Thank you for attending the 21st Annual McNair Forum

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The McNair Program is one of five federally funded TRIO Programs sponsored by the United States Department of Education at the University of North Dakota. UND’s Ronald E. McNair Program receives 100% of its $243,000 annual budget from the Department of Education.

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It is the policy of the University of North Dakota that there shall be no discrimination against persons because of race, religion, age, creed, color, sex, disability, sexual orientation, national origin, marital status, veterans’ status; or political belief or affiliation, and the equal opportunity and access to facilities shall be available to all. This policy is particularly applicable in the admission of students in all colleges and in their academic pursuits. It also is applicable in University-owned or University-approved housing, food services, extracurricular activities and all other student services. It is a guiding policy in the employment of students either by the University or by non-University employers through the University and in the employment of faculty and staff.

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21st Annual McNair Forum

Ronald E. McNair
Postbaccalaureate Achievement Program

April 16th, 2015
# 2014-15 McNair Scholars and Mentors

**Krystal Badillo**
Major: Psychology  
Mentor: Kyle DeYoung  

**Tara Boland**
Major: Physics  
Mentor: Yen Lee Loh  

**Beth Bray**
Major: Psychology  
Mentor: John-Paul Legerski  

**Trevor Champagne**
Major: Biology  

**Matthew Cookman**
Major: Psychology  
Mentors: Jeff Weatherly & Ric Ferraro  

**Jason Cooper**
Major: Criminal Justice  
Mentor: Wendelin Hume  

**Shelley Davis**
Major: Physics  
Mentor: Tim Young  

**Becca Devine**
Major: Biology  
Mentor: Rebecca Simmons  

**Anthony Garnett**
Major: Psychology  
Mentor: Adam Derenne  

**Dylan Gott**
Major: Banking & Financial Economics  
Mentor: David Flynn  

**Tiffany Huwe**
Major: Biology  
Mentor: Kathryn Yurkonis  

**Manna Khan**
Major: Geography  
Mentor: Christopher Atkinson  

**Dana McVeigh**
Major: Anthropology  
Mentor: Melinda Leach  

**Kayla Michelson**
Major: Biology  
Mentor: Diane Darland  

**Gavin Nadeau**
Major: American Indian Studies  
Mentor: Birgit Hans  

**Roy Roach**
Major: Communication  
Mentor: Kim Cowden  

**Sashay Schettler**
Major: History/Education  
Mentor: Birgit Hans  

**Leah Smith**
Major: Elementary Education  
Mentor: Meghan Salyers  

**Feather Tapio**
Major: Psychology  

**La Jaun Willis**
Major: Philosophy & Religion  
Mentor: Pamela Kalbfleisch  

**Leslie Yellow Hammer**
Major: Biology  
Mentor: Kathryn Yurkonis  

* 2014-2015 Graduates

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**Notes**
Ronald E. McNair Postbaccalaureate Achievement Program

The Ronald E. McNair Postbaccalaureate Achievement Program at the University of North Dakota is a program within the Division of Student Affairs, funded by the United States Department of Education. Program participants are undergraduates, juniors, or seniors, who are first generation and low income, or who are from a group underrepresented at the doctoral level of the targeted departments. The McNair Program encourages students to prepare for graduate studies by providing opportunities to define goals, engage in research, and to develop the skills and student faculty mentor relationships vital to success at the doctoral level.

Program Benefits:
• Faculty mentor/student relationship established.
• Research skills developed both library and laboratory.
• Personal and emotional counseling.
• GRE preparation.
• Aid in graduate school admissions.
• Research stipends.
• Tutoring and support group involvement.
• Assistance in securing appropriate financial aid.
• Academic advisement.
• Various seminars and workshops related to graduate education.
• Conference travel and possible graduate school visitation.
• Tuition assistance

Federal TRIO Programs:
The Federal TRIO Programs are educational opportunity outreach programs designed to motivate and support students from disadvantaged backgrounds. TRIO includes six outreach and support programs targeted to serve and assist low-income, first-generation college students, and students with disabilities to progress through the academic pipeline from middle school to postbaccalaureate programs.

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
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.”

Dr. Ronald E. McNair
October 21, 1950 - January 28, 1986

McNair Research Presentations

Please evaluate the oral presentations - und.edu/mcnair/
Hello, my name is Jason Cooper. I was born in Phoenix, but I was a military brat, so I grew up everywhere. I have lots of panache and free spirit and I enjoy reading, running, and skydiving. I am pursuing a double major in Criminal Justice and Sociology. After completing my undergraduate, I intend to continue my education by obtaining a Master’s degree in Sociology either at North Dakota or Montana and then obtaining a Ph.D. in Criminal Justice either at Arizona State or Florida State. In addition, I intend to continue, finish, and publish my own academic research that I started with the McNair Program. Eventually, I intend to work as a homicide investigator and then for INTERPOL.

Mentor: Wendelin Hume, Ph.D., Associate Professor (and former Chair for over a decade) in the Department of Criminal Justice as well as an Affiliate (and former Director for nearly a decade) of the Women and Gender Studies Program; received her B.S. from Black Hills State University, and her M.S. and Ph.D. from Sam Houston State University in Huntsville, TX. She grew up on the Anishinaabe Reserve near Sioux Narrows Ontario Canada where she developed an interest in Justice and Equity first-hand, since there often was a lack of it. She has been teaching at UND for nearly 25 years. She is a Professor, internship coordinator and advisor in both the undergraduate and Ph.D. programs in Criminal Justice, and she is an advisor for the CJ Honor Society (Alpha Phi Sigma) as well as the Native Americans into Criminal Justice Association (NACJA). Her research and teaching interests include Victimization, Tribal Justice, Gender & Racial Equity, Cybercrime, Drug Policy and Criminological Theory.

Serial Killers: Dispelling the Spell of Myths

Abstract
Society is rife with myths about serial killers. The relationship between serial killers and the court of public opinion is one that has spanned centuries and divided opinion. Everyone has an opinion on the subject and most of those opinions seem to stem from popular culture. Serial killing is a big and profitable business. Unfortunately, the business is not so much concerned with truth and accuracy as it is with selling the material for as much as possible. In the public spectrum of imagination, serial killers tend to fit a specific stereotype. As a result, most of what we like to believe we know about serial killers is inaccurate, anecdotal information, and fictional portrayals.

Contrary to popular belief, serial killers do not hunt just any prey. They often put a lot of thought and consideration into hunting their prey. While there are more vulnerable prey - women, prostitutes, homosexuals, etc. - that in no way means they are the only prey or that they are hunted simply because they were “at the wrong place, at the wrong time.” Serial killers erase all status lines as, at some point, someone from nearly every walk of life has become prey. Serial killers hunt prey based on their own criteria, if you will, and not just because some unfortunate soul crossed paths with them.

My research into common myths regarding serial killers allowed me to dispel the myths through further research and case analysis of 12 randomly selected known serial killers. My research will avoid the glamorization and psychobabble because it is important for the public to become aware of and concerned about this diabolical class of murderers. My research will also highlight some advancements in research, which has led to a better understanding of serial killer traits and motives.
Vortices and Hysteresis Loops in Thin Film Superconductors

Tara Boland

Major: Physics  Graduation date: Dec 2015

Abstract
There are two types of superconducting states, each with their own special properties. A superconductor is a material which below a certain critical temperature exhibits properties such as zero electrical resistance and expulsion of magnetic fields. The complete expulsion of the magnetic field from the inside of a superconductor is known and the Meissner effect. This computational research focuses on Type 2 superconductors, which have two critical fields which mark the transition between the normal and superconducting state. This state transition is unique in the way that it allows for magnetic field lines to penetrate the superconducting material while still maintaining its superconducting state. The penetration of the magnetic field lines is called a magnetic vortex which can dissipate some the energy carried by the current in a superconductor. I will be simulating vortices induced by a magnetic dipole on the nan0-scale which form in a thin film superconductor with given initial conditions for the film. Using that data from the simulation a plot of the hysteresis loop with respect to the magnetic field and the dipole moments will be constructed.

Hello, my name is Tara Boland. I am a senior at the University of North Dakota. I am majoring in Physics with a Materials Science emphasis and a minor in mathematics. My scholastic interest has always been in the sciences, specifically microscopic. It has always amazed me how the world we live in and everything around us is made up of so many tiny atoms, which make the world work. My research is in superconductivity and more recently phononic crystals. My plans are to complete my undergraduate degree in Physics and apply to a Materials Science graduate program to study the properties of materials to further advance technology. After obtaining my Ph.D. I plan to continue my research in materials.

Mentor: Dr. Yen Lee Loh, is an assistant professor in the Department of Physics and Astrophysics at the University of North Dakota. He received his Ph.D. from the Cavendish Laboratory at Cambridge University in 2005. Prior to that, he received a BA (Hons) and MSci in Physical Natural Sciences, Trinity College, Cambridge University. After obtaining a Ph.D. he held postdoctoral research positions at Purdue University and The Ohio State University. Dr. Loh works on the theory of condensed matter systems, where the mutual interaction of large numbers of particles leads to interesting collective behavior. He is particularly interested in the production and detection of novel phases of strongly correlated fermions and bosons, in mathematical models, materials, and ultracold atomic gases. Magnetism, superconductivity, disorder, quantum criticality, and Coulomb blockade effects are recurring themes in his research. He employs analytical techniques as well as high-performance computing. He is also a musician and composer.
Abstract
We present observational data of the transiting extrasolar planet WASP-67. The data was collected with the CRUST (Crookston - UND Search Telescope) 16 inch Schmidt-Cassegrain telescope during 2014. A transit occurs when the planet crosses in front of the parent star and dims the light. The data collected is called a light curve, brightness versus time. We used a database of confirmed extrasolar transiting planets from professional search teams to determine the date and time of each transit. The discoveries of the transiting planets are conducted by other groups with telescope programs in very dark locations. We picked confirmed transiting planets that had optimal parameters to observe a transit with the CRUST telescope. The parameters included visibility of a full transit during the night of observations typically 1-3 hours, has a large detectable reduction in the brightness during the transit, and has a parent star that is bright. The data for WASP-67 was reduced with several software programs, including MaximDL. A technique of binning the data was required to sufficiently confirm a decrease in the light from the parent star. The resulting light curves confirmed that small telescopes in urban skies can detect extra-solar transiting planets.

Hello, my name is Shelley Davis. I am from New Town, ND. I returned to school in the fall of 2010 and spent some time figuring out what I wanted to do when I grow up and finally decided on majoring in Physics with an emphasis in the astrophysics area. I am currently working on research on extrasolar planets with my mentor, Dr. Tim Young. I will be graduating in May 2016 with a bachelor’s degree in physics and plan to continue on in pursuit of a doctorate in physics.

Mentor: Timothy R Young, Ph.D., is an associate professor in physics and astrophysics and director of the Forest River Observatory at UND. He received his Physics Ph.D. in 1994 from the University of Oklahoma and three B.S. degrees Physics, Math and Astronomy in 1985 from the University of Wisconsin-Madison. He had several postdoctoral positions, most notably an NSF-JSPS postdoctoral fellowship working at the University of Tokyo, Japan from 1995-1998. The two other postdocs were at Wichita State University (1994-1995) and University of Arizona (1998-2000). Current research involves observations and simulations of supernova explosions. In 2010 the NASA CHANDRA x-ray satellite found evidence for a black hole predicted by Dr. Young and his graduate students in 2005. Recently he has been involved with observations of extrasolar transiting planets using the CRUST telescope. He also does research in physics and astronomy education and is part of the North Dakota STEM network. In 2004 he started and continues to do live webcasing of eclipses and transits around the world. In 2009, he and collaborators started several professional development and curriculum projects involving Native Science and Western Science in planetarium domes.
Abstract
American Indians are less likely to earn high school degrees and be less successful in higher education (Brayboy, Fann, Castagno, Solyom, 2012). Additionally, American Indian students face unique cultural challenges when attending university (Creighton, 2007). The purpose of this project is to better understand issues associated with the retention rates of American Indian students in higher education.

Using a series of in-depth interviews with American Indian students at a mid-sized Midwestern university, findings suggest that American Indian students face different cultural barriers when working to succeed in a higher education environment.

Hello, my name is Roy Roach. I am a Communication major with a minor in Chinese Studies. I will be graduating this spring and plan to attend and continue my education at the University of North Dakota with a master’s in Higher Education. My passion is sharing experiences with audiences in hopes of inspiring them to be the best person they can be. I plan to make an impact in the field of education through public speaking and social entrepreneurship.

Mentor: Dr. Kimberly Cowden, is an assistant professor at the University of North Dakota where she instructs graduate and undergraduate courses in advertising, public relations, and health communication. Her research focus is health communication, risk and crisis communication and public relations research. She specializes in participatory action research methods working closely with American Indian communities.
Pollinator diversity and plant productivity response to changes in grassland diversity and pattern

Leslie Yellow Hammer

Major: Biology  Graduation date: May 2015

Abstract
In prairie restoration, there is growing evidence that plant patterning plays a key role in maintaining diverse communities. When the prairie community diversity is high, plant productivity and insect diversity also increase. There is a high volume of literature that examines insect diversity in response to prairie plant diversity, however, relatively few examines prairie plant community pattern effects on pollinator diversity and plant productivity. In this study, we specifically look at pollinator diversity and plant productivity response to changes in prairie plant community diversity and pattern. Our study site was the Mekinock Field station, where there was an established study site of prairie plant communities in varying degrees of richness and species pattern. The diversity went from 1, 2, 4, or 8 different species, and the planted pattern was clumped or random. We collected insects by using soap and water traps that were left out for 24 hours on days with no rain. We matched dish to flower color. Currently, we are analyzing insect presence, identity and abundance by both morphology and genetics. We expect to see pollinator diversity to increase with plots that have more flower species present, and plant productivity will be highest with plots with eight species.

Hello, my name is Leslie Yellow Hammer. I am a junior working towards obtaining my Bachelors of Science in Biology. I first started my college career by obtaining my Associate’s in Nanoscience technology. With this degree and lab experience, I knew I wanted to learn more and one day conduct my own research. McNair has provided the support and opportunities I need to succeed in graduate school to obtain this objective. Conducting research in the Grassland Ecology lab has added a new dimension to my learning at UND. I am excited and proud to share my research results today and build on them tomorrow.

Mentor: Dr. Kathryn Yurkonis, Assistant Professor of Biology, is a plant ecologist whose research broadly addresses how plant communities assemble and change over time. Projects primarily focus on effects of invasive species in grasslands and findings from current projects have applications for grassland restoration and management. Current research assesses the effects of species pattern on grassland biomass production and species invasion. In addition, Dr. Yurkonis and her students are investigating effects of plant-soil interactions on common range grasses in North Dakota. Students can choose from a variety of topics related to grassland plants and their interactions with other organisms.
Native American Women in the Fur Trade

Gavin Nadeau

Major: American Indian Studies
Graduation date: May 2016

Abstract
Native American women have often been overlooked and undermined in the upper Mississippi fur trade history. Women were not only cultural mediators, but they were also wives, mothers, and leaders to the incoming fur traders and their children. Many incoming fur traders relied on Native women for survival, inter-tribal connections, and guides. Although most have the preconceived notion that Native women had little-to-no role in the fur trade, their participation was a very crucial part for the survival and progression of the fur trade. Native women were producers, translators, and guides to the new to the area, Frenchmen. French fur traders first started trading with Native Americans in the 1500s along the northeastern coast of Canada. In 1608 the city of Quebec was established in Canada which expanded the fur trade. The proposed research will help the audience gain a better understanding about Native women and their roles, relationships, and activities in the upper Mississippi Fur Trade history.

Hello, my name is Gavin Nadeau. I was born and raised in the beautiful Turtle Mountains in Belcourt, North Dakota. I am currently on my second year at the University of North Dakota, and plan to graduate in the May 2016. I am majoring in Indian Studies and minoring in History. My overall goal in life is to be a mentor to students on the Reservation where I grew up. I want to be a part of the community and help students achieve their goals just as I have achieved mine. I plan on moving back to Belcourt after earning my Ph.D. in Indian Studies, and becoming a professor at the Turtle Mountain Community College.

Mentor: Birgit Hans, Ph.D., 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 latest 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

North Dakota is the number one producer of honey in the United States producing 64 million dollars due to honey. According to the United States Department of Agriculture, North Dakota is also the largest producer of apiaries with 146 as of August 2014. The North Dakota Pollinator Plan released data on the top problems that bee keepers will face which include mites, different viruses (including fungal and bacterial), colony collapse disorder (CCD), and pesticides. Pesticides are chemicals commonly composed of chlorine and glyphosate and other ingredients which help keep agricultural pests away from farmer’s crops and is a common practice in the United States. According to the Environmental Protection Agency (EPA), over 12 million dollars were used in pesticides in 2007. However, pesticides are causing adverse effects on the honeybee population in North Dakota. That is why I am proposing that we find a way to decrease bee loss and increase income coming into the state by introducing genetically modified crops.

Genetically modified crops have been controversial over the years due to some arguments that in decreases biodiversity, however, no one actually knows if this is true or not due to the lack of long term research. If pollinator ecologists could set up an area that is devoted to studying these differences and studying the effects on honeybees, then people could finally have an answer to this question. Monitoring the bees location and health during the pollination of the bees could be one possible way to see how the genetically modified crops effect the bees and then compare those numbers to organic crops and bee count.

It is apparent that something needs to be done to help one of North Dakota’s most important agricultural tools-the honey bee. One way that I propose is to study the introduction of genetically modified crops and interactions with honey bees. There is still controversy over genetically modified organisms and crops in the scientific community. The world is growing more every day so genetically modified crops may be the answer for feeding the expanding populations of people and possibly helping the honeybee population.

Hello, my name is Becca Devine. I am currently a junior at UND and majoring in Fisheries and Wildlife Biology. I was born and raised in Grand Forks, North Dakota. After I graduate from UND, I plan on going to graduate school and obtaining my Ph.D. in Entomology. What I plan to do with my Ph.D. is study the pollination of honeybees and how to help their populations increase. I would also love to be a professor and teach entomology and a basic biology courses. I enjoy practicing yoga, hiking, and being outdoors. I am so happy to start my research with my fabulous mentor Dr. Simmons. I am honored to be a part of such a prestigious program and ready to further my knowledge.

Mentor: Rebecca Simmons, Ph.D., Associate Professor of Biology, received her Ph.D. in 2001 from the University of Minnesota. Her research interests include: systematics of Lepidoptera, especially Tiger moths (Arctiidae) and Cutworms (Noctuidae), evolution of mimicry and courtship behaviors, and identification of pest species. She is interested in the evolution of mimetic tiger moths, members of the arctiid tribes Euchromini and Ctenuchini. One of Dr. Simmons long-range research objectives is to construct an evolutionary tree (phylogeny) for both of these tribes. With this phylogeny, Dr. Simmons and her collaborators will be able to track the evolution of mimetic type and other behaviors. This phylogeny will be constructed from multiple sources of data, such as anatomical (morphological) data and from mitochondrial and nuclear DNA.
Abstract
Previous research has shown that there are a number of risk factors for disordered and problem gambling, including an individual’s ethnicity and age. Endorsing gambling as an escape has also been shown to contribute to and maintain disordered gambling. The present study examined potential interactions between ethnicity and age as they relate to disordered gambling, as well as if ethnicity and age would be predictors of endorsing gambling as an escape. Three hundred fifteen adults from the United States completed measures relating to gambling. Participants were grouped into ethnic categories of Caucasian and non-Caucasian, and age groups of 18-25, 26-35, 36-55, and 56 years old and above. Non-Caucasians reported more gambling problems than Caucasians. A significant interaction was found between ethnicity and age for 36-55 year olds. Overall, participants were more likely to gamble for positive than negative reinforcement. However, only gambling as an escape was a significant predictor of disordered gambling. Implications and limitations are discussed with the thought that these results are informative to practitioners treating disordered gambling.

Hello, my name is Matthew Cookman. I am currently a senior at UND pursuing a BS in Psychology. I enjoy reading walking around the community and spending time with my family. After completion of the undergraduate program I am planning on applying to graduate school for Clinical Psychology to earn a Ph.D.

Mentor: Dr. Jeffrey N. Weatherly, earned his Ph.D. in Experimental Psychology from Washington State University in 1996. He joined the Psychology Department at UND in 1999. His research interests have included reinforce effectiveness, induction/contrast effects, and delay/probability discounting. Over the past several years he has focused his research attention on gambling behavior and the factors that potentially lead to disordered gambling.
The Relationship between Pinterest Use and Body Dissatisfaction

Krystal Badillo

Major: Psychology
Graduation date: May 2015

Abstract
Research has found that individuals exposed to social media are more likely to have high body dissatisfaction (BD) (Rutledge, Gillmor, & Gillen, 2013). However, few studies have focused on the third most popular social media site, Pinterest. Pinterest is a social media site that uses image-based links to exchange ideas and information. Due to the amount of thin ideal images and the popularity concerning the website, research was conducted to assess the relationship between BD, eating pathology, and pinning thin ideal images. There was a prediction made that individuals with high BD will pin more thin ideal images. Participants completed self-report measures and interacted with a Pinterest board for 15 minutes. Results indicate that pinning more images rated to be unhealthy was not related to BD or any level of eating pathology. However, correlational data indicates that pinning more people was related to scoring high on body comparison. Future research should attempt to address the limitations of the study such as lack of a diverse sample and lack of male representation.

Hello, my name is Krystal Badillo. I am a senior at the University of North Dakota and will be completing my Bachelors of Science in Psychology in May 2015. My research interests include eating disorders, obesity, and body image. Recently I have focused more on body dissatisfaction and social media use which has generated more questions I would like to investigate in graduate school. I have been a part of the McNair program for nearly two years and could not be more appreciative for all the support and guidance. After graduating in May I will be moving to Chicago, IL to attend Illinois Institute of Technology for my Ph.D. in Clinical Psychology. I can honestly say without the guidance, support, and training from Dr. De Young and the McNair program I never would have been able to accomplish my goal of being accepted to a Ph.D. program.

Mentor: Kyle DeYoung, Ph.D., Originally from Illinois, I completed my undergraduate degrees in philosophy and psychology at the University of Iowa. I then earned a master’s and doctoral degree in clinical psychology from the University at Albany, State University of New York, completing my clinical internship at the University of Pittsburgh School of Medicine/Western Psychiatric Institute and Clinics, before joining the faculty at the University of North Dakota in 2011 as an assistant professor. My research concerns the form and function of eating disorder behaviors. I am also an Adjunct Scientist at the Neuropsychiatric Research Institute and the Director for Communication for the Academy for Eating Disorders.
Abstract
State mindfulness has been found to have many beneficial effects on psychological well-being. Research has been examining how to induce state mindfulness in laboratory settings in order to measure these effects experimentally. One line of research has been to determine if shorter mindfulness exposure can be used to decrease participant fatigue and study procedure length. A previous study by Bonomo, Legerski, and Thomas (2014) found that a 20-minute mindfulness body scan exercise was sufficient to induce state mindfulness among a college student sample. The current study sought to investigate if a ten-minute mindfulness exercise would induce state mindfulness compared to ten-minute control. Results were obtained using an analysis of variance.

This assistance in preparing for graduate school and exposure to direct research experience has solidified my interests in research, and given me the confidence that my path towards a Ph.D. in Clinical Psychology is the correct direction to pursue. I plan on applying to several programs this fall, and hope to follow graduation with entrance into a program in the fall of 2015.

Mentor: Dr. JP Legerski, is a graduate of the University of Kansas with a doctoral degree in clinical child psychology. He completed his internship at Boystown, part of Nebraska Internship Consortium in Professional Psychology. He is an assistant professor in the University of North Dakota’s psychology department, where he teaches both undergraduate and graduate research courses. His research focuses on understanding contextual factors that influence emotional development, memory, and posttraumatic stress symptoms.
Water Pollution and Related Impacts in Bangladesh

Manna Khan

**Major:** Geography  
**Graduation date:** May 2016

**Abstract**

Water pollution in Bangladesh is a huge concern and it creates a detrimental impact on the landscape. The rapid expansion of industries provides a livelihood for residents, but the development comes at a cost. Since 1980, the country has faced challenges in balancing industrial growth and caring for its water resources, cited as 10.4% of the total area in 2015 (CIA World Factbook 2015). The goal of this research is to review water-related impacts due to pollution in Bangladesh including: 1) diseases; 2) biodiversity; and, 3) soil quality. I reviewed historical and current documents including journal articles, books, reports, government documents, and websites that relate to diseases, biodiversity, and soil quality in Bangladesh. Diseases, biodiversity, and soil quality are heavily impacted by water pollution in Bangladesh. Concerns related to water pollution in Bangladesh include dysentery, habitat loss, and soil nutrient imbalances, among others. Complicating factors when addressing water pollution issues in Bangladesh include the lack of clean water, ample water-borne nutrients and wildlife challenges, and meager crop yields. Creating new opportunities is hard work. In conclusion, this study applies to other places and contexts when confronted with challenges of national water pollution issues.

Hello, my name is Manna Khan. I am a nontraditional student; was born and raised in Bangladesh. Twenty years later, I am back to school. I am a junior at UND majoring in Geography with a minor in Sustainability. After pursuing a Bachelor of Science in Geography (with an emphasis on environmental geography) I would like to further explore my passion and curiosity in environmental science by pursuing a Master’s and a Ph.D. degree in the field of Earth System Science and policy. I like to travel around the world, know about different culture and landscape. Attending school is challenging in terms of finance and opportunity. I am thankful to be a part of the McNair program. This program has helped me to develop my knowledge through research, seminars and workshops related to graduate education. It allows me to establish an effective working relationship with professor. I would like to thank my mentor, Dr. Christopher Atkinson for being patient and helpful to my research projects.

**Mentor: Dr. Christopher Atkinson**, helps students at UND in many classes including regional geography (World Regional, Europe, and North America), physical geography, introductory and advanced GIS, and seminars in geography. He enjoys his role as McNair scholar mentor and very much appreciates the very good work of the McNair staff, especially Ms. Jill Teters and Ms. Patrice Giese. In addition to acting as mentor for current and past McNair scholars, Dr. Atkinson advises both undergraduate and graduate students. His current graduate student is studying the effect of trees on blizzard frequency in northern Minnesota and eastern North Dakota. Dr. Atkinson’s personal research efforts continue in historical climatology of Midwestern blizzards. Finally, Dr. Atkinson enjoys personal interaction with undergraduate students in his role as faculty advisor for Gamma Theta Upsilon (international geography honor society)/Geography Club.
Abstract
One of the main purposes of the experiment was to help bridge the gap between peak shifts explored in the laboratory and phenomena that resemble peak shift in the natural environment by using a naturalistic image of a female’s face. A total of 114 UND students completed the experiment. The study used a 2 by 2 between subjects design with a single stimulus and multiple stimuli control groups for a total of 6 conditions. A neutral face and a fearful face of the female were morphed together to create 9 images on a continuum. Just the eyes were cropped out from each image to create a total of 18 stimuli. Participants received discrimination training consisting of the S+ and the corresponding S- depending on the condition they were in. The generalization test occurred afterwards. A peak shift effect was observed in the left conditions, but not the right. Multiple t-tests and two 3 by 2 by 2 repeated measure ANOVAs were conducted to exam the peak shift effects and differences between the conditions. A significant difference was found between the mean values of the face stimuli and just the eyes stimuli, and the range values of the face stimuli and just the eyes stimuli. The interaction between the mean values of the stimuli and the location of the S- on the continuum, and the interaction between the range values of the stimuli and the location of the S- were also significant. Explanations of the results and limitations of the study are discussed.

Hello, my name is Anthony Garnett. I was born and raised in Grand Forks, North Dakota. I am graduating from the University of North Dakota with a Bachelor of Science Degree in Psychology this May of 2015. I have a second major in Chinese Studies and a Criminal Justice minor. I have been accepted into the Ph.D. program in General/Experimental Psychology at the University of North Dakota and will be attending this Fall. I intend to become a Psychology professor at a university in the Midwest. I have been conducting research examining peak shift with my mentor Dr. Derenne, and I look forward to continuing research with him. I am also interested in emotions and working with juvenile delinquents.

I am honored to be a member of the McNair Program. I expect this opportunity will allow me to improve scholastically and achieve my future goals.

Mentor: Adam Derenne, Ph.D., is an associate professor in the department of psychology and the director of the graduate general/experimental psychology program. He received a doctorate in experimental psychology in 2003 from the University of Wisconsin-Milwaukee. He has been a faculty member at the University of North Dakota for the past 11 years. His primary area of study is the psychology of learning, and secondary interests include research methods in psychology, the psychology of aging, and choice and risky behavior. Current research projects include behavioral genetics research with mice and stimulus generalization research with humans.
Does Size Really Matter?

Leah Smith

Major: Elementary Education  Graduation date: Dec 2015

Abstract
Does classroom size actually matter when determining quality educational environments? Does it truly have an impact on academic achievement for students, or is the art of teaching more important? Much research has shown that a smaller classroom size does not matter as much having a highly qualified teacher (Darling-Hammond, 2006; Zahorik, Halbach, Ehrle, & Molnar, 2003). Yet, we still have school districts striving to “right-size” their classrooms. Why is this if the research does not support? Is there conflicting information in the research, or is there conflicting interpretation?

This study aims to review the research on classroom size effects on academic achievement, then furthers that research by qualitative means in order to determine whether large or small classroom size can predict higher academic achievement versus teacher competency. In this high-stakes era, we cannot speak of classroom size without incorporating teacher quality; therefore, qualitative means were utilized to review student achievement in rural classrooms of varying size. In addition, qualitative means were employed to review the classroom teachers’ educational levels, additional professional development, and attitudes toward lifelong learning and ongoing flexibility in teaching. There is a stark hole in the research regarding this link within rural communities; therefore, this study is specifically focused on contributing to rural community education development.

Hello, my name is Leah Smith. I am a senior pursuing a degree in Elementary Education. I am from Salida, California and enjoy cake decorating, documentaries, and traveling. I would like to express my gratitude to Multicultural Student Services and the Ronald E. McNair Postbaccalaureate Achievement Program for being an integral part of my educational success. My goal is to earn a doctorate and become a teacher educator. I would like to have a positive influence on as many people in this world as possible.

Mentor: Meghan Saylers, Ph.D., My research interests primarily focus on gifted/talented education, including juvenile delinquency in gifted learners; student motivation, and twice exceptional learners; creativity and its purpose in education for all learners; and program development in public and parochial education. I am a qualitative historiographical researcher. I teach introductory special education courses including Education of the Exceptional Student, and Inclusive Strategies; and I teach graduate coursework in gifted/talented education. Currently, I serve as the Interim Director for Field Placement & Student Teaching in the Office of Teacher Education.