Presentations

by scholars in the Ronald E. McNair Postbaccalaureate Achievement Program

April 7th, 2011

McNair Research Presentations

2010-11 McNair Scholars and Mentors

Isaac Allmaras*
Major: Marketing
Mentor: Robert Tangsrud

Autumn Arch
Major: Psychology
Mentor: Ric Ferraro

Julia Beard *
Major: Biology
Mentor: Brett Goodwin

Renee Beausoleil*
Major: Biology
Mentor: Peter Meberg

Desiree Bernal
Major: Early Childhood/Elementary Education
Mentor: Jill Shafer

Cory Bowers
Majors: Computer Science & Criminal Justice
Mentor: Ronald Marsh

Jason Champagne*
Majors: Community Nutrition & Indian Studies
Mentor: Jacqueline Gray

Sierra Davis*
Major: Psychology
Mentor: Jacqueline Gray & Birgit Hans

Andy Erickson
Major: Computer Science

Matthew Fahrenbruch*
Major: Geography
Mentor: Bradley Rundquist

Tyrone Grandstrand
Majors: Political Science, Business Economics, and Honors
Mentor: Jason Jensen

Jessica Greer
Major: Biology
Mentor: Steven Ralph

Enoch Hankerson
Majors: Interdisciplinary Multicultural Studies and Peace Studies
Mentor: Sagini Keengwe

Shirryka LaFountain
Major: Psychology
Mentors: Ric Ferraro & Heather Terrell

John Neis
Major: Physics
Mentor: Wayne Barkhouse

Margaret “Emmy” Scott
Majors: Political Science & Economics

Jannie Schroeder
Majors: Public Administration & Indian Studies

Alexis Sherman
Major: Anthropology
Mentor: Phoebe Stubblefield

Seinquis Slater*
Major: Sociology
Mentor: Jeffrey Langstraat

Korey Southwell
Majors: Environmental Geography (emphasis in Atmospheric Science) and Political Science
Mentor: Gretchen Mullendore

Logan Stundal
Major: Political Science
Mentor: Dana Harsell

Shea Thomas*
Major: Psychology
Mentor: Cheryl Terrance

* 2010 - 2011 Graduates
<table>
<thead>
<tr>
<th>Time</th>
<th>Speaker</th>
<th>Presentation</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:20-9:40 a.m.</td>
<td>Jessica Greer</td>
<td>Searching for Insect Resistant Genes in the Model Tree Poplar</td>
</tr>
<tr>
<td>9:40-10:00 a.m.</td>
<td>Logan Stundal</td>
<td>Conceptualizing Privacy Protections and Regulations in an Age of Facebook</td>
</tr>
<tr>
<td>10:00-10:20 a.m.</td>
<td>Korey Southerland</td>
<td>Climate Uncertainty Communication</td>
</tr>
<tr>
<td>10:20-10:40 a.m.</td>
<td>Sierra Davis</td>
<td>American Indian Health Disparities in a Nutshell</td>
</tr>
<tr>
<td>10:40-11:00 a.m.</td>
<td>Desiree Bernal</td>
<td>Poverty and Urban Education: Methods for Teaching Children in Poverty</td>
</tr>
<tr>
<td>11:00-11:20 a.m.</td>
<td>Seinquis Slater</td>
<td>Experiences of College Students in Black-White Interracial Relationships in a Homogenous White Midwestern City</td>
</tr>
<tr>
<td>11:20-11:40 a.m.</td>
<td>Enoch Hankerson</td>
<td>Faculty Diversity in Higher Education: No Culture Left Behind!</td>
</tr>
<tr>
<td>12:00-1:00 p.m.</td>
<td>LUNCH (On your own)</td>
<td></td>
</tr>
<tr>
<td>1:00-1:20 p.m.</td>
<td>Isaac Allmaras</td>
<td>The Impact of Social Media Networking and its Usefulness on Businesses</td>
</tr>
<tr>
<td>1:20-1:40 p.m.</td>
<td>Matt Fahrenbruch</td>
<td>An examination of shifting economic conditions and changing vulnerabilities in San Juan del Sur, Nicaragua since the 1992 Nicaraguan Tsunami</td>
</tr>
<tr>
<td>1:40-2:00 p.m.</td>
<td>Cory Bowers</td>
<td>Internet Security Practices at the University of North Dakota</td>
</tr>
<tr>
<td>2:00-2:20 p.m.</td>
<td>Jason Champagne</td>
<td>The Connection Between Food Insecurity &amp; Diabetes Among Northern Plains Tribes</td>
</tr>
<tr>
<td>2:20-2:40 p.m.</td>
<td>John Neis</td>
<td>Automatic Galaxy Morphology Classification System</td>
</tr>
<tr>
<td>2:40-3:00 p.m.</td>
<td>Tyrone Grandstrand</td>
<td>A Cooperative Solution to Market Failure</td>
</tr>
</tbody>
</table>
**Abstract**

Trees provide habitat for wildlife, convert atmospheric carbon dioxide into oxygen, and can be used for a variety of products such as fiber, wood and medicine. Damage to trees by native and invasive insect pests can result in a large scale loss of trees, negatively impacting other wildlife and causing substantial economic losses. To combat insect herbivory, trees have evolved a diversity of defenses against insect pests, most of these falling under the categories of physical and chemical defenses. However, currently little is known about how these defenses are regulated. Understanding the genetic basis of tree defenses would enable tree breeders to select for more insect resistant trees in the future. To achieve this goal, our lab has employed a forward genetics approach consisting of a phenotypic screen of genetically modified poplar trees (Populus tremula x P. alba) to identify individual mutants with increased resistance or susceptibility to insect feeding. This screen identified multiple candidates of interest including Insect Susceptible 1 (IS1). Here we present the results of insect bioassays designed to measure feeding preference and development of white-marked tussock moth (Orgyia leucostigma; a native pest of poplar) larvae on the IS1 mutant.

**Hello my name is Jessica Greer.** I’m a junior at UND majoring in biology with a focus in evolutionary and ecological biology. My long-term goal is to get a Ph.D in environmental biology and have my own research laboratory. In preparation for this, I’m working on my undergraduate degree and getting research experience through my position as an undergraduate research assistant in a plant molecular biology research lab. When I’m not in the lab or at classes, I enjoy getting involved with volunteer work such as bird surveys, learning about graduate student’s research through job shadowing, and getting involved in children’s science education outreach. Other interests include organic gardening, birding, taking trips to different biomes and looking after a visiting pet cichlid.

**Mentor:** Steven Ralph, Ph.D., is an Assistant Professor at the Biology department and is in his first year with the University of North Dakota. He received his B.S. in 1996, Biological Sciences, from the University of Windsor in Ontario, Canada. He then got his Ph.D. in 2002 in Biochemistry and Molecular Biology from the University of British Columbia in British Columbia, Canada. He followed this with post-doctoral research with Genome Canada in the Department of Forest Sciences from 2002-2005, and then in Michael Smith Laboratories from 2005-2007. In 2007 he became an Assistant Professor at UND and his field of research includes Plant Genomics, Forest Tree Biology, Plant-Insect Interactions, Phytochemistry, Plant Molecular Biology. In particular, he is currently researching the plant defenses employed by the poplar tree in response to insect herbivory. One program is involved with the signaling pathway involved in response to insect feeding and the other involves the discovery of novel genes involved in conveying resistance to insect herbivory. I am doing research with the latter.
In the past half-decade private social networking websites have provided an attractive platform to Internet subscribers seeking connection: connection to their world, their neighbors, co-workers, and family, as well as to complete strangers. These sites provide many conveniences to the subscriber. Subscribers can see the lives of those in their network that have their information permanently published on the Internet. The user accomplishes this by selecting “feeds” of social information to follow. Users also share their own lives with their networks by updating their status, uploading pictures and videos, and leaving messages for their “friends” to read. However, the rapid migration of users to these sites poses a significant threat to privacy and individual autonomy.

The subscribers’ rapid dissemination of reputational information across the spectrum of the Internet brings multiple social norms into conflict. Free speech protects the users’ ability to seamlessly share information about others at the expense of the other’s privacy. Privacy interferes with the subscriber’s right to avoid deception by investigating another user’s life. Finally, undisqualified dissemination of information may instigate digital, libelous accusations that require the protections of legal recourse. The U.S. Constitution enshrines both a fundamental right to free speech and to privacy. This research articulates why subscribers must have the capability to secure their online reputations by having the means to prevent other users from publishing invasive content on social networks. Based on the need for legal protections of privacy on social networks, this research seeks to identify what governmental institutions may defend the user’s information and data. Due to the borderless nature of the Internet, the protection burden falls onto the federal government. What federal executive agencies exist or need to exist to provide U.S. social network users, of which there are many, the protections they need to secure their private information in an online space? What best practices from online social networking businesses may other providers from across the industry emulate in order to afford their users adequate privacy protections? How might government and business conceptualize online, digital privacy in a manner that will provide a foundation for the development of a strong legal and regulatory framework that protects the subscriber as they navigate through an online social network? Ultimately, public policy must seek to regulate the protections afforded to the subscriber in order to reconcile conflict between free speech and privacy.

Hello my name is Logan Stundal. The McNair’s program goals exemplify my own academic goals. As a Political Science major I intend to pursue graduate studies in Political Science with the goal of obtaining my Ph.D. I hope to utilize that degree to convince a university somewhere to give me a job that involves thinking and reading, two activities I already engage in without pay. My interest in political science germinated early in my college experience. While reading political theory in English literature, one of my first college classes, I developed an interest on why society structured government in the manner it had (my political science classes have not yet satisfied that interest in any substantive way).

McNair enticed me to expand my ambitions as an undergraduate student. I enrolled in graduate level classes to expand my knowledge. In one graduate class I studied the intersection of government and business to investigate how the two relate to and rely upon one another. In another graduate class I studied the philosophical history of the capitalist system. I did not realize it at the time, but the topics in these two classes ignited within me a new sub-interest in political science that I hope to investigate in graduate school. Specifically, I want to explore the effectiveness of the global marketplace. I wonder to what degree the market make us free. Also, who is “us?” Pursuing a Ph.D. will offer me the opportunity to examine such questions. The McNair program has helped nudge me toward that goal.

Besides wondering questions which no one in their right state of mind would wonder, I enjoy spending time with my partner, Korey Southerland, asking her questions which make her wonder why I wonder what I wonder. I enjoy reading and writing, but I am not too fond of arithmetic. Finally, I very much like to spend time pontificating about trivialities such as how express shopping lanes are a deceptive lie or how cold weather is too cold.

Mentor: Dana Michael Harsell, Ph.D., is an Assistant Professor of Political Science and Public Administration at the University of North Dakota. He teaches courses in American government, public administration and management, and state and local government. Harsell holds a BA in Political Science and Psychology and an MA in Political Science, both from the University of Montana, and a Ph.D. in Political Science from Syracuse University. Dana’s research interests include public management, government performance and accountability, public service provision, and teaching methods in political science and public administration.
Abstract
Through a literature review this research will addresses the connection between public uncertainty about the existence of anthropogenic (human induced) climate change and how that uncertainty affects public policy outcomes. Climate scientists have reached consensus on the human contribution to climate change. If scientific consensus regarding the human impact of climate change exists, what simulates general public uncertainty? The general public acquires information about climate change from numerous sources, but predominantly, the public relies upon the news media. This news media influences public beliefs, attitudes, and values that reinforce incorrect perceptions of climate change. As well, it is important to consider who influences the media and how scientists communicate to the media. This research will focus on establishing a firm understanding of how the news media communicates to the public by using balanced viewpoints and how that trickles into the policy agendas of politicians and political stakeholders. In order to have sound climate policy the public must understand the significance of climate change and what that means for the future.

Korey Southerland is from Minneapolis, Minnesota. Before coming to UND, she completed the Transfer curriculum at Minneapolis Community and Technical College, where she was co-founder of the Student Committee on Public Engagement. She was a delegate to two Minnesota elections and has demonstrated her dedication to public service by volunteering and conducting outreach with varied political and community organizations. In the spring of 2010 she received the Milton R. Young scholarship which is a competitive political science departmental scholarship that seeks recipients with a precocious dedication to public service. Korey is double-majoring in Political Science and Environmental Geography with an emphasis in Atmospheric Science; she is also seeking a Mathematics minor. Korey was a weather intern for “Studio One” (the school’s television network) during the fall of 2010 where she was a reporter. In the summer of 2010 she participated in UND’s competitive “Communicating Climate Change” internship, funded by NASA’s Global Climate Change Education Program, where she conducted research using NASA Earth observation datasets and designed translational webcasts and lesson plans for students and the general public. With faculty advisor Dr. Gretchen Mullendore in atmospheric science, Korey recently established a group on campus titled UND Women in Science. During the spring of 2011, Korey presented research at the American Meteorological Society Conference in Seattle, and at a new undergraduate political science conference in Winnipeg titled “Red River Corridor Undergraduate Political Science Conference.” She will be presenting as a co-author at a competitive conference in Washington DC, Posters on The Hill, with Logan Stundal (another McNair scholar) who was accepted into the conference to present on privacy rights regarding social network users. On top of her class work and outside activities, she is a volleyball coach for an intramural team on campus. Korey plans to pursue her doctorate in Atmospheric Policy or Climate Science, with an emphasis on identifying and specifying best practices within the scientific community for translational research on carbon emissions and climate change to promote effective communication with public and industry officials, inform the general public, and develop sound public policy.

Mentor: Gretchen L. Mullendore, Ph.D., is an Assistant Professor at UND. She received her Ph.D. in Atmospheric Sciences from the University of Washington in 2003 and her B.S. in Geophysics from University of California, Santa Barbara in 1998. She worked as a postgraduate research associate at University of California, Los Angeles, from 2004 to 2007. Recent work has focused on convection initiation due to convectively-generated gravity waves and the forecasting of coastal clouds in Southern California. Past research includes tropospheric-stratospheric exchange in deep convection and the adaptation of cloud-resolving models for new applications. Dr. Mullendore’s research interests include: numerical modeling, convective transport, mesoscale dynamics, tropospheric-stratospheric exchange, cloud modeling, and convection initiation.
Abstract
The purpose of this research is to explore the health disparities that exist in American Indian populations. American Indians (AIs) suffer from considerable health disparities as compared with the general U.S. population, including significantly higher incidence and prevalence of preventable diseases like diabetes, alcoholism, and their complications. Underfunding of health programs, including the Indian Health Service, and lower socioeconomic status among AIs contribute to these disparities. Understanding how economic and political forces have operated historically can explain both the persistence of the health disparities and the controversies that surround them. Misunderstandings lead to further limitations of funding and accessibility to healthcare services. More awareness and political advocacy is needed in this area in order to make improvements in the quality of healthcare AIs receive.

Funding through the McNair and UND INBRE programs.

Hello my name is Sierra Davis and I am an enrolled member of the Mandan, Hidatsa, & Arikara Nation. I have been a research assistant for Dr. Jacque Gray over the past three years as a McNair and REFUNDU Scholar, working on the Good Health TV evaluation project. I have interned under the supervision of Dr. Jessica White Plume with the Sunka Wakan Ah-ku (Bringing Back the Horses Program) out at the Spirit Lake Dakota reservation. I will be graduating this coming May with my B.A. in Psychology and minor in Nonprofit Leadership. I plan to attend graduate school in Public Administration or Public Health with emphasis in the areas of nonprofit and health policy.

Mentor: Jacqueline Gray, Ph.D., is an Assistant Professor at the Center for Rural Health at the University of North Dakota (UND) School of Medicine and Health Sciences. She works with several projects including the UND Campus Suicide Prevention Project, the Northern Plains Native American Research Center for Health (NARCH) Mood Disorder Assessment Validation Study with Northern Plains Indians, the North Dakota State Epidemiology Outcomes Workgroup (SEOW) on Substance Use, the Idea Network for Biomedical Research Excellence (INBRE) Cankdeska Cikana Community College (CCCC; Spirit Lake) Research Capacity Building and the UND American Indian Research Forum.

Dr. Gray is from Oklahoma and of Choctaw and Cherokee descent. She has worked with tribes in throughout Indian Country over the past 25 years in the areas of health, education, counseling, and program development. She also has experience in medical research at the Oklahoma Health Sciences Center in Oklahoma City and at the Norman Regional Hospital. She came to North Dakota in 1999 as a visiting professor in the UND Department of Counseling and in 2001, became a post-doctoral fellow at the Grand Forks Human Nutrition Research Center of the USDA Agricultural Research Service.
Desireé Bernal
Poverty and Urban Education: Methods for Teaching Children in Poverty

**Major:**
Early Childhood/Elementary Education

**Mentor:**
Dr. Jill Shafer

**Graduation date:**
May 2012

**Abstract**
There are major issues with education and children when it comes to poverty. The importance of a quality education is profoundly impacting on a child’s life. There is a large gap between the educational performance of children who live in poverty, and those who do not. Children in poverty enter the education system at a disadvantage. That education can be the foundation for a life outside of poverty. This presentation on Poverty and Urban Education represents the culmination of an extensive literature review on this topic, which explores the direct correlation that poverty has on education. Subtopics include: Defining poverty and how it is measured; statistics related to urban poverty; types of poverty; effects of poverty on development (i.e., physical, social emotional and sociological); challenges teachers face working with children from impoverished backgrounds; and suggested methodologies for teaching children living in poverty and attending urban schools. Participants will gain knowledge on a variety of key methods that could be effective for working with children and families living in poverty. They will also attain a better view into the world of teaching children in poverty.

Hello, my name is Desireé Bernal, I grew up in Cloquet, Minnesota and Lewiston, Idaho. I am currently a senior at the University of North Dakota. I am double majoring in Early Childhood and Elementary Education. I will graduate in December of 2012. I have been a member of the McNair Scholars Program since the fall of 2008. I am a member of Tau Sigma, National Scholars Honors societies. I am also a member of the Multicultural Anti-Racism Team (MCAT) and the Teaching and Learning Diversity Committee here at UND. I recently won an award for Excellence in Scholarly Research for my presentation at the 10th Annual Research Symposium, and 25th Anniversary of the Ronald E. McNair Program at the University of North Carolina A&T in Greensboro, NC. My research involves issues with poverty and urban education including the implications for teaching children in poverty. I plan to attend graduate school immediately after completing my undergraduate degree. My life passion is to work in poverty stricken urban area schools. I want to be a positive influence on my students and hope that I can direct, support and encourage them for educational and life success.

**Mentor:** Jill Shafer, Ph.D., is an Assistant Professor in the Department of Teaching and Learning at the University of North Dakota. She is the director of the graduate Masters and Certificate Programs in English Language Learner education. She currently teaches multicultural education and English language learner education courses. Her research areas include preparing pre-service teachers for working with diverse populations and community efforts for supporting refugee populations to integrate into the community.

Dr. Shafer received her Ph.D. from Texas A&M University in Adult and Extension Education. She has taught both English Language Learner Education to students in the U.S. and English as a Foreign Language to students in Uzbekistan. Prior to joining the faculty at UND, she directed the intensive English language program located on UND campus.
Hello my name is Seinquis Slater and I am currently a senior at UND majoring in Sociology. I plan to graduate in August 2011, and attend graduate school here to obtain my Masters of Arts in Sociology. Originally from Fort Walton Beach, Florida, I moved here in 1995 when my grandfather was stationed at Minot Air Force Base. I have been in North Dakota ever since and I am glad to call Grand Forks my home. I have one younger brother, Vaunshae, who lives in Omaha, Nebraska with my mother, Syneathea. I became a McNair Scholar in the summer of 2009, and I can proudly say that McNair has made me the person I am today. My career goal is to become Vice President of Student Affairs at a respected college or university in the U.S. Upon receiving my MA in Sociology, I hope to get my Ph.D. in Educational Leadership or a related field. I have a passion for serving students and am a true advocate for learning outside of the classroom.

Mentor: Jeffrey Langstraat, Ph.D., is an Assistant Professor of Sociology. He received his Ph.D. from Boston College. His research work focuses on sexual politics at the intersection of social movements and mass media, with a particular focus on LGBT issues and representations. He teaches courses on social inequality, race and ethnicity, sexuality, and sociological theory.

Abstract
Interracial dating has not always been highly accepted in society, but is becoming more accepted today. Due to the increasing percentages of interracial relationships, in particular black-white relationships, it’s important to understand the experiences of such couples that determine the stability, satisfaction, happiness, and/or quality of the relationship. Living in a predominately white society could also impact the overall success of such relationships. By evaluating the experiences of college students who’ve been in such relationships and live in a predominately white city, I will discuss my findings on the experiences of the individuals in these types of relationships.
The term “No Child Left Behind” may seem familiar to many of us but not “No Culture Left Behind.”

Faculty Diversity in Higher Education is a never-ending complex issue that includes efforts to defeat anti-affirmative action. Affirmative action advocates have long lauded the educational benefits of ethnic and racial diversity among faculty. However, the opponents see it as nothing more than a cover-up for racial quotas and balancing. As a result, faculty of color in higher education remains seriously underrepresented. Additionally, recruitment (and retention) of underrepresented minority faculty in higher education remains a major concern. At the university level, collaboration between the provost, elected diversity officers, key administrators, faculty members, and community leaders to advance diversity goals could help to ensure inclusive and safe learning communities rooted in deep awareness, thorough understanding, and genuine appreciation of cross-cultural differences in an increasingly diverse world. No culture should be left behind as our differences make us stronger!

Hello my name is Enoch Hankerson and I am a senior double majoring in Interdisciplinary Studies: Multicultural Studies and Peace Studies here at UND. I was born in Indianapolis but raised on the Midwest/West Coast. I moved to Grand Forks in the Fall 2007 to attend UND and raise my son. In 2010, I enrolled as a McNair Scholar and my research is focused on Faculty Diversity in Higher Education. Currently, I am exploring graduate school options as well as program resources before submitting my application to the graduate school. I am particularly interested in education graduate programs or those related to law in order to further my knowledge in multicultural studies, international relations, and human rights. My dream job is to be a college professor and/or practice human rights law.

Mentor: Sagini Keengwe, Ph.D., joined the department of Teaching and Learning at UND in 2007. He previously taught at Muskingum University (Ohio) and Indiana State University where he also received his Ph.D. in Curriculum and Instruction (Educational Technology) in 2006.

Dr. Keengwe teaches undergraduate educational technology and multicultural education courses and diversity in higher education courses. Dr. Keengwe serves as the co-chair of Diversity Committee in the Department of Teaching and Learning. He is excited about different ways to use instructional technology tools to foster novel learning experiences. Additionally, one of his primary teaching goals is to empower all students with the cross-cultural knowledge, skills, and attitudes to embrace and affirm diversity in their families, communities, and future schools.
Hello, my name is Isaac Allmaras. I was born and raised in Minot, ND but have currently lived in Grand Forks for the past 10 years now. I am a senior at the University Of North Dakota and Majoring in Marketing with an emphasis in sales. After graduating, my future goal is to obtain an MBA and to continue on to my Ph.D. I enjoy doing research and would someday like to build my career in a college setting teaching students. The McNair Program has been wonderful and has helped me prepare for the road that follows. The program is helping me pursue my goals and the weekly/monthly meetings I have attended has kept me on track, and has given me great insight on different types of programs that are available. In my free time, I enjoy being outdoors and playing all types of sports. Building lasting relationships has always been held very high to me, and I have made some valuable relationships while at UND.

**Mentor:** Robert Tangsrud, Ph.D., has been teaching Marketing since 1992. He completed his MBA at the University of North Dakota and stayed on as a Lecturer before beginning Ph.D. coursework at the University of Manitoba. He returned to UND in 1999 as an Assistant Professor, and completed his Ph.D. in 2001. Dr. Tangsrud’s research interests have included international market development, age-related differences in consumer behavior, and business network relationships. He has published articles, proceedings, and papers in a variety of outlets. His articles have appeared in Business & the Contemporary World, The Journal of Business Research, and The Academy of Marketing Studies Journal. Dr. Tangsrud has presented his work at numerous national and international scholarly conferences, winning a number of awards along the way. In addition, he has made many presentations to student and practitioner audiences on a variety of business issues. He consults regularly with firms of local, national, and international scope.

---

**Abstract**

This research project focuses on the impact of social media networks pertaining to facebook, twitter, and blogs, and evaluating the effects they have on for-profit and nonprofit organizations. The intent of this study is to understand how much actual impact social networks have on potential consumers, and how influential online medias can effectively promote products and services. Social networking has evolved over the past decade along with the advancement of technology, and is a tool that is used to promote an organization or person when used in the business context. The study is based upon experience working with a State Farm Agent, as well as with a Marketing Coordinator from a private school to study the use of social networks in both for-profit and nonprofit business environments. Two separate business pages will be created for facebook and twitter, and the feedback that is received will be assessed throughout the study. Research involves reading books and (sponsored) white papers on social media uses, tactics, significance, and effectiveness; talking to college students and business professionals on their awareness and opinions of how social networks influence them; and, observing first-hand the effects that networking has on these different types of businesses.
Abstract
San Juan del Sur is a small Pacific Coast town of approximately 5,000 residents in Southwest Nicaragua. On 2 September 1992, the town was inundated by a large tsunami. United Nations situation reports made at the time estimated that 60% of the homes in the town were destroyed and approximately 819 residents were evacuated. The San Juan del Sur economy, at the time of the event, was focused primarily on fishing and shipping. However, since the 1992 tsunami, the area has seen an influx of tourism and real-estate investment, to the point that a majority of the residents are now employed directly or indirectly by these industries.

The goal of this study is to determine how this economic shift has affected the vulnerability of San Juan del Sur to a similar event in the future. For this study, background research was done both to determine the level of the inundation in San Juan del Sur and the response of communities of similar economic make-up to similar events. Preliminary results suggest that tourism economies are viewed differently by relief organizations and have different needs during the recovery process compared to traditional economies. In addition, a comparison between a 1992 field survey after the event and current tourism maps available from San Juan del Sur promotional websites suggest that a large proportion of the tourism infrastructure in the town lies within the 1992 inundation zone, suggesting physical vulnerability of the town’s main industry.

Hello, my name is Matthew Fahrenbruch. I am originally from the Front Range of Colorado and now live with my wife Melissa in Gilby, ND. In 2006 we moved to Grand Forks to escape the economic and housing crisis that was bearing down on the West, especially Southern Nevada. After working menial jobs for a couple years, I entered UND in Fall 2008 majoring in geography and was accepted the following summer into the Ronald E. McNair Program.

I have made it a priority to achieve excellence in both my coursework and my involvement within the department. This determination has resulted in being named to the President’s Honor Roll and the Dean’s list every semester; and serving as an officer on two academic honor societies: Treasurer for Tau Sigma and the President of the Psi Chapter of Gamma Theta Upsilon. I have also participated in scholarly exercises such as regional conferences and university forums. With help from the McNair Program and my advisor, Dr. Bradley Rundquist, I have had several opportunities, both through McNair and through my department, for presenting my research. The presentations include: the Great Plains/Rocky Mountain Association of American Geographers at the University of Kansas in fall 2010 (a poster dealing with the mapping of invasive plant species using remote sensing techniques), and a presentation on my current research at the South Dakota State Geography Convention in Spring 2011. My current interests include sustainable development, international development, Latin America and the US Southwest. I firmly believe the future of the US will rest heavily on our relationship with our Latin American neighbors; one only needs to look at the blurring cultural divide in the Southwest to see just how fast this relationship is changing our country. My current research looks at how shifts from traditional to tourism based economies can affect the vulnerability of communities in developing countries. Recently, I spent a month in the small Nicaraguan community of San Juan del Sur, both research and volunteering. This allowed me to confront some of the realities that ‘communities in flux’ are living with. I plan on carrying this research and these interests into a graduate program after I graduate in May. Graduate schools I am currently considering include: University of Denver, University of Southern Mississippi, and California State Long Beach.

After graduate school I would like to return to the Southwest or possibly Latin America. I believe I have a bright future in academics and an academic career is my main goal. I could also see myself being involved with organizations such as the United States Agency for International Development, or The United Nations Development Program.

Mentor: Bradley Rundquist, Ph.D., an Associate Professor in the Department of Geography, received his Ph.D. from Kansas State University in 2000. His master’s was completed at Kansas State in 1995 and his bachelor’s at the University of Nebraska-Lincoln in 1991. In 1995-96, he worked as an associate scientist for Lockheed Martin at the NASA Johnson Space Center supporting the Human-Directed Earth Observations (astronaut photography) program. Dr. Rundquist teaches remote sensing, geographic information systems, and physical geography courses. His research interests are spatial and temporal variation in vegetation dynamics, vegetation response to climate change, environmental remote sensing and modeling with geographic information systems, and proximal environmental remote sensing. Dr Rundquist, who has been at UND since August 2000, holds adjunct appointments in the departments of Space Studies and Earth System Science and Policy.
Hello, my name is Cory Bowers. I am from a small town in Minnesota called Lake Park. I am currently a Senior at UND. I will be graduating in the Spring of 2012 with a major in Computer Science and a second major in Criminal Justice Studies. I will be pursuing a graduate program in the field of computer forensics and/or cyber security. I hope to one day work for the government in the fight against cyber crime and cyber terrorism. In my spare time I love spending time with my fiancé, friends, and family (especially my niece and two nephews). I am an avid movie-goer who loves to head to the nearest theater to catch the latest blockbuster or else just stay home and have a movie marathon.

Mentor: Ronald Marsh, Ph.D., is an Associate Professor & the Chair of the Computer Science Department. In 1998, he received Ph.D. in Computer Science from North Dakota State University; M.A. in Computer Science in 1995 and B.S. in Physics in 1985, both from North Dakota State University. Dr. Marsh joined the University of North Dakota faculty in 1999 as an assistant professor of Computer Science. He was promoted to the rank of associate professor in 2005. He was appointed Chair in 2008.

Dr. Marsh brings to the team over 23 years of research and applications experience with the design of weapons systems, including image processing, target recognition, and optical design. He was an optical engineer with the Naval Air Warfare Center, China Lake, Ca. for 8 years where he contributed to the design of several naval weapons systems. His current research efforts include image processing, computer graphics, and computer science education. Relevant experiences include the following: lead engineer for the development of a 4-f optical correlator as part of a proposed upgrade for the cruise missile’s target recognition system, lead engineer for the development and deployment of a naval sensor suite, lead engineer for the development of optical systems (seekers) for several naval missile systems, participated in the development of flight planning software for the cruise missile, conducted image processing research on several food processing applications, pattern recognition systems, and image analysis systems, and is currently leading the development of UND’s GPARS-RMS information display systems.
Abstract

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

Hello, my name is Jason Champagne, originally from the small town of Baldwin, Kansas. I am a member of the Red Lake Band of Chippewa, and a senior at the University of North Dakota (UND) double majoring in community nutrition and Indian studies. As a McNair scholar, I am conducting research pertaining to American Indian diet in relation to diabetes complications, under the supervision of my mentor Jacque Gray, Ph.D.. My senior thesis involves possible connections between food insecurity and diabetes among Northern Plains Indians. I am also a participant in the Multicultural Scholarship into Dietetics Program (MSDP) which is administered by Jan Goodwin, Ph.D., RD/LRD, FADA.

My professional education began with my training as a chef at Le Cordon Bleu @ Brown College in Mendota Heights, MN. From 2006 to 2008, I worked as a chef for Walt Disney World (WDW) in Orlando, Florida; first as a college intern for 4 months and then as a sous chef intern at the Caribbean Beach Resort. This experience helped me realize that I can become a leader and promote necessary changes that directly improve people’s lives.

I have worked extremely hard to acquire educational funding and realize success throughout my higher education experience. I have pursued and been awarded numerous scholarships. In October 2010, I was recognized as an Alan Allery American Indian Undergraduate Health Researcher of Promise, at the 8th Annual American Indian Health Research Conference held at the Alerus Center in Grand Forks.

In September, 2011, I will begin a Master of Public Health (MPH) degree program in Public Health Nutrition in the Division of Epidemiology and Community Health within the University of Minnesota’s School of Public Health. I will also complete the Coordinated Masters Program (CMP) track, which will make me eligible to take the national registration examination for dietitians as well as complete the MPH degree. My professional aspirations include spending my career with the Indian Health Service (IHS). My short term goal is to gain an entry level position in counseling and education with IHS. My long-term goal is to provide outreach, education, and services that will markedly impact the critical rates of obesity and diabetes among American Indians and throughout reservation communities of the region and nationwide. I would like to serve current nutrition and diabetic programs in existence, helping to identify additional funding through federal grant sources aimed at developing and implementing diabetes and obesity prevention programs that are tailored specifically for the unique needs and cultures of American Indian populations. I would like to set realistic goals for American Indian communities regarding these health issues; for example, significantly reducing the number of obesity and diabetic cases treated by IHS offices.

Mentor: Jacqueline Gray, Ph.D., is an Assistant Professor at the Center for Rural Health at the University of North Dakota (UND) School of Medicine and Health Sciences. She works with several projects including the UND Campus Suicide Prevention Project, the Northern Plains Native American Research Center for Health (NARCH) Mood Disorder Assessment Validation Study with Northern Plains Indians, the North Dakota State Epidemiology Outcomes Workgroup (SEOW) on Substance Use, the Idea Network for Biomedical Research Excellence (INBRE) Cankdeska Cikana Community College (CCCC; Spirit Lake) Research Capacity Building and the UND American Indian Research Forum.

Dr. Gray is from Oklahoma and of Choctaw and Cherokee descent. She has worked with tribes in throughout Indian Country over the past 25 years in the areas of health, education, counseling, and program development. She also has experience in medical research at the Oklahoma Health Sciences Center in Oklahoma City and at the Norman Regional Hospital. She came to North Dakota in 1999 as a visiting professor in the UND Department of Counseling and in 2001, became a post-doctoral fellow at the Grand Forks Human Nutrition Research Center of the USDA Agricultural Research Service.
Abstract
In order to catalog galaxies more efficiently, Roberto Abraham (University of Toronto) created a galaxy morphology program that analyzes FITS images taken directly from large observatories and uses intricate code to calculate the asymmetry and central concentration of the galaxy. These values indicate the type of galaxy present in the FITS image. However, the program was only able to analyze images of one galaxy at a time, which is very time consuming. The research consisted of learning and using the Fortran programming language to modify the existing astromophlogy program to accept images of multiple galaxies; catalog their position, central concentration, and asymmetry; and write those results out to a file. This file will later be used for cataloging information about galaxy clusters.

Mentor: Wayne Barkhouse, Ph.D., is an Assistant Professor in the Department of Physics and Astrophysics at the University of North Dakota. He received his Ph.D. at the University of Toronto, and held a postdoctoral position at the Harvard-Smithsonian Center for Astrophysics and in the Department of Astronomy at the University of Illinois (Urbana-Champaign). His research interests include: cosmology, dark energy, globular clusters, quasars, and the formation and evolution of galaxy clusters.
One of the most fundamental and necessary assumptions underlying the efficacy of a free market system is near perfectly competitive markets. However market failures do occur. In many cases there is wide agreement that these are instances where government has a role in the markets. The Cooperative Business Model offers a solution when government involvement is not widely accepted, unique problems make general solutions ineffective or when the solution to market failure must be more nimble and responsive to local conditions. From health food and overfishing to housing and industry, the Cooperative Business Model can be used to solve local, regional and perhaps even global market failures.

Hello, my name is Tyrone Grandstrand. I am currently a senior at UND majoring in Economics and Political Science. I plan to graduate in December 2011, and attend graduate school at UND. Originally from Karlstad, Minnesota, I moved to Grand Forks in 1997. I have been in North Dakota ever since and I am glad to call Grand Forks my home. I have a younger sister, Tyneal, and two younger brothers, Tatum and Jake. I became a McNair Scholar in the Spring of 2010. McNair has given me a great opportunity to both prepare for graduate school while being able to afford college without a mountain of debt. My future goal is to become a social entrepreneur with a mission of ensuring more people are able to have the same great opportunities I have had. I have a passion for trying to figure out what the root causes are behind problems, and I aim to solve them using the great experience I am gaining through McNair and in the future through my graduate studies.

Mentor: Jason Jensen, Ph.D., is an Associate Professor in the Department of Political Science and Public Administration at the University of North Dakota. He received his Ph.D. in Public Administration from the Martin School at the University of Kentucky. He has taught across a wide area of public administration (budgeting, intergovernmental relations, personnel) as well as methodology (policy analysis, research methods). Because of his professional experience, he also has research and teaching interests in health administration and nonprofit management. His newest passion is social entrepreneurship, which stems from his professional experience and teaching interests in nonprofit management. Acting on this interest, he initiated an interdisciplinary graduate certificate in social entrepreneurship during the 2008-2009 academic year, which has received approval and is under development. His research interests relate to the intersection of public policy and organizational theory. His work has appeared in the Journal of Public Administration Research and Theory, Public Administration Review, and Policy Studies Journal.
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

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

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).

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

Ronald E. McNair 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.