree in Political Science and a Bachelor of Science Degree in Secondary Education. In 1999, she earned a Master’s Degree in Counseling and Student Personnel from Oklahoma State University and in 2008, she earned a Doctor of Philosophy Degree in Educational Leadership from UND.

Mentor: Margaret Healy, Ph.D., Professor in Educational Leadership, came to the University of North Dakota in 2003 after a career as a university administrator. Her research interests include college students and how colleges and universities make a difference for students. She holds the B.S. from St. Cloud State University, M.A. from the University of Iowa, and the Ph.D. from Iowa State University.
Ronald Erwin McNair, was born on October 21, 1950, in Lake City, South Carolina to Carl and Pearl McNair. He attended North Carolina A&T State University in Greensboro, where, in 1971, he graduated magna cum laude with a BS degree in physics. In 1976 he earned his Ph.D. degree in physics from the Massachusetts Institute of Technology.

Dr. McNair’s many distinctions include: Presidential Scholar (1967-71), Ford Foundation Fellow (1971-74), and National Fellowship Fund Fellow (1974-75). He was also named Omega Psi Phi Scholar of the Year (1975), was honored as the Distinguished National Scientist by the National Society of Black Professional Engineers (1979), and received the Friend Of Freedom Award (1981).

Ronald E. McNair was nationally recognized for his work in the field of laser physics. In 1978, he was one of 35 applicants selected from a pool of ten thousand for NASA’s space shuttle program and assigned as a mission specialist aboard the 1984 flight of the shuttle Challenger. On his first space shuttle mission in February 1984, McNair orbited the earth 122 times aboard Challenger. He was the second African American to fly in space.

In addition to his academic achievements, he received three honorary doctorates and numerous fellowships and commendations. He was also a sixth degree black belt in karate and an accomplished jazz saxophonist. He was married to Cheryl Moore and had two children, Reginald Ervin and Joy Cheray.

On the morning of January 28, 1986, McNair and his six crew members died in an explosion aboard the space shuttle Challenger.

“Whether or not you reach your goals in life depends entirely on how well you prepare for them and how badly you want them. You’re eagles! Stretch your wings and fly to the sky.”

Ronald E. McNair Tribute

Worlds of words cannot capture and describe the honor it is … to be part of the Ronald McNair Post-Baccalaureate Achievement Program, named for a monument of a man who achieved what only most can dream - to set sight upon the stars … and to depart this mysterious journey to become one as bright: a beacon in the night shining for Eternity.

Challenger, then, is our name.
To challenge and trailblaze toward unknown horizons with pieces of dreams our guide.
It is Pride … a key component of the whole.

To be so full of Life, Hope, and Promise for tomorrows … these are the moments our finest leaders show us … and then depart, leaving an added component to guide us.

Embracing and departing.
Us … to us.

Words come and go and take flight upon the winds that blow. A glorious, unrelenting wind called Challenger … blows through North Dakota.

We can fly … and become stars … after all.

(Diane Skowronski)
McNair Alumni