

TRIO

McNair Scholars Program
ST. OLAF COLLEGE

McNair Summer Experiences 2015



<http://wp.stolaf.edu/mcnair/>

Booklet Highlights

During the summer of 2015, ten rising juniors and seniors were paired with a St. Olaf faculty mentor who guided their participation in an intensive summer research experience. Students produced research papers, posters, and presented at the St. Olaf Summer Research Symposium. This booklet highlights summer research experiences at St. Olaf, in addition to Scholars' participation in *off-campus* summer research and internship experiences.

Program Introduction

TRIO McNair is a graduate school preparatory program funded by the U.S. Department of Education and sponsored by St. Olaf College. It was founded in 1989 and initiated at St. Olaf College in 2007. Nationally there are 158 McNair programs working with over 4,400 low-income, first-generation, and underrepresented undergraduate students. (The federal government defines "underrepresented" to include: Black; Hispanic; American Indian/Alaskan Native, Native Hawaiians and other Pacific Islanders.) The program is further described on our website: <http://wp.stolaf.edu/mcnair/>.

Program Goals

The federal goal of the TRIO McNair Scholars Program is to increase the number of low-income, first-generation, and underrepresented students who participate in undergraduate research, graduate with a B.A., and immediately enter and complete graduate school, with a specific focus on obtaining a Ph.D. The program identifies students with high academic potential and provides opportunities for students to develop skills necessary to gain admission to and successfully complete graduate study.

All TRIO McNair projects must meet the federally approved program objectives each academic year.

Objective 1: 90% of participants will complete research or scholarly activities each academic year.

Objective 2: 50% of B.A. recipients will enroll in graduate school immediately following graduation.

Objective 3: 80% of first-year graduate students will continue to be enrolled in graduate school.

Objective 4: 10% of participants will attain a Ph.D. within ten years.

Participants

Annually, 28 undergraduates participate in the St. Olaf TRIO McNair Scholars Program.

- Two-thirds of the participants meet federal income guidelines and are from a family in which neither parent graduated from a four-year postsecondary educational institution.
- One-third may be from groups that are traditionally underrepresented in graduate studies.
- Participants have completed at least 2 courses in their major and have a GPA of 2.75 or higher.

Services

McNair Scholars receive assistance with:

- On or off-campus internship/research experience - summer of sophomore year to explore field
- McNair research experience - summer of junior year. Participants are paired with faculty mentors
- Research Writing Course (1 credit and WRI) - summer of junior year to learn how to write an effective proposal, conduct research, and present results
- Preparation for graduate school admissions tests
- Graduate school search and application assistance
- Financial aid, fellowship, and scholarship applications assistance

St. Olaf TRIO McNair Alumni Demographic Summary (2008-2015)

Females: 64% Males: 36%

BOTH low-income *and* first-generation to college: 77%

Scholar Race/Ethnicity: Asian American: 39% Black/African American: 32% Hispanic/Latino: 11%
Multiracial: 6% Native American: 2% Pacific Islander: 2% White: 12%

Total Number of St. Olaf Faculty Mentors: 48 Females: 22 Males: 26
Mentored more than one student or have participated in more than one McNair summer: 14

Post-Graduation Status:

56% of McNair graduates are enrolled in or have completed graduate school. (includes Class of 2015)

46% of students have completed or are enrolled in a Master's program.

10% of students have completed or are enrolled in a Ph.D. program.

28% of students completed or enrolled in graduate school in science, technology, engineering, or math fields.



Biography of Ronald E. McNair

"Before you can make a dream come true, you must first have one."

Dr. Ronald E. McNair

In 1986, in memory of Ronald McNair, the U.S. Congress established the Ronald E. McNair Post-Baccalaureate Achievement Program, commonly known as the TRIO McNair Scholars Program.

Dr. Ronald E. McNair's career as a scholar and astronaut stands as an inspiration to all McNair program participants. Ronald McNair, the second African American to fly in space, was born on October 21, 1950 in Lake City, South Carolina. In 1976 McNair earned a Ph.D. degree in Physics at the Massachusetts Institute of Technology and joined the Hughes Research Laboratories. Ronald McNair completed the training and evaluation course for shuttle mission specialists and began working at the Shuttle Avionics Integration Laboratory and later worked for NASA. Even though Dr. McNair's awards and special recognitions are numerous, he will be best remembered as being among those who died on January 28, 1986 when the Space Shuttle Challenger exploded after the launch. Dr. McNair was a mission specialist on that flight. His lifelong commitment to scholarship lives on in the McNair Scholars who are selected each year to participate in the many McNair programs across the United States.



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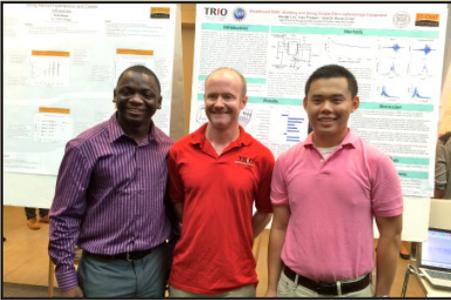
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Pictured from left to right:
Janis Johnson, Melissa Melgar

St. Olaf Summer Research



Faculty Mentor: Dr. Crisp

Dr. Kevin Crisp earned a B.A. in psychology with department honors, a concentration in Brain and Behavioral Science from Haverford College, and his Ph.D. in Neuroscience from the University of Minnesota. While he was in school, Dr. Crisp studied abroad in London at the University College London. His field of interest was Anatomy and Developmental Biology. Dr. Crisp worked on a post-doctoral fellowship at the University of Minnesota, completed postdoctoral research at the University of Miami, and earned his Instructor (SURPN) degree at the UMN Itasca Field Station. He is currently an Associate Professor at St. Olaf College. Dr. Crisp has published several book chapters and papers. He has received many grants and fellowship awards throughout his career. His research interests include wireless innovations in electrophysiology, computational modeling of neuronal biophysics and circuits, motor control and human performance. Dr. Crisp is passionate about his career and loves to share his passion with determined students who are willing to learn.

Hunter Lin

Major: Biology

Issa Prosper

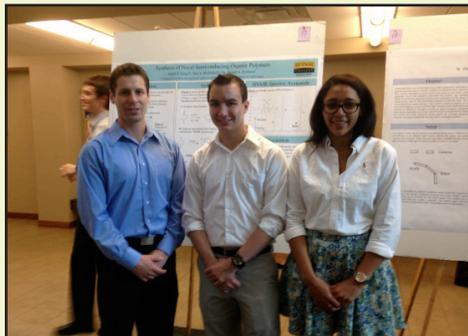
Major: Math



"The highlights of my McNair summer were being able to conduct research, build equipment that makes scientific exploration easy, and prepare for the GRE. The research helped me to understand the basic concept of electronics. From McNair I learned about the value of graduate study and GRE preparation, as well as how McNair helps students like me to further their education. I also discovered the graduate program that fits my career interests. I am planning to apply to the Occupational Therapy program at the University of Minnesota Twin Cities, St. Thomas, Rochester, Iowa State University, and the University of South Dakota."

Research Title: Breadboard EMG: Building and Using Simple Electrophysiology Equipment

Abstract: Electrophysiology is a valuable skill set for the neuroscientist, but the complexity of the devices and software used in undergraduate teaching labs can present barriers to learning. Here we describe a very simple electromyography (EMG) that can be built from scratch by students with no electronics experience in about 30 minutes, making it ideal for incorporating into a laboratory activity. With a low part count and no adjustments needed except the gain, students can begin physiology experiments quickly while having the satisfaction of having built the necessary equipment themselves. Because the output of the circuit goes to a computer sound card, students can listen to electrophysiological activity as they see it on the computer screen, a feature many of our students greatly appreciate. Various applications are discussed, including using streaming media platforms with remote lab partners, and acquiring data in the field on a smart phone. Our students reported that they enjoyed being able to build a working device and using it to record data from their muscles.



Faculty Mentor: Dr. Daniel Everson

Dr. Daniel Everson is a visiting assistant professor at St. Olaf College. He graduated from the University of St. Thomas with a Bachelors degree in Chemistry and from the University of Rochester with a Ph.D. in Chemistry. His research interests include using transition metals to develop organic reactions with only a single electron transfer. He is also interested in making organic photovoltaic cells more efficient and cost effective. He has numerous publications, most pertaining to the subjects of Electrophile and Alkyl groups. Dr. Everson has also received many awards that include, but are not limited to, major scholar awards and fellowships.

Alia McDaniel

Major: Chemistry



“The highlight of my summer was re-searching and all of the lab time that I had. I was also able to sit in on the St. Olaf Organic Chemistry course, which will help prepare me for taking the class next year. I learned a lot of helpful lab skills that I can use in graduate school and even in my future career. My goals are to pursue graduate school and eventually create my own cosmetics company. I feel that graduate school will make me more creditable in the field and allow me to sharpen my lab skills.”

Research Title: Synthesis of Novel Semiconducting Organic Polymers

Abstract:

Semiconducting molecules are prevalent in our lives and are becoming more common. They can be found in commercial products like solar panels. Semiconducting molecules receive light and convert it into usable energy. There has been a major emphasis on the development of renewable energy sources because of the atmospheric damage caused by fossil fuels and other non-renewable resources. It is essential that these semiconducting molecules are readily available to the public. The purpose of this research is to create a novel semiconducting organic polymer, which has a higher conversion efficiency than what is currently available.

Our primary question is whether making this polymer is feasible. The compound has never been synthesized before and is only available as a computer-generated model. It is predicted to have 10%-16% conversion efficiency because it has the photophysical properties necessary to be an efficient organic photovoltaic donor. This is much lower than traditional inorganic molecules that have 45% conversion efficiency. Organic molecules have the added benefit of lower costs that will make them more affordable for consumers and they create less waste which will contribute to becoming a more ecofriendly society.

During the summer, we completed the beginning steps in two synthetic routes to develop this molecule and are continuing to perfect those steps to optimize yield and purity. Analysis of each reaction was done using Thin-Layer Chromatograph and Nuclear Magnetic Resonance. It is our intention to continue this line of research through exploring other routes to synthesize this organic molecule.

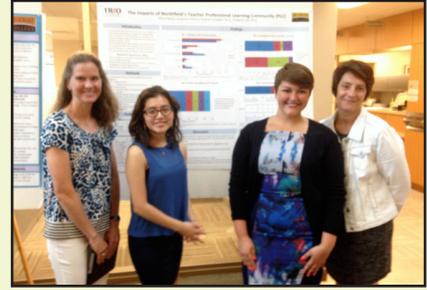
Jackie Molina

Major: Education/Race and Ethnic Studies

“Working with amazing faculty and McNair staff, I had the privilege of conducting summer research. From literature review, data-input, and fieldwork, the highlight for me was analyzing data! McNair and our mentors work hard to help us succeed. I learned that many adults at St. Olaf can be utilized as resources to help us achieve our goals. I hope to earn a M.Ed. Degree in Higher Education or Education Leadership. Whether through an administrative educational position or through a civic engagement organization, my goal is to gain training in graduate school to work towards closing the achievement gap for low-income, urban youth by creating a healthier home and school climate.”

Research Title: Impacts of Northfield’s Teacher Professional Learning Community (PLC)

Abstract: A professional learning community (PLC) enhances student learning by providing teachers with collaborative meeting time to systematically review student data and reflect on their instructional practices (DuFour, 2006). This study highlights one PLC model in a Midwestern school district that allows for a weekly 1-hour late school start for teachers to collaborate within their PLC teams. Similar to other PLC research, we explore the perceptions of teachers and administrators on the PLC implemented in the school district. However, this research is unique from others because it seeks to understand parents’ perceptions of student learning and impacts that PLC may have on family life. We distributed a survey to teachers and a different survey to parents and conducted formal 1-hour interviews with administrators. Based on qualitative analysis of surveys, teachers indicate that the PLC has improved teacher collegiality, informed teaching practice, and positively impacted student learning. However, parents report little impact of the PLC on their child’s learning, possibly due to a lack of communication from the district regarding the PLC. Parents perceive lifestyle benefits to the one hour school late start but few have knowledge regarding the academic benefits of the weekly PLC meetings. Stronger communication between the school district and parents is needed in order for parents to assess the value of the PLC and its impacts on student learning.



Faculty Mentors: Dr. Heather Campbell and Dr. Elizabeth Leer

Dr. Heather Campbell received her Educational Psychology degree with a specialty in Special Education Learning Disabilities from the University of Minnesota. Her interests include urban education, education opportunity, and English learner issues. She has had three book chapters published and articles about how to assess the writing of English Learners. Dr. Campbell is the faculty liaison for the St. Olaf TRIO programs and was recently elected to serve on the Teacher of the Year Committee, a co-chair position to elect the Minnesota Education Representative.

Dr. Elizabeth Leer received her Curriculum and Instruction Degree with a specialty in English Education from the University of Minnesota and a Master’s Degree in English Literature from the University of Northern Illinois. Her interests include multicultural literature, young adult literature, and writing workshop pedagogy. In 2010 her dissertation paper was published into a book entitled *Multicultural Literature in Monocultural Classrooms: White Teachers Explore Diverse Texts with White Students*. In 2014 she published an article in *Voices from the Middle* entitled “Researching & Writing History Through Community Collaboration.” Her latest publication includes an article entitled “Writing Workshop Pedagogy ELLS.” Dr. Leer was awarded the Magnus the Good Grant Award in 2015.

Breanna Olson

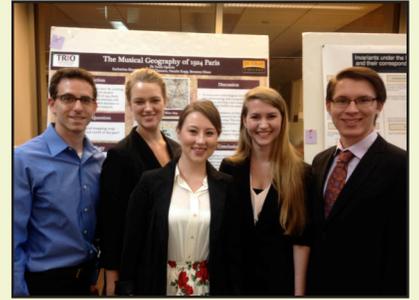
Major: French

“Dr. Epstein granted us a lot of liberty when conducting our research, which was definitely a highlight. I learned about a lot of fascinating things. I feel so lucky to have had these opportunities. I also learned that writing the personal statement is hard. I have already written five drafts. This process has helped me realize how important it is to start early and to produce many drafts in order to achieve quality writing. I am considering applying to the cross-cultural and sustainable business management Master’s program at the American University of Paris and other programs abroad in international relations or foreign affairs. My career goal is to work for an international company promoting sustainability, fair-trade, and ethical practices. Though I have some international experience, pursuing higher education will further develop these perspectives and provide the skills I need to establish a career. I think graduate education is important to be a unique candidate in the job market and to show employers my investment in the field. Thank you to the McNair staff for making this summer experience possible and so rewarding.”

Research Title: The Musical Geography of 1924 Paris

Abstract: Though sound is at the center of music historical research, the sounds of the past remain elusive to scholars and students. Traditional media through which scholarship works - including books and lectures - offer at best a remote, second-hand experience of the concerts, personalities, and issues of a given time and place. In the few cases where new media have been developed to capture musical experiences (notably recordings and videos), they have primarily encouraged passive consumption. With support from St. Olaf College’s Collaborative Undergraduate Research and Inquiry initiative as well as a Mellon Foundation-funded “Digital Humanities on the Hill” grant, our research team worked to answer a vexing question: How can we represent - even recreate - the sound world of the past?

Interactive digital maps provide an engaging, accessible supplement to conventional music history scholarship. Drawing on historical newspapers, travel guides, and physical and digital archival sources, our team created a series of maps that open visual, sonic, and contextual exploration to a wide audience. Using the digital maps, students and scholars can relive a concert or walk in the footsteps of a famous figure. Moreover, the digitized primary sources that informed our map are immediately available via hyperlink and embedded images.



Faculty Mentor:

Dr. Louis Epstein

Dr. Louis Epstein received his undergraduate degree from Princeton University and went on to earn his Ph.D. in Historical Musicology from Harvard University. His dissertation was entitled: “Toward a Theory of Patronage: Funding for Music Composition in France, 1918-1939.” His research interests include twentieth-century music, Music history pedagogy, music sociology, and the history of patronage. Dr. Epstein has devoted his career to studying the historical context in which musicians worked, a rarity in the field of musicology. He has published multiple articles in both English and French on these subjects. His work has been recognized many times at conference presentations and he has received honors for his research and his teaching abilities. Dr. Epstein is currently an assistant professor of Music at Saint Olaf College and is writing a book about political and social influences on 20th century French music.



Bianca Renteria

Major: Political Science

“The highlight of the summer was expanding on my knowledge of immigration in rural and urban settings. Immigration is an important topic to me, and learning about it in a research setting gave me the confidence to be able to talk about immigration issues. During summer research, I also learned that I should not be afraid to ask for help. In the beginning of my research the outcome and expectations were a little unclear, but communicating with my faculty mentor and McNair professor was helpful.”

Faculty Mentor: Dr. Katherine Tegtmeyer Pak

Dr. Tegtmeyer Pak earned her M.A. and Ph.D. in Political Science from the University of Chicago, and her B.A. in East Asian Studies and Political Science from the University of Illinois at Urbana-Champaign. Before graduate school she worked at Toshiba Corporation’s Tokyo headquarters for two years. She returned to Japan for 16 months of field research during graduate school. Before joining the St. Olaf faculty, she taught for five years at New College of Florida. Dr. Tegtmeyer Pak teaches both broad international/comparative politics classes and Asia-focused classes. She has published several papers on Japanese immigration and citizenship politics. She spent the 2009-10 academic year as a Visiting Research Fellow at the University of Tokyo, thanks to a Fulbright Research Grant, investigating democratic ideals and political socialization.

Research Title: The Rural Immigration Network

Abstract: There are new and innovative ways to demonstrate potential new findings and share them with the world. Digital humanities have been the new form of expressive research. From building websites to generating creative interactive maps, the digital humanities are a growing and thriving form of creative research that are impacting how we view research.

The Rural Immigration Network is taking those tools and building a website where social scientists, community advocates, policy makers, educators, program organizers and others can unify, share ideas, and gather information. With clear and easy navigation, an array of people can visit the website in search of a selection of topics such as health care, education, policy, culture, language, and many others.

We researched writing about immigration in rural areas and how we can meet a public need when the information is shared through a well-designed website. The research that our team completed this summer falls under two categories, translated social sciences and recipes for action. Translated social sciences is research that is transformed to be accessible for those with little prior experience of the language of academia, but with an interest in building communities with immigrants and refugees in small towns. This form of research is separated into three sub-categories, which are Research Briefs, Research Foundations, and Call for Research (CFR). The second form is Recipes for Action, which is personalized research on specific programs or organizations that deal with immigrant and refugee populations in small towns.



Faculty Mentor:

Dr. Jeremy Loebach

Dr. Loebach is an Assistant Professor in the Department of Psychology at St. Olaf College where he has additional affiliations with the Neuroscience and Linguistic Studies programs. He is the director of the Speech and Cognition Research Laboratory (SCo-gLab). He identifies primarily as a cognitive neuroscientist, and has research and teaching interests in a variety of related areas (speech perception, language, deafness, and cochlear implants). Dr. Loebach earned a B.S. in Psychology with a minor in Sociocultural Anthropology at Arizona State University. He then did his graduate work at the University of Illinois at Urbana-Champaign where he earned an M.A. and Ph.D. in Psychology. His primary area of focus was Biological Psychology, and he minored in Cognitive Psychology (psycholinguistics) and Developmental Psychology (developmental psycholinguistics). After graduating, he completed a 3-year NIH Postdoctoral Fellowship in the Speech Research Laboratory at Indiana University Bloomington.

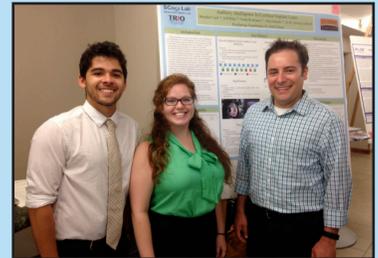
Jeffrey Riley

Major: Psychology

“The most impactful moment of the summer was spending time with our visiting cochlear implant user. It was an invaluable experience to see how the research I was a part of is being applied. I learned an incredible amount this summer from the graduate school process, to writing techniques, to knowledge about cochlear implants and the Deaf community. The area that I grew the most in is being able to consume primary literature in an effective manner. I want to continue in the area of a research-oriented career and apply to the neuroscience program at the University of Minnesota.”

Mya Saracho

Major: Psychology

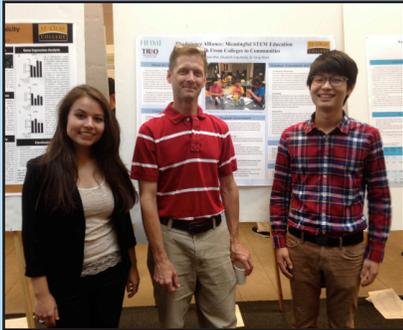


“The highlight of my summer was spirited group discussions that increased my understanding of research and the field in general. My abilities as a researcher grew tenfold. It also increased my confidence in the field, and furthered my interest in graduate school. I intend to apply to Gallaudet University for a Ph.D. in clinical psychology to continue working with and researching Deaf and Hard of Hearing populations. My goal is to make psychological services more accessible to the Deaf community by offering culturally competent therapies in ASL, and bridging the gaps between the hearing and Deaf culture. My specific interests include trauma and cultural identity. Graduate school will provide me with the competency required for delivering effective therapy and the skills required for conducting original research.”

Research Title:

Auditory Intelligence in Cochlear Implant Users

Abstract: This project explored the concept of auditory intelligence as an explanation for the variability in identification accuracy of speech and environmental sounds in Cochlear Implant (CI) users. Previous research was used to compile a series of tests selected to assess potential factors associated with auditory intelligence, such as listening effort and working memory. Results from these tests may support the hypothesis that there is a correlation between auditory intelligence and CI user performance. This knowledge will further the development of a training program that will challenge CI users in order to increase recognition accuracy of speech and environmental sounds.



Elisabeth Sepulveda

Major: Cognition, Education and Problem-Solving

“I enjoyed developing the project until it began to match the vision we had for it at the beginning. There was a large amount of freedom, but we learned to draw from local resources and expertise to help us find the answers to our questions. It was wonderful to teach our curriculum to students at a local STEAM camp and watch their excited reactions to the activities! I learned many things—from curriculum development to operations to evaluation. Reading literature, locating resources, and conversing with educational professionals was key, but translating theory into practice was especially valuable. The project required intentionality, and the experience taught me how to collaborate and develop programming on a larger scale. My goal is to apply this fall for a Master’s degree in Curriculum and Instruction. I would love to continue developing curriculum, using the arts and kinesthetics, to create more dynamic learning experiences to foster problem-solving and interdisciplinary thinking skills in students!”

Research Title: The Science Alliance: Meaningful STEM Education Outreach from Colleges to Communities

Abstract: Developing student interest and proficiency in the STEM fields—science, technology, engineering, and mathematics—continues to pose a challenge for K-12 educators. Over the past two years, the Science Alliance, a science outreach program located at St. Olaf College, has supported the work of local educators through introducing hands-on, inquiry-based curricula, integrating steps of the scientific process while introducing grade-appropriate content aligned with the Minnesota state and Next Generation national science standards. While the curriculum has received high reviews from both teachers and students, we lack the requisite assessment data to claim evidence-based support. Our research is focused on identifying and implementing two appropriate assessment methods, the STEM Program Quality Assessment instrument and a volunteer survey, to determine whether the information gathered from the tools provides meaningful data for interpretation, ultimately using the information gathered to guide and develop future programming. At the completion of our study, we plan to provide feedback from our assessment instruments to other colleges and institutions seeking to identify their own forms of assessment—ultimately helping them to identify areas of improvement and development within their STEM outreach programs.

Faculty Mentor: Dr. Greg Muth

Dr. Muth received a B.A. in Chemistry from Gustavus Adolphus, and a Ph.D. in Chemistry from the University of Montana. His research interests include RNA structure and function related to bacterial gene regulation, chemical synthesis of novel oligonucleotides, nucleic acid biophysics, medicinal chemistry, enzyme kinetics, site-directed mutagenesis, and the scholarship of teaching and learning. Dr. Muth serves as the Director for the Collaborative Undergraduate Research & Inquiry (CURI). He strives to maintain a hands-on approach in both his research and teaching labs and has developed a wide variety of instructional material to support his Flipped Classroom methodology of teaching. Over the past three years, he has extended his passion for interactive learning through directing a STEM outreach program—drawing from the passion and expertise of St. Olaf faculty and staff to provide educational opportunities for students in the community.



Gwen Vargas

Major: Math

"The highlight of my summer was learning more about my interests in furthering my education through alumni panels and visits. I also enjoyed learning more about statistics to help us with our project. This summer I learned that I am really passionate about the education system and am excited to go to graduate school to teach. I am planning to apply to math programs with an emphasis in education at the University of Minnesota, the University of Illinois at Chicago and the University of Chicago. My future goal is to become a high school teacher for low-income urban city students. I believe that graduate school is very important to help me reach this goal because it will provide the skills in math and education that I will need to continue to further my education so that I can go on to help others further theirs."

Research Title: Statistical Analysis of K-12 Assessment Data from the Northfield Public School District

Abstract: The Northfield School District is responsible for administering State Mandated Assessments in order to ensure students are meeting benchmark standards for K-12 education. Aside from this, district level assessments are also used to measure whether a student is ready for state assessments, measure a student's reading level, or even measure their progress over time. In order to store this data, it is kept in two separate online data warehouses. Unfortunately, the methods that have been used thus far have been inefficient at measuring a student's performance overall and have the ability to lead to false assumptions. Thus, the objective of this research was to analyze assessment data to answer several questions regarding student and school performance while addressing key issues. These analyses will further assist teachers to learn about their students' weaknesses so that they can better allocate school resources to help aid in students' performance. The data that our team analyzed consisted of assessment scores in Math, Reading, and Early Literacy starting in 2006 or as early as an assessment was administered. We first compiled a master set of all test scores for each student using data from two different assessment storing databases. We then proceeded to create an application and find plots that would be desirable for visualizing the data. We created the Dashboard that teachers can use to find new tools to help improve their curriculum, as needed.

Faculty Mentor: Dr. Paul Roback

Professor Paul Roback graduated from St. Olaf with his Bachelor's Degree in Mathematics and economics. From there, he went straight to Iowa State where he received his M.S. in Statistics and then his Ph.D. in Statistics from Colorado State. His research interests include applied statistics, Bayesian methods for data analysis, multiple hypothesis tests, multilevel modeling, and statistical education. Dr. Roback has published countless articles in several different areas. Besides that, he co-authored a statistics textbook titled "Broadening Your Horizons" in February of 2015. Recently, Roback was elected Executive for Section on Statistical Education of the American Statistical Association where he had previously been a program chair since 2006.

Off-Campus Summer Research

Tomaz Manzoni

Major: Biology

Research Title: Modeling Interactions Between APOBEC3G and HIV Vif Polymorphisms In Vivo

Location: University of Pennsylvania, Biomedical Department

“This summer I did intensive research in the fields of immunology and microbiology. My research focused on the interactions between HIV and our innate immune system. I learned various microbiology and virology techniques. This experience cemented my desire to go to graduate school. By getting hands on-experience in the field, I also became more determined to pursue this career path. I would like to go to graduate school to study infectious diseases and pursue a career at the CDC or other large organization that researches diseases.”

Nathalie Kenny

Majors: Environmental & Asian Studies

Research Title: International Collaboration and Investment in the Sino-Singapore Tianjin Eco-City

Location: China, Hong Kong, Singapore

Faculty: Dr. Ka Wong, Asian Studies

“I traveled to China, Hong Kong and Singapore to interview government officials, students, professors and local people about the Tianjin Eco-City. I learned how China and Singapore are jointly building the Sino-Singaporean Tianjin Eco-City. A highlight of the summer was conducting interviews in a professional setting in a foreign country. I learned how to conduct myself in a professional setting within Asian business/culture. I learned about international collaboration on government projects and how companies play a role in implementing the project. It cemented my desire to conduct business in or with China and other Asian countries and sparked my interest in sustainable development. My goal is to work for a few years in consulting or sales to gain useful business experience, earn my MBA, and work at a company to help them be sustainable financially, environmentally and socially.”

Spencer Castillo

Major: Chemistry

Research Title: Copper homeostasis is a critical cellular determinant for protein homeostasis

Location: University of Nebraska Lincoln

“I spent 50+ hours/week in a Biochemistry lab learning how to conduct Western Blots. A highlight of my summer was presenting at the poster symposium. It helped to have like-minded students around me for the entire summer to process what I was experiencing and I made some great connections with others around the country. However, I learned that I do not enjoy biochemistry research, specifically Western Blots, and that I am more interested in the field of Physical Therapy (PT). I hope to attend PT school in the future because it will enable me to serve others in a way that fulfills me and meets the needs of others.”

Summer Internship Experiences

Jinhee Cha

Major: Sociology/Anthropology

Internship Experience: Biology and Chemistry Teaching Assistant and S.I. Leader

Location: St. Olaf TRIO Student Support Services Summer Bridge Program

"This summer I tutored rising first year St. Olaf students in Biology and Chemistry and mentored them in their transition to college. I also led Supplemental Instruction (S.I.) sessions and guided the students through a research project. The highlight of my experience was getting to see the students present their research to the St. Olaf staff and faculty. I learned that I enjoy teaching and work well leading groups. I am now more confident in my leadership abilities as well as my abilities to teach and manage students. This experience will make me more competitive for graduate school and has broadened my interests for outreach and education within Public Health. My goal is to attend graduate school in Epidemiology or Community Outreach. My professional goal is to become an Epidemiologist, professor of Public Health, or a Community Outreach Coordinator."

Liam Gibb

Major: Violin Performance



Internship Experiences:

Counselor at the St. Olaf Music Camp, Green Lake Chamber Music Festival in Wisconsin, Young Musicians of Minnesota Music Festival

"These experiences widened my repertoire and musical vocabulary and gave me the chance to collaborate with musicians. The counseling positions gave me experience with an accompanist, as well as teaching opportunities. A standout moment was at the Green Lake Chamber Music Festival where I was part of a quartet with three instrumentalists from across the country. We performed alongside the Bergonzi Quartet. Each opportunity offered unique collaboration and musical growth as a violinist and reaffirmed my drive to pursue musical performance as a career. Graduate school is vital because it provides an environment for musical immersion, where I will be surrounded by equally passionate individuals. Attending graduate school can greatly prepare me for a lifetime of music."



Barite Guatama

Major: Chemistry

Internship Experience: 3M Research and Development

Location: Maplewood

"I worked on a project that uses the 3M food safety novel technology, the Molecular Detection System (MDS). I evaluated enrichments for our target bacteria to grow the bacteria to the level that can be detected by the MDS. The highlights were joining a team of great scientists, working in the lab, presenting my work, and conducting informational interviews. Networking with the professionals made me think about opportunities in my field. The internship gave me the opportunity to experience the corporate life, advance my lab skills, and helped me to get a sense of working in a lab. I realized that I enjoy a balance of spending time with patients and conducting clinical research. My goal is to attend medical school and conduct clinical research to advance medical care for patients."



Alexandra Hernandez

Major: Social Work

Internship: Summer Recreation Intern

Location: Illinois Masonic Children's Home

"The highlight of my summer was working directly with children, ages 8-15. We often took them on fun and educational field trips, stay active in the recreation center, play games, or express our creativity with arts and crafts. The home provided children a healthy stability, which their life did not always provide them. I learned so much from my experience. I went into it knowing that working with kids is my vocation. After the experience, I understood just how hard it is, but how very rewarding as well. I want to be a part of molding kids' lives. My career goal is to become a licensed social worker. I want to work in inner city schools or in the juvenile justice sector. Graduate school is absolutely important to my goals."

Amanda Kaing

Major: Biology

Internship Experience: Outpatient Rehab Clinic at Southdale Fairview Hospital, Volunteer at Minnesota Children's Hospital, and shadowed physical therapists at 4 locations

"I had a great experience shadowing physical therapists! I had the opportunity to shadow a pediatrics physical therapist and an orthopedics physical therapist in an outpatient setting. I also got to shadow a physical therapist working inside a hospital which had a totally different feel than the outpatient clinic. The highlight was seeing the different levels of progress that patients were making. I learned that physical therapy requires a great deal of problem-solving skills. My goals are to pursue graduate school in physical therapy at St. Catherine's University or the University of Minnesota in hopes of becoming a physical therapist specializing in orthopedics working at an outpatient clinic."

Kou Lee

Major: Exercise Science

Internship Experience: Discover Strength and Biology T.A. for TRIO SSS

Location: Twin Cities/St. Olaf College

"Through my summer experiences I developed my skills in team work, worked on independent research, created workout plans and established work place connections. It really helped me look forward to pursuing a career in helping people. This summer I also worked as a Biology Teaching Assistant for the TRIO Student Support Services program at St. Olaf College and enjoyed working with all of the students."

Vanessa Lopez

Major: Vocal Music Education

Internship Experience: Barcelona Festival of Song, Berkshire Choral International, St. Olaf TRIO Student Support Services Summer Bridge Program Writing T.A./Mentor

"This summer I learned how to be a leader as a soloist, chorister and teacher. At Berkshire, we worked with the Vocal Essence conductor, had rehearsals and workshops that helped me gain knowledge about the choral field. The highlight of SSS was working with incoming first-year students. My career goal is to be a choral conductor for an ensemble, preferably high school students. My graduate school goals are to be accepted to a Viennese Music Conservatory, learn German and gain conducting experience. I am so grateful for my experience. Thank you to McNair and the Johnson Opportunity Fund for a wonderful experience!"

Alex Manos

Major: Exercise Science

Internship Experience: Fitness & Aquatics

Location: Courage Kenny Rehab Institute

"This summer I worked one-on-one with clients that have experienced traumas like brain/spinal injury or stroke. The highlight of my experience was building relationships with clients. I learned about methods of restoring the brain. I found that the things that I have learned in my St. Olaf classes really translate into the "real world" of Occupational Therapy. I also learned that I connect well with others. Eventually I would like to earn a Master's degree in Occupational Therapy which is a necessity to pursue a professional career as an Occupational Therapist."

Jared Miller

Major: Collaborative Piano

Internship Experience: Church Pianist

Location: Methodist Adult Choir, San Diego

"I attended weekly rehearsals and performed with the choir in masses. I also did a few solo pieces. The highlight was getting to work with a choir again and getting some solo experience. I learned how to teach singers from a variety of age groups. Teaching adults who do not all have a musical background requires a different set of skills to assist and instruct them. I would love to work for a professional choir some day, so it was great experience to collaborate in a choir. Collaborative Piano is my main professional and academic goal and this was a good opportunity for collaboration. I want to be a professional collaborative pianist and any experience I get collaborating will help me succeed in graduate school."

Jia Shi

Major: Chemistry

Internship Experience: IES Kunming

Location: Kunming, China, Thailand, & Laos

"I traveled to learn more about the state of the environment. The most memorable experience was feeding and bathing the elephants at a conservation camp. A highlight was networking with different NGOs and experts. I became more aware of the bureaucratic nonsense that exists in the world as well as the human impact to the environment in China. The experience made me view the world in a more pessimistic light, but I would say the long-term effect is that it made me more pragmatic. My academic goal is to go to graduate school and study hydrogeochemistry in order to become a hydrologist. That step is necessary because I need the education and experience, which is a prerequisite for being hired as a hydrologist."

Abbey Smith

Major: Exercise Science

Internship Experience: Shadowing in Multiple Physical Therapy Clinics

Location: MN Sport and Spine, OSI Physical Therapy, St. Elizabeth's Hospital, & Orthology

"Over the summer I completed 106 hours of shadowing at four different physical therapy clinics. I was able to view inpatient, outpatient, and specialized work in physical therapy, manual physical therapy, and a manual physical therapy/chiropractic combo setting. The highlight was realizing that I actually wanted to be a physical therapist, and that it was something I could enjoy waking up for every day. I learned that there are many different types of physical therapy. This experience helped me complete my shadowing hours requirement for applying to graduate school. I hope to complete graduate school and become a physical therapist that works with athletes or children."

Amanda Vergara

Majors: Spanish & Social Work

Internship Experience: Truancy Prevention and Intervention Intern

Location: Centro Cultural Chicano, Minneapolis

"I worked with a Hennepin County social worker to organize and supervise a summer enrichment program for referred truant youth. I learned about many of the difficulties that low-income Latino families face in Minneapolis and how social workers address these qualities by assisting them with improving their lives in a holistic way. I also learned more about how social workers interact to prevent and intervene with cases of truancy. Additionally, I learned that I have an ability to command the attention of children. Talking with my supervisor about her social work career helped me discern the fields of social work that I would like to pursue. I hope to continue working with families in the future after I acquire a Master in Social Work degree. I also witnessed that bilingual social workers are in high demand and I plan to continue my Spanish education to better serve the Spanish-speaking community. Graduate school is particularly important in the field of social work because it creates more competent and specialized social workers. Possessing a MSW would greatly expand the opportunities available in my social work career. I am also interested in living in a Latin American country to practice social work for a few years after obtaining my MSW.

