Thank you for attending the 22nd Annual McNair Forum

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A Division of Student Affairs at the University of North Dakota

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Presents:

22nd Annual McNair Forum
April 21st, 2016
2015-16 McNair Scholars and Mentors

Hawo Ahmed
Major: Community Nutrition
Mentor: Jan Goodwin

Tara Boland*
Major: Physics
Mentor: Yen Lee Loh

Kelsey Butler
Major: Psychology
Mentor: Tom Petros

Travor Champagne
Major: Biology/Pre-Health
Mentor: Van Doze

Jason Cooper
Majors: Criminal Justice Studies & Sociology
Mentor: Wendelin Hume

Noël Couch
Major: Psychology
Mentor: Cheryl Terrance

Shelley Davis
Major: Physics
Mentor: Tim Young

Beck Devine
Majors: Fisheries & Wildlife Biology / Interdisciplinary Studies
Mentor: Rebecca Simmons

Thomas Devine
Majors: Math & Economics
Mentor: Ryan Zerr

Jessica Fairley
Majors: Biology & Honors
Mentor: Brian Darby

Dylan Gott
Majors: Accountancy / Political Science / Banking & Financial Economics
Mentor: David Flynn

ConnieL Green
Majors: Information Systems
Mentor: Assion Lawson-Body

Tiffany Huwe
Major: Biology
Mentor: Othman Ghribi

* 2015 Graduates **2016 Graduates

Jordan Jaeger**
Major: Sociology
Mentor: Daphne Pedersen

Manna Kahn
Major: Geography
Mentor: Christopher Atkinson

Lynn Martell**
Majors: Psychology & Indian Studies
Mentor: Adam Derenne

Dana McVeigh**
Major: Anthropology
Mentor: Melinda Leach

Kayla Michelson**
Major: Biology
Mentor: Diane Darland

Kelsey Morin
Major: Psychology
Mentor: Jefferson Vaughan

Gavin Nadeau
Majors: American Indian Studies & History
Mentor: Birgit Hans

Alexandra Rehovsky
Major: Biology
Mentor: Ric Ferraro

Jordan Rudnik
Major: Psychology
Mentor: Heather Terrell

Sashay Schettler
Majors: History & American Indian Studies
Mentor: Birgit Hans

Leah Smith*
Major: Elementary Education
Mentor: Meghan Salyers

Feather Tapio**
Major: Psychology
Mentor: Rachel Navarro

LaJaunn Willis
Majors: Philosophy & Religion/Communication
Mentor: Elizabeth Legerski & Pamela Kalbfleisch

Jordan Jaeger
The Relationship Between Generational Status and Parental Involvement Among College Undergraduate Students

LaJaunn Willis
Women’s Appearance Manipulation Techniques and Poor Body Image

Jessica Fairley
Whole Genome Bisulfite Sequencing of Caenorhabditis Elegans & Oscheius Tipular

Dana McVeigh
Creating a Link Between the Past and The Public: The Goals and Roles of Public Archaeology

Kayla Michelson
Neural-vascular interactions in early cortical development

Beck Devine
Comparison of genetic and morphospecies identification techniques to examine a restored grassland pollinator community

Noël Couch
An Analysis of Content and Rates of Victimization on Revenge Porn Websites

LUNCH (on your own)

Feather Tapio
An Investigation of Factors Influencing Stress for College Students of Color

Gavin Nadeau
Sterilization of Native American Women

Sashay Schettler
Being Indian?

Lynn Martell
Peak Shift with Pictures and Videos of Varying Body Images

Kelsey Butler
The Impact of Time Limits on Reading Comprehension

Manna Khan
Spatial Patterns of Landfills in Relation to Tipping Fees in the State of North Dakota

Tiffany Huwe
Cerebrosteral Induced Antagonism of Estrogen Receptor Beta
Hello my name is Jordan Jaeger, I am currently a senior in the sociology program at UND. I am from Thief River Falls, MN and I enjoy playing video games, hip hop dance and hanging out with my friends. After declaring a few majors I have finally found my passion in sociology and have presented my research at a few conferences. Presenting has been my favorite part of my senior year and after applying to graduate school I hope to attend and present future research.

I don’t know where I would be without the McNair program. With their determination for their student to succeed they gave me the motivation to move forward with my passion for sociology and helped me realize there are others who share my passions. The greatest experience I had with the McNair program was attending the Annual McNair Meeting in Wisconsin. Here I met others and was exposed to many ideas and topics of research. Although these topics were interesting the diverse people I met there were the best part of the whole trip. I think that if anyone is given the chance to be part of this program they should be grateful and get the most out of it as they can because this program offers many opportunities that don’t come around too often.

Mentor: Daphne Pedersen, Ph.D., is Professor of Sociology. She did doctoral work in Utah, her home state, and began working at UND in 2004. Dr. Pedersen’s research focuses on gender as it relates to the workplace, family relationships, and health. Lately, she has been studying the stress processes of men and women and how these result in different health outcomes. For instance, her work shows that depression and school stress interact differently for college men and women to either encourage (men) or reduce (women) binge drinking. Another of her projects shows that among married couples, women are more responsive to their husbands’ work-family stress, which leads them to reduce participation in health behaviors. Dr. Pedersen is President-Elect of Alpha Kappa Delta, the international honors society in Sociology.
Abstract
This literature review examines the factors that motivate women to use appearance manipulation techniques like cosmetic surgery and unhealthy eating habits. The review was conducted by searching terms related to societal, intrapersonal, parental, age, media, and materialistic influences. All these areas, besides intrapersonal, played a significant role in influencing women’s perception and use of appearance manipulation techniques. This examination found that when women compare themselves to television images it increases the chance that they will endorse the thin ideal/internalize societal standards of attractiveness. When parents applied thin ideals toward their daughters’ body, it increased the chances that she would start dieting on constant biases and become self-conscious about her weight. Social standards of attractiveness such as the thin ideal, are also connected with materialistic qualities that lead to an increase in the consideration of cosmetic surgery. Old age was also connected with positive views of cosmetic surgery. Also the three most popular cosmetic procedures are commonly used for their anti-aging effects. The review also found that girls whose fathers spent extra time mirror checking while they were preparing for social events increased the probability that they would be more accepting of cosmetic surgery.

Hello, my name is LaJaun Willis III. I am a double major in communication and philosophy with a minor in sociology. I am currently researching the effects of the internet on the democratic public sphere. After completing my undergraduate degree I will be pursuing my Ph.D., in sociology. I want to use my education to teach and help provide disadvantaged groups of people with the tools that they need to succeed.

Mentor: Pamela J. Kalbleisch, Ph.D., is a professor of Communication and Psychology and received her Ph.D. from Michigan State University. She is author of Mentoring Enactment Theory and publishes in the area of mentoring and personal relationships. Kalbleisch is concerned with helping members of disadvantaged and underrepresented groups find mentors and sources of social support and also has interest in health of aging populations. She is a member of the National Advisory Board for the American Council on Education’s Women’s Network and chairs the council’s Policy and Planning Committee. Kalbleisch has served in leadership roles including Dean of Arts and Sciences at Concordia University Chicago, Director of the School of Communication at the University of North Dakota, and as Chair of the Faculty Senate at the University of Wyoming. She is a 2009-2010 Fellow of the American Council on Education Fellows Program.
Jessica Fairley
Whole Genome Bisulfite Sequencing of Caenorhabditis Elegans & Oscheius Tipular

Abstract
We are bisulfite sequencing Caenorhabditis Elegans and Oscheius Tipular to explore methylation patterns and regulated DNA transcriptome regions. During environmental stress epigenetic changes, including methylation, can cause phenotypic variation as a stress response. DNA methylation project into the major grooves of DNA and inhibit transcription. Currently we are perfecting our experimental procedure.

Hello, My name is Jessica Fairley and I’m a third year undergraduate at UND. In a couple of years, I will be completing a B.S. in Molecular and Integrative science, with an extensive research background. I’m currently researching in Dr. Brian Darby’s lab and aiding Riley McGlynn, a UND graduate student, in his quest to better understand epigenetic effects of heat shock in two free living non-parasitic soil nematodes, Caenorhabditis elegans and Oscheius tipulae.

Mentor: Brian Darby, Ph.D., is an Assistant Professor in the Biology Department and received his Ph.D. in Plant and Soil Science from University of Vermont, Burlington, VT. He states his research interests as follows: Soils are filled with an incredible diversity of life. Many animals in the soil are too small to be seen with the naked eye but are still important for eco-system functioning. Recent technological advances in molecular biology allow us to also study the genomics of soil organisms in a way that wasn’t previously possible. My research seeks to understand the ecology of these soil organisms, what genes and genome components are important for their belowground life, and how they influence soil and ecosystem processes. Research projects are at the intersection of ecology and genomics and include field, laboratory, microscopy, molecular, genomic, and computational approaches.
Abstract
Recent approaches to archaeology, called Public Archaeology, are attempting to expand the scientific approach of archaeology to include the participation of multiple publics in all phases of research. Public Archaeology involves education of the public about the relevance of the past and evidence for cultural diversity, and calls for inclusion of diverse communities in stewardship and heritage preservation. Public Archaeology has the potential to shape conservation policy, impact community identity, and enliven educational programs.

During two field seasons (2013, 2014), I explored Public Archaeology programming throughout the American Midwest and Southwest. I evaluated 25 archaeological and educational sites and spoke with numerous researchers, educators and native tribal members about issues of trust, accessibility, and the possibilities of culturally-informed educational outreach. This thesis reviews the historical trends in scientific and humanistic archaeology, the emerging goals and roles of Public Archaeology, and presents my findings on program efficacy at my field sites.

Hello, my name is Dana McVeigh. I am a native of Wisconsin but I have been in the Grand Forks area for more than 20 years. I will be receiving my bachelor’s degree in 2016 in Anthropology with an emphasis in Archaeology. I will also be receiving a double minor in the fields of Women and Gender Studies along with Sociology. My current research with my mentor, Dr. Melinda Leach, is based on discovering the roles and goals of public archaeology which has included both a literature review and site visitations. My career goal is to obtain my doctorate and teach the importance of including the public in the study of the past.

Mentor: Melinda Leach, Ph.D., is a professor of Anthropology at UND. She received her B.A. from the University of California, Berkeley and her M.A. and Ph.D. from UCLA. She is an archaeologist with expertise in the prehistory of the American Great Basin, Southwest, California, and ancient Britain. Her research interests range widely from the behavioral and evolutionary ecology of 10,000 year old foraging societies, the development and expression of gender in prehistory, cultural identity in ancient textiles and rock art, and archaeological method and theory. She is currently studying the oldest mummy in the New World along with his associated textiles to understand technological traditions in weaving, completing excavations at a rare desert cave art site, and training students in archaeological assemblage analysis. She has travelled the world and has an ongoing fascination with the Paleolithic Ice Age cave art of France and Spain, the megaliths of the British Isles, human evolution sites in east Africa and ancient Neanderthal sites in Israel. She has been teaching and advising at UND for 24 years.
Abstract
We are interested in understanding cell-cell interactions in early brain development, particularly the control mechanisms associated with neural and vascular interactions in the cortex. We are investigating how vascular cells such as endothelial cells and perivascular cells may influence cell fate determination in neural stem cells. We are quantifying changes in gene expression associated with key neural stem cell genes in the presence and absence of vascular cell influence. We are determining baseline conditions that will allow us to perform ChIP-Seq analysis on the neural stem cells and vascular cells to determine what epigenetic modifications may play a role in these cellular interactions. To accomplish this we are first determining optimal fixation and genomic DNA sonication times for perivasculuar cells and neural stem cells. We hope to identify cohorts of genes that are shifted in neural stem cells in response to vascular cells. Our results will help clarify our understanding of neural-vascular interactions in development and during pathologic damage such as stroke or neural degeneration.

Hello, My name is Kayla Michelson. I am from Moorhead, MN. I am a Senior at UND and will be graduating this spring from UND with a major in Biology. I have worked in Dr. Diane Darland’s lab for the past two and a half years through independent research and the REFUNDU and McNair programs. We have worked on a few different projects. One project was studying the role of the blood vessel-derived growth factor, vascular endothelial growth factor A (Vegf) and its effects on cell fate determination and differentiation in mouse neural stem cells. The other project I have been involved with was investigating inflammatory processing in glaucoma progression as part of a larger collaborative project in which Dr. Darland has been involved for several years. Next year, I am enrolling in the Masters in Biology program at UND where I will be continuing my current research looking at the role of epigenetic modification in relation to cell fate determination in neural stem cells with Dr. Darland.

Mentor: Diane Darland, Ph.D. I have always enjoyed learning by doing and found that working in research labs helped me to survive mentally (and financially) during my college years. I have definitely benefited from many positive mentoring relationships over the years, beginning with my work as a research technician at a cancer research center shortly after receiving my B.A. in Biology at the University of California, San Diego. I did my Ph.D. in Cell and Developmental Biology at the Oregon Health Sciences University in Portland in the neural development field. After that, I completed my postdoctoral training at the Schepens Eye Research Institute/ Harvard Medical School in Boston in the area of vascular development and pathology. My goal was to integrate these two research areas to investigate the influence of the cellular microenvironment on neural development. I have followed a rather peripatetic professional development path and have been with the Biology Department at UND for about 10 years. I look forward to learning something new every day of my life!
Abstract
Mekinock, North Dakota is a restored prairie that includes a vast amount of pollinator species. There are two methods of identification that are used to determine the genus and species of pollinators that are sampled for ecological studies. During the summer of 2014, insects were collected via pollinator bowl sampling as part of a long-term plant biodiversity-ecosystem function experiment in plots near Mekinock, ND in a study conducted by the Yurkonis and Goodwin research groups at the University of North Dakota. After the specimens were collected, they were put in ethanol and preserved. One of these methods is to sort specimens into morphospecies. Another method utilizes a short portion of the mitochondrial gene, cytochrome oxidase I (COI = the barcode region) for species identification. It is unclear what method of insect identification is more accurate and useful for species identification in ecological research. Morphospecies were determined using microscopes and standard identification sources. These were cataloged and compared to observe which species are more prevalent in the restored grassland. The next step in this process involved taking pollinator tissue and completing a DNA extraction. After the extraction is completed, a polymerase chain reaction is done on all the DNA extractions from the specimens which is followed by a purification of the samples. After the samples are purified, the pollinator DNA is sequenced and matched with the genus and species.

Hello my name is Beck Devine. I am currently a senior at UND majoring in Fisheries and Wildlife Biology and Women and Gender Studies. I was born and raised in Grand Forks, North Dakota. After graduation from UND, I plan on going to graduate school and obtaining my Ph.D., in Entomology. I would love to be a professor and teach entomology and a basic biology courses. I enjoy writing, hiking, and being outdoors. I am so happy to continue my research with my amazing mentor Dr. Simmons. I am honored to be a part of such a prestigious program and ready to further my knowledge. I am thankful for all the opportunities McNair has given me. Working with Dr. Simmons has been the best experience I’ve had in college.

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

“Revenge porn”, or nonconsensual sharing of nude photographs, refers to the online distribution of sexually explicit materials without a subject’s consent (Citron & Franks, 2014). Often times, perpetrators will include the victim’s name, address, and/or other information about the victim along with the images (Franks, 2014). Perpetrators of revenge porn post nude images or videos online with the intent to cause harm, embarrass, or “get back” at the individual in the images (Stroud, 2014). Many revenge porn photos are shared on websites that are created specifically for the purpose of sharing photos of former romantic partners (Stroud, 2014). Additionally, current technology allows for the potential permanence of the digital images in cyberspace, even if a site is disabled. Photos can be copied and shared on multiple sites without permission, which makes the task of removing the images once they are shared almost impossible (Judge, 2012; Korenis & Billick, 2014).

Having an explicit photo shared without one’s consent can have serious consequences for victims. Victims of revenge porn have been blackmailed, stalked, harassed, lost jobs, changed schools, and even changed their names following the distribution of their photos (Citron & Franks, 2014; Zemmel & Khey, 2014). This nonconsensual sharing of nude photographs has been considered by some to be on the continuum of sexual violence (Powell, 2010). Some have even gone so far as to call it “digital sexual assault.”

Despite potential consequences to victims, only 26 states and the District of Columbia currently have passed laws concerning the nonconsensual sharing of nude photographs (State Revenge Porn Laws – C. A. Goldberg, 2015).

While both men and women can be victims of revenge porn, the majority of victims are women (Franks, 2014; Powell, 2010). Revenge porn provides an appropriate context to examine the policing of women’s sexuality; while a man or woman may engage in behavior willingly by taking or posing for a photo, his or her consent (or lack thereof) will be of importance to the courts when determining fault in cases of nonconsensual sharing of nude photographs.

The purpose of the current study was to gain knowledge about the types of photos posted, what types of information were posted with these photos, and demographics of the people who were victimized. Despite this research being primarily exploratory in nature, it was hypothesized there would be more photos of women than men posted on pornographic websites.

Hello! My name is Noël Couch. I am thrilled and honored to be a part of the McNair program. Currently a junior, I’m working towards completing my Bachelor of Science degree in Psychology. Related to one of my personal and research interests, I am also minoring in Women and Gender Studies. I aim to achieve a Ph.D. in Clinical Psychology. My research interests include LGBTQ issues, ‘women’s’ issues, and drug and addiction rehabilitation. A bit about me: I grew up in Toronto, Canada, and first came to North Dakota to volunteer on a local reservation – a rewarding experience that solidified my desire to return to college and eventually earn a Ph.D. When I’m not working on school work or sleeping, my spouse and I enjoy doting on our four fur-babies, Cheddar, Frank, Vienna (dachshunds), and Beans (beagle). Crazy dog lady, all the way! I look forward to working with TRIO, UND staff, and my fellow scholars.

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 examines minority stress at a college institution by seeing if there is any difference beyond general perceived stress, and if university environment plays a role in affect this stress. Specifically, the investigation follows factors influencing minority stress above and beyond generic stress which include perceptions of university environment, cultural congruity at the university/college, ethnic identity, and social support. There is research on how minority stress is impacted by a university environment but none comparing general perceived stress to see if there is a difference for college students of color. Participants self-identify as college students of color from the University of North Dakota. Participants do vary in terms of race/ethnicity, year in school, gender, sexual orientation, and other demographic variables but they must self-identify as a student of color in order to participate. Currently, surveys are still being collected to test these affects.

Hello all! My name is Feather Tapio. I am a Senior at the University of North Dakota and a second year student in the McNair Program. My major is Psychology and I have two minors in Women and Gender studies and Indian studies. My mentor is Dr. Rachel Navarro and she is an Professor at the Counseling Psychology and Communities Services. Right now I am doing research on minority stress among college students of color. In the future, I plan on doing research with Native American communities, LGBT+ communities, women & children, and families. I am graduating spring of 2016 and was accepted into the Counseling and Student Personnel Psychology Graduate Program at the University of Minnesota. When I am not studying and typing up essays, I like to spend time with my friends. I’m excited where the McNair Program has taken me in my educational journey.

Mentor: Rachel L. Navarro (Ph.D., University of Missouri) is Associate Professor and Department Chair of Counseling Psychology and Community Services at the University of North Dakota. In 2010, she was honored by APAGS with the Kenneth and Mamie Clark Award for Outstanding Contribution to the Professional Development of Ethnic Minority Graduate Students. In 2013, she received the Henry Tomes Award for Significant Contributions to the Advancement of Ethnic Minority Psychology by an Emerging Leader from the Council of National Psychological Associations for the Advancement of Ethnic Minority Interests (CNPAAEMI). Her primary research focuses on the academic engagement, satisfaction, and persistence of Latina/os and women in engineering, which is currently funded by the National Science Foundation. Her other research areas include rural psychology, integrated health care, and the well-being of students of color, particularly those who identify as Latina/o and American Indian/Native American. She serves on the editorial boards of the Journal of Counseling Psychology and the Journal of Diversity in Higher Education. Dr. Navarro currently teaches graduate courses in counseling theories, group counseling, psychological assessment, and vocational psychology. Dr. Navarro is the current President of the Council of Counseling Psychology Training Programs (CCPTP). She also serves on the APA Minority Fellowship Program Services for Transition-Age Youth (STAY) Training Advisory Committee. She also has served on the executive committee of the National Latina/o Psychological Association and APA Division 35.
Abstract
Many people do not know the extent of the sterilization Native American women endured in the second half of the 1900s. Throughout the 20th century, thousands of Native women were sterilized through Indian Health Services. Due to their ability to reproduce, they were the main targets used to “maintain,” i.e. control, the Native population. Sterilization gained prominence among the members of the eugenics movement. The eugenics movement was a basic ideology of the “perfect” or “master” race – people with better traits were encouraged to reproduce and people with undesired traits were, like the thousands of Native women who were unknowingly sterilized, “encouraged” to not reproduce. Between 1973 and 1976 over 3,000 Native women were sterilized. The fact that Native people have been forcibly removed from their lands, put on reservations which often had no land value, starved and forced to assimilate gave them undesirable traits in the eyes of the eugenics movement. In the eyes of the “perfect” Americans, Natives were destined to be wiped out, and sterilization provided the means to do so.

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 third year at the University of North Dakota, and plan to graduate in May 2017. 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., current chair of Languages and Professor of Indian Studies, 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
The question of identity in American Indian communities is an important one to address. Typically, there are two types of “identities” for American Indians. One has to do with individuals’ relationship with the federal government, a political identity that is tied to enrollment in a federally recognized tribe. On the other hand, there is the “cultural Indian” who is stereotypically associated with living on a reservation and practicing the “traditional” culture of American Indians’ past. If these are the only two ways to be Indian, then where do those who fall into the grey area stand? Are they simply not Indian because they do not have an identification card or live on a plot of land that was designated a reservation to isolate Indians from other American citizens? What about the children of the American Indians who participated in the Indian Relocation of the 1950s? Their children may or may not be enrolled tribal members, but they would not conform to the stereotypical images associated with reservation residency. Should non-reservation Indians be recognized as having their own “Pan-Indian” identity or possibly even have their own tribes? To address the questions of American Indian identity above, I plan on interviewing individuals from both urban and reservation backgrounds. In addition, I will contextualize my research with scholarly research on American Indian identity and examples from popular media.

Hello, my name is Sashay Schettler. I was born and raised in Bismarck, North Dakota. I am currently a senior at the University of North Dakota. I am majoring in Secondary History Education and American Indian Studies. I am inspired to inspire others and cultivate a love of learning. I want to work in higher education as a college professor, and help students obtain their degrees while they develop their interests. I plan on attending grad school and then pursuing my Ph.D.

Mentor: Birgit Hans, Ph.D., current chair of Languages and Professor of Indian Studies, 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.

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Abstract
The peak shift phenomenon may influence how perceptual distortions in body imaging arise. Participants from the University of North Dakota judged computer generated figures and short video clips that can be used to study peak shift with body image stimuli. These stimuli are designed to represent the different body types on the Stunkard Figure Rating Scale. Participants were asked to rate the video and pictures on the rating scale which measures how an individual perceives physical appearance. The purpose of this study was to establish validity of the stimuli to be used in the second part of the study.

Hello, my name is Lynn Martell. I am a senior at the University of North Dakota and will be completing my Bachelors of Science in Psychology in May 2016. My research interests include eating disorders, substance abuse, and multicultural studies. I am currently working on research on peak shift and body image distortion with my mentor, Dr. Adam Derenne. After graduating in May, I will be attending the University of North Dakota Ph.D. program in Clinical Psychology. I have been a part of the McNair program for nearly a year and am extremely grateful for all the support and guidance.
Abstract

Previous research argues that the Nelson-Denny Reading Comprehension Tests is an invalid measure of reading comprehension. Prior studies conducted have found that participants are able to answer reading comprehension questions better than chance, when the reading passages have been omitted. (Coleman et al., 2010; Ready et al., 2012) One limitation of these previous studies is participants were given an unlimited amount of time to complete the reading comprehension questions. Another limitation is participants were only given the Nelson-Denny Reading Comprehension Test without passages, so no comparison between standard conditions and passageless conditions could be made. The current study replicated the previous studies, but also included a timed and untimed group and administered passage and passageless forms of the Nelson-Denny Reading Comprehension Test. This study included a total of 46 participants that were split up into two groups, a timed group and an untimed group. These groups were broken down into four smaller groups, resulting in a total of eight participant groups to account for all variables being tested. Each participant was given a consent form, followed by the Reading Fluency Test from the Woodcock-Johnson Tests of Achievement. Next, participants were given both forms of the Nelson-Denny Reading Comprehension Test, Form G and H. Each participant took a test with passages and a test without passages. The group the participant was in depended on which form they were given first, and if it contained passages or not. Some participants were given the standard 20-minute time limit and others were given an unlimited amount of time to complete each of the forms. Results were significant in passage versus passageless administration. One limitation of this study is that all students were of normal functioning, so there was not a learning disabled group to compare results to. Future research could examine the differences between normal students and learning disabled students. Another idea would be to look at individual questions to determine if they are truly measuring reading comprehension, or if they are common knowledge questions.

Hello, my name is Kelsey Butler. I am currently a junior at the University of North Dakota. I grew up in small town U.S.A., AKA Reynolds, North Dakota. I am majoring in Psychology with a minor in American Sign Language and Deaf Studies. I plan to graduate in May of 2017. After graduation, I would like to pursue my Ph.D. in clinical psychology. I would also like to teach some intro psychology classes. My current research interests involve learning disabilities, focusing on problems in reading comprehension. I have been involved with the McNair Program for one year and so far it has been life changing. Without McNair, I would have never dreamed of creating a research project or be in the works of writing a senior honors thesis. I am so honored and thankful to be where I am today, thanks to the McNair Program.

Mentor: Thomas V. Petros, Ph.D., professor of Psychology, is a developmental/cognitive psychologist whose research broadly examines individual differences in academic performance. His research has addressed reading problems and Attention Deficit Hyperactivity Disorder (ADHD) in both children and adults. Current research has examined the impact of time extension on reading comprehension performance and the validity of current reading comprehension tests.
Abstract

Worldwide, humans generate tons of garbage each day. Garbage disposal is not only a global problem, but also challenges residents in the State of North Dakota. “Current global municipal solid waste (MSW) generation levels are approximately 1.3 billion tonnes per year, and they are expected to increase to approximately 2.2 billion tonnes per year by 2025” (World Bank). This research is conducted to find out the spatial pattern of MSW and inert waste landfills, type of materials dumped, and associated tipping fees in the state of North Dakota. The garbage disposal challenge is rising in North Dakota due to a number factors including city size, landfill size, distance to landfills, influence of the oil industry, and population growth. The source data for this project came from: 1) North Dakota Department of Health-Division of Waste Management; and, 2) official information from local municipalities. Visualization of data included maps and graphs. The initial findings indicate a number of items. First, there is a large range in tipping fees across North Dakota. Second, the number of municipal solid waste landfills is lower than number of inert waste landfills. Third, higher charges tend to be focused in big cities and in and near oil field areas. Fourth, the materials and landfill tipping fees vary from landfill to landfill. Fifth, due to the lack of landfills, some municipal garbage can be transferred to other landfills. Tipping fees become a management tool for limiting municipal garbage streams entering state landfills. Expensive fees helped to focus resident actions toward alternative methods of garbage disposal.

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 senior 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: Christopher Atkinson Ph.D., 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
Estradiol has neuroprotective effects that are mediated by estrogen receptor beta (ERβ) activation. Inhibition of this protective process may contribute to several neurodegenerative diseases including Alzheimer’s disease, Parkinson’s disease, and multiple sclerosis. The cholesterol metabolite 24S-hydroxycholesterol (24-OHC), also called cerebrosterol, is elevated in the brains of dementia patients and is a potential antagonist of ERβ. The purpose of this study was to test the hypothesis that ERβ has neuroprotective effects which are inhibited by the binding of 24-OHC to the receptor. Understanding of 24-OHC induced ERβ antagonism may lead to the development of novel therapeutic avenues for neurodegenerative diseases. We determined the ability of 24-OHC to directly bind to ERβ and antagonize its transcriptional activity. We also determined the effects of 24-OHC on ERβ signaling in the SH-SY5Y neuroblastoma cell line. Our results indicate for the first time that the cerebrosterol, 24-OHC, can bind to and antagonize ER β signaling which can attenuate neuroprotective processes necessary to prevent neurodegeneration.
Ronald E. McNair Faculty Mentors thoughts on the McNair Program, McNair Scholars and the importance of undergraduate research at the University of North Dakota.

Greetings! I’m Dr. Daphne Pedersen, a Professor in the Department of Sociology. A transplant from Utah, I’ve had the good fortune to work at UND since 2004 (although I do miss the mountains terribly!). One thing that keeps me here, despite the flat lands, is the fantastic students I get to work with each day. One of those students is Jordan Jaeger.

Jordan and I met while he was enrolled in my undergraduate statistics course. As a newly declared sociology major, Jordan wanted to get more hands-on experience in the discipline. His timing was perfect. I had just worked with a group of students to collect data about the health of UND students. Jordan came on board our research team as the group’s statistician – cleaning the data set, preparing it for use, and then doing some preliminary analyses using SPSS software. I believe he even told me a few times that “statistics is fun.” (Insert proud smiley-faced emoticon here.)

The work Jordan did with the data turned into his McNair project, and he’s received a lot of attention and well-deserved accolades. Jordan is studying parental involvement and student stress among first- and continuing-generation college students. He presented his work last fall at the annual meetings of the Great Plains Sociological Association, where he won first place in the poster competition (so proud!). He also presented his work at the annual McNair conference, and is getting ready for a larger audience. This spring he will give a presentation at the Midwest Sociological Society meetings in Chicago. He’s well on his way to graduate school and a successful career in sociology.

I’ve had the opportunity now to work with two great McNair students. Who benefits most from the McNair mentorship is debatable… It is a great privilege to work with such amazing undergraduates and support their academic and professional dreams. As a first generation college student myself, I wish I’d had the guidance and opportunities provided by the McNair Program.
Boozhoo (Hello), my name is Dr. Wendelin Hume. I am a faculty member celebrating 25 years in the Department of Criminal Justice as well as an affiliate of the Women and Gender Studies program. I am also a proud member of the McNair program. I have served on and off (usually on) as a McNair mentor and at least annually as a McNair instructor for over a decade, nearly two. I am always very pleased when I am selected by students to serve as a mentor. I find working with students one-on-one on their research, and helping them hone both their ideas and their thinking skills, is both an honor and enlightening.

Those who run the McNair program on the UND campus do an excellent job of selecting worthy students who are anxious to learn and of providing adequate feedback to the mentor so we can perform our roles as well as possible. Being a mentor involves meeting with your mentee at least once a week if not working with them more often. The mentee is responsible for scheduling meetings as well as for bringing hourly log sheets wherein they share the work that they have done and the conclusions that they have drawn. Consistently meeting with the student provides both structure and content which I think benefits both the mentor and the mentee.

My latest mentee is Jason Cooper. I met him a couple of years ago now when he was in one of my Criminal Justice classes. I noticed his drive, his questioning mind, and his burgeoning desire to go to graduate school and so I actually wrote one of his recommendation letters to get him into the McNair program. Fortunately, for both of us, he was selected and I have had the privilege of working with Jason for the past year and a half. Jason has a strong interest in understanding the mindset of those that are deviant. In particular he has been most interested in studying serial killers. While working with Jason I have seen his ability to read for understanding improve. His research has also allowed him both to look at what many professionals and the public thought they knew but may not be true (just ask him about his myth busting research poster at the last McNair forum). Lately he has focused on trying to discover that which we still do not know (just ask him about the reliability of the original Macdonald triad in predicting adult aggressive behavior and sociopathy – particularly homicide).

Not only has Jason grown in his skills as a researcher but he has grown in his own self-confidence and is now providing leadership in several student organizations including our chapter of the national criminal justice honor society (Alpha Phi Sigma). He plans on earning his master degree in Sociology beginning Fall 2016. Thanks to the support of the McNair administrators and staff, as well as the support of his McNair peers, and I hope as well in part to me – Jason has a very bright future ahead of him.

If you are either a qualified and dedicated student or faculty member interested in joining the McNair program, I strongly suggest you do so. The consistent application of your research skills will improve them. The consistent working with inquiring minds will improve your mind as well. It takes time and effort, but it is well worth it. Miigwech. (Thank you.)

Dr. Rebecca Simmons

Sometimes, finding a direction involves luck--being in the right place at the right time. For Beck Devine that “right place” was Prof. Chris Felege’s Concepts of Biology course. After that, Beck switched his major to Fisheries and Wildlife Biology. I met Beck when he enrolled in General Biology II during the 2014 summer session. I knew immediately that Beck should join my lab, because of the honeybee tattoo on his shoulder! My luck proved to be good as well; Beck is an excellent student researcher who has a promising career in Entomology. Beck’s work is an important first step in his career, allowing him to work with project that builds on the work of previous McNair scholars. Through this collaboration and his work, Beck is able to make a unique contribution to what is known about prairie fauna.

Beck is interested in pollinators and conservation. Pollinators are key to the success of plant species, acting as matchmakers for plants as they reproduce. Pollinators are also economically important to agriculture. North Dakota depends more on pollinators for crop production more than any state in the U.S. Unfortunately, pollinator health has suffered due to a variety of factors including: global climate change, habitat fragmentation, reduced diversity of plant species, and pesticide use. Little is known about the health of North Dakota pollinators; Beck’s research addresses this key question.

Beck collaborates with other McNair students, Leslie Yellow Hammer and Tiffany Huwe, and their advising team, Drs. Yurkonis and Goodwin for his research project. In summer 2014, Leslie and Tiffany (along with others from the Yurkonis/Goodwin team) collected pollinators from a variety of plants in Meckinok, ND. Currently, Beck is using genetic sequence data to identify these insects. With this information, Beck will be able to provide a list of the pollinators found at this site, and will be able to examine the genetic diversity of these species to determine if pollinators are susceptible to environmental changes and other factors. During this process, Beck is able to learn study design, methods of data collection and analysis, and presentation skills. The McNair program, through its support services, has been essential to Beck’s development as a researcher and professional scientist. I am grateful to be working with Beck as he pursues his dream of becoming an Entomologist.
For years I had heard anecdotal evidence that students benefitted from doing serious research while undergraduates. I was told that it built confidence as well as various academic skills, such as critical thinking and writing among others. Admittedly, I was intrigued, and, when I was approached by Patrice Giese from the McNair Program over a decade ago, I was ready to try it. What no one had told me was how rewarding the experience is to the mentor of the undergraduate students doing research. It is certainly stimulating to discuss issues with them and to hear their perspectives, which often differ from mine and, frequently, encourage me to do more reading or to re-examine my own thinking. The most exciting moments for me are when students discover the joys of doing primary research and see connections between their research and their reading. I have been very fortunate in being able to mentor at least one student a year and feel that the experience enriches my own academic life.

My latest mentee is Sashay Schettler, a student from the Three Affiliated Tribes. She has embarked on doing research on Native language revitalization, a project that carries a certain urgency since many Native languages are threatened with extinction. There is only one fluent speaker of Mandan, one of the languages formerly spoken on the Fort Berthold Reservation, left. At present Sashay is inventorying existing programs, but she is also very much aware of the culturally specific needs for a successful language revitalization. Sashay’s enthusiasm for her research is infectious, and I am looking forward to seeing how her research will develop and what conclusions she will reach.

By working one on one with faculty mentors, McNair Scholar researchers at UND start on their path to develop independent research careers. In 2011, Ms. Leslie Yellow Hammer joined the McNair Scholars program to learn more about research in biology. She was keenly aware that she wanted not only to be part of the scientific process, but to direct it. She joined Dr. Yurkonis’ Grassland Ecology Lab in fall 2011, and is now directing her second independent research project on plant-insect interactions. The main focus of the McNair program is to help undergraduate students prepare for graduate-level research by providing them opportunities to develop as independent researchers outside of the classroom. As part of this program, Ms. Yellow Hammer has designed her own experiments, collected and analyzed her own data, and disseminated her results at regional and national conferences. She has gained field and lab skills working with plants, insects, and soil biota, and has had the opportunity to interact with multiple faculty and graduate student mentors at UND.

The McNair experience helps students to develop skills in conducting research, but also in helping others to build their scientific awareness. Ms. Yellow Hammer has mentored several students within the McNair and US MASTERS programs as they have pursued their own research projects within the lab. In this process she has found that she truly enjoys helping others learn more about research.

These collective opportunities to understand the research process and how to broadly influence society with her research have helped prepare Ms. Yellow Hammer for the next stage of her career. Ms. Yellow Hammer recently submitted a proposal to the National Science Foundation’s Graduate Research Fellowship program to support her proposed cutting-edge graduate research project on plant-soil interactions and will be applying to graduate school this fall. The McNair Scholars program provides a strong foundation of mentoring and skill-building opportunities for students to move forward with the next stages of their careers as independent researchers.
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.
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.