

FY2017 | Research Profile

Inspire. Engage. Innovate.



OFFICE OF RESEARCH
AND SPONSORED PROGRAMS
ST. CLOUD STATE UNIVERSITY



Dr. Latha Ramakrishnan

Inspire. Engage. Innovate.

St. Cloud State University's 2022 strategic action plan calls to building a 21st century engaged university. Essentially this call to action endorses the essential role of stewardship of place that St. Cloud State plays in the community. Innovation is vital for the advancement of a community. St. Cloud State, through its rich and long history of fostering research, scholarly and creative work, serves as a leader who engages the community in innovation to bring advancement for students, faculty, staff, and community members.

Engaging students in research, scholarly and creative works is a commitment that we make to our students, a commitment of student success, Our Husky Compact. The extent and reach of this commitment is growing every year with the year 2017 being no exception. We engaged 442 students in 255 projects, with over 90 students receiving grants and over 300 students participating in external grant funded experiential learning opportunities.

Professional advancement of faculty and staff is essential to foster innovation. The number of faculty and staff seeking advancement and the myriad opportunities for advancement, especially brought about by business/industry partners, regional foundations, and state agencies has grown over the years. In 2017, 93 faculty sponsored student research, 78 faculty and staff were awarded extramural funding while 44 faculty received internal funding, and we collaborated with over 50 business/industry and regional partners, and over 10 state agencies.

By engaging students, campus, and community in new knowledge creation, we are paving our ways to new discoveries and innovation that brings advancement to the community. We present our students the opportunities to exemplify Our Husky Compact and prepare them to be workforce ready. For our millennial community of scholars, the excitement of being engaged in discovery and creation is bound to be transcending that we would be successful in preparing our 21st century citizens.

Through this research profile, I wish to engage your attention with the wide range of research activities pursued on our campus by faculty and staff in collaboration with student researchers.

I hope the featured articles inspire you to continue your innovation!

Sincerely,

Dr. Latha Ramakrishnan

Interim Associate Provost for Research &
Dean of Graduate Studies

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OFFICE OF RESEARCH
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St. Cloud State Launches Emergency Grant Program to Help Low-Income Students Stay Enrolled to Completion

by Shawn Kakuk and Chee Moua-Yang

St. Cloud State University received a \$420,000 Dash Emergency Grant from Great Lakes Higher Education Corporation & Affiliates (Great Lakes) in June 2017. St. Cloud State contributed an additional \$50,000 to support and maintain this student emergency grant program with the goal of improving retention and completion rates while keeping students on track to graduate. St. Cloud State is one of the first four-year colleges to facilitate the Dash Emergency Grant from Great Lakes and launched the program in August 2017, which will run for two academic years wrapping up in July 2019.



The goal of this program is to quickly ease a students' one-time financial emergency allowing them to stay in college and meet their educational goals so that they can ultimately secure a better financial future. St. Cloud State University serves students from diverse backgrounds, and a situation that might be a headache for

one can be a major financial crisis for another. If a student is already struggling to make ends meet, an unexpected car repair or medical bill might cause that student to withdraw from college. The program is led by a large team across campus from several departments including: Multicultural Student Services, Center for International Studies, Financial Aid, Business Services, among many others. The program could not be successful without the dedication and teamwork by all of these departments on campus, which has helped ensure a streamlined grant application and award process.

Eligible St. Cloud State students may receive a one-time, up to \$1,000 grant for an eligible financial emergency over the two-year grant period (August 2017 – July 2019). To apply, students need to complete the online application detailing their emergency using the Dash Emergency Grant Portal: <https://stcloudstate.dreamkeepers.org>.

Eligible students need to:

- Be currently enrolled at St. Cloud State University
- Have a financial emergency (as defined by the grant)
- Meet grant eligibility requirements (EFC of \$7,000 or less)
- Provide documentation of the financial emergency

ELIGIBLE EXPENSES INCLUDE:

Child Care	Food/Meals
Gas	Housing/Rent
Medical/Dental Expenses	Personal Automobile Expenses
Public Transportation/Bus Pass	Utilities

INELIGIBLE EXPENSES INCLUDE:

Alcohol	Books
Entertainment Expenses	Fees
Legal Fees	Tobacco
Tuition	



2017-19 DASH GRANT RECIPIENT

The Dash Emergency Grant team reviews the application and meets with the student to determine if anything further may be needed so that the application can move forward for award consideration. If approved, the team will work out all the details so that the student's one-time expenses are paid as quickly as possible. The team will also work with each individual student to ensure they are using all financial, academic, and community resources available to them to ensure their success at St. Cloud State. If a student is not eligible for the Dash Emergency Grant, the team will help them determine if there are other financial aid funds, or additional campus and community resources that would help to address the immediate issue. In fact, all students who apply will be directed to Bridge to Benefits (mn.bridgetobenefits.org) to ensure they have all available resources to ensure they can achieve their dream of a degree from St. Cloud State!

The Dash Emergency Grant program is of enormous value to St. Cloud State University students and the goal is to help as many students as possible. It is critical all faculty and staff share information about this program with the students they interact with every day. By helping students with one of the most stressful aspects of life – financial emergencies – St. Cloud State can ease this burden and allow each and every student to achieve their academic goals.

Enhancing Law Enforcement Response to Victims

by Mary Clifford

Research team includes: Dr. Lindsey Vigesaa, Dr. Mary Clifford, Dr. John Campbell, and Dr. Stewart Wirth from St. Cloud State University, Dr. Rick Duque from New York Polytech, and Dr. Raj Sethuraju from Metropolitan State University.

The Office of Justice Programs at the U.S. Department of Justice is developing a new professional standard for law enforcement known as “Enhancing Law Enforcement Response to Victims.” Funded by the Office for Victims of Crime, and in collaboration with the International Associations of Chiefs of Police, the process creates pathways for the evolution of enhanced victim response, summarized within its four core elements (leadership, partnering, training, and performance monitoring), identifies the seven critical needs of victims, and illustrates the importance of community partnerships in all law enforcement activities.

The project is hosted by the Department of Criminal Justice Studies at St. Cloud State University, and has received faculty support from Metropolitan State University, and NY Polytechnic Institute. Additional administrative support from the School of Public Affairs Research Institute, Director Dr. Richard MacDonald and from the Office of Research and Sponsored Programs, Lorie Orloff. The Office for Victims of Crime (OVC) provided the funding award of \$100,000.

This round of the project involved three sites and three research teams, with locations at Casper, WY, Saginaw, MI, and Chattanooga, TN. The St. Cloud State University research team was assigned to the Casper police department. Four areas were identified by the team for analysis: 1) a survey of internal attitudes within the police department regarding attitudes toward victim services; 2) a survey assessment of service providers in the community; 3) a survey assessment of the broader community attitudes; and 4) focus group sessions with several victims from throughout the community.

In the grand scheme, the beneficiaries are communities across the country which spend the time to integrate the information and data collected from the site locations into their policing department structures and work with their community to assess current practices to assist victim needs. Much emphasis has been placed on law enforcement departments to catch perpetrators of crime, but little time and energy was spent addressing the needs of victims. All 50 states have passed some form of legislation working to address meeting the needs of victims of crime as a priority. The seven critical needs of victims have been identified as: 1) Safety; 2) Support; 3) Information; 4) Access; 5) Continuity; 6) Voice; and 7) Justice.

The research process at the Casper site location involves collaboration between the Casper Police Department (CPD), a local advisory board (created from community service providers, victims and community members), the St. Cloud State University



The ELERV site Research Teams from Casper, WY; Chattanooga, TN and Saginaw, MI discuss site plans and progress in Austin, Texas at the ELERV all site meeting in September 2017

research team, subject matter experts, and project advisors from the International Association of Chiefs of Police (IACP). Preliminary research outcomes are to be compared with a department policy review (conducted by the subject matter experts) and then an implementation strategy is to be identified and documented by the research team. In the final phase, the research team will conduct a follow up review to determine if attitudes about victims and victim services has changed after the Casper Police Department's concerted efforts to review policies and practices focused on victim's needs and providing services.

The St. Cloud State University structured review identified general attitudes in four areas: 1) department; 2) community; 3) service providers; and 4) focus groups.

A survey of Casper Police Department's sworn and nonsworn personnel found 73% of Casper Police Department employees agree residents trust the police, with 45% and 65% suggesting victims trust the police (depending on the structure of the question). Several barriers to addressing victims' needs were identified, including workload and fear of retaliation by the perpetrator (70%), lack of communication between CPD and the DA's office (60%) or prosecutors (56%), and victim's fear of police (51%). Low

morale within the CPD (43%), lack of officer training (42%), and lack of communication with victim services unit (26%) were also highlighted. Please note: since the initial research was conducted, the Chief of Police left the organization, and an interim Chief is on duty while the hiring search is underway for a replacement.

Information was sent to the heads of 66 agencies which provide services to victims in the Casper area, linking them to participate in the survey via Survey Monkey. The heads of these agencies were asked to share the message and the link with others who work with victims within their agencies. 87% of service providers responding were white, 70% were women, and the largest age category represented was between 26 and 35 (26%). 73% of service providers agreed or strongly agreed that they were satisfied with police services in Casper. 32% reported they feel a lack of communication inside the CPD with the Victim Service Unit (50% reporting neutral), and 35% reported issues of low morale within the CPD has a negative impact on the department's ability to assist victims (47% selecting 'neutral'). Training and education were strongly suggested in written comments, as was the need to focus on follow up between CPD and the victims, with various suggestions included for ways to increase "communication/collaboration" between agencies and CPD.

Residents of Casper, Wyoming, were invited to take an online survey through Survey Monkey using advertisements via several outlets including the Casper Star Tribune, the Casper Journal, and the CPD Facebook page. Fliers were posted in places throughout town, as determined by the CPD Victim Services staff in areas which were deemed to display low newspaper readership. 974 community members responded, with the largest responses coming from ages 65 and over (20%), 53% of respondents were married or cohabitating, 66% were white, 20% reported income over \$100,000 and 33% had lived in Casper 20 years or longer. 47% agreed or strongly agreed CPD treated them professionally in any interactions they have had, and 50% agreed or strongly agreed people where they live trust CPD, and are willing to cooperate with the police (58%). 75% believe CPD presents a professional image. Approximately 50% of victims who reported to the police did say they were referred to Victim Services and (60%) received those services. Of the 5% of respondents who reported they had been a victim of violent crime, 74% did report the incident to police. Written suggestions were offered regarding the need for victim follow up, increased communication about the Victim Services Unit and what they do, the need for more training on this and related issues for CPD, and the need to educate the public about victim services in the CPD area.

Several groups identified as traditionally disenfranchised were gathered into individual groups: 1) staff and victims from The Self Help Center; 2) sexual assault victims; 3) men who received services from the Central Wyoming Rescue Mission; 4) women who received services from the Central Wyoming Rescue Mission; 5) Veterans; and 6) English as a second language group from Casper Community College. The focus group research produced several common themes across groups, including concerns about follow

up with victims, officer education, training and demeanor, need for additional information to victims about victim services both from within the PD and throughout the community, questions about disparate treatment across areas of the community, and concerns about mental health issues including addiction and trauma informed care.

At this point (September 2017), and after a recent all site visit in Austin, Texas, attention is being given to the transitions happening



The Casper ELERV Research Team: Mary Clifford, John Campbell, Leslie Fritzler, Jeremy Tremel, and Kristi Cote

in the city government, particularly the Chief of Police replacement. A request has been made to extend the grant timeline to best reflect the changes driven by a new Chief and other community unrest related to city management and town hall meetings. In addition, questions have been raised about how the research team will follow up with the initial research design, and Casper Victim Services has asked the SCSU Research Team if they will talk with them about drafting an assessment of officer attitudes about victims within the community and as a policy response.

This project is dedicated to innovation, divergent thinking and risk taking by reassessing the way a police department addresses the needs of victims, and critically evaluating the success of current operations and implementing new policies and procedures where appropriate and then evaluating those changes over time. This requires the use of analytical reasoning, the solicitation and evaluation of information including various perspectives, the synthesis of existing expertise and creating localized solutions.

This project required the review of existing and emerging information on police response to victims across time, and throughout the United States. The use of the federal government's extensive resources, existing scholarly research and the emerging world of victim needs, trauma-informed care, and secondary trauma are all elements of the work. The work involves service

providers (social workers, therapists, professionals within the justice community, veteran service providers, and community members) in an effort to find and remedy places within the community's collective response to victim needs and ongoing services.

The ELERV initiative was initiated, to determine how well the Casper Police Department (police departments across the country) are meeting the needs of people, particularly victims, in their communities. They are asking questions about how to best reach the public for public service education, and within the Casper Police Department and the different branches of government.

As with the efforts to understand best ways to communicate between the CPD, service providers and the community, the process is assessing which technologies are most effective at assuring access to information and services both within the police department and throughout the community.

CPD has targeted the issue of diversity within this project, because the majority of the community (respondents to the survey and service providers) are white and speak English. The research has focused on the department's need to develop enhanced intercultural competencies, understanding how different communities experience police, recognize the differences between people with trauma and people in trauma or experiencing other mental health kinds of concerns. Attention is being given to the non-English speaking communities and the ways the police department is not meeting this community's language or gendered (as examples) needs.

Efforts are directly focused on the internal operations within the police department, state officer training and education, the ways officers can individually nurture their own needs (particularly related to the difficulties and potential traumas associated with their work), and the ways officers respond to people in distress or in need of assistance. They are looking at specific communities who are indicating a lack of connectivity with police and are reviewing officer attitudes regarding the way they serve their community.

Retrieving Lost Astronauts using Laser Tractor Beams

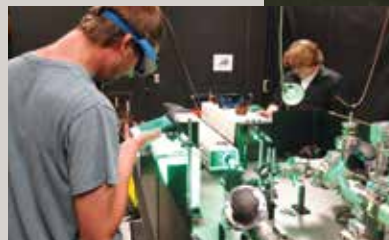
by John E. Sinko

Interest in extraterrestrial activities such as a return to the Moon, or exploration of Mars, has recently returned human spaceflight to the spotlight. Repairs, scientific activities, or upgrades sometimes require astronauts to leave the comfort of a space station on "extravehicular activities" or EVA. Safety technologies are needed to prevent astronauts from drifting from the space station; some examples of current technologies are nylon safety tethers and backpack-type gas propulsion systems. This research project explores space-based laser propulsion as a means to retrieve astronauts, expensive tools, or even deorbit defunct satellites.

The project is led by Dr. John Sinko of the Department of Physics and Astronomy at St. Cloud State University, assisted by Dr. C. Adam Schlecht of the Institute for Materials, Energetics and Complexity at St. Louis, MO. To date, the study has been funded internally by St. Cloud State University: a 2016 New Researcher Award for \$4,000, and a 2015 University Researcher Award for \$5,000. Dr. Sinko is seeking additional funding from NASA to develop the laser tractor beam concept.



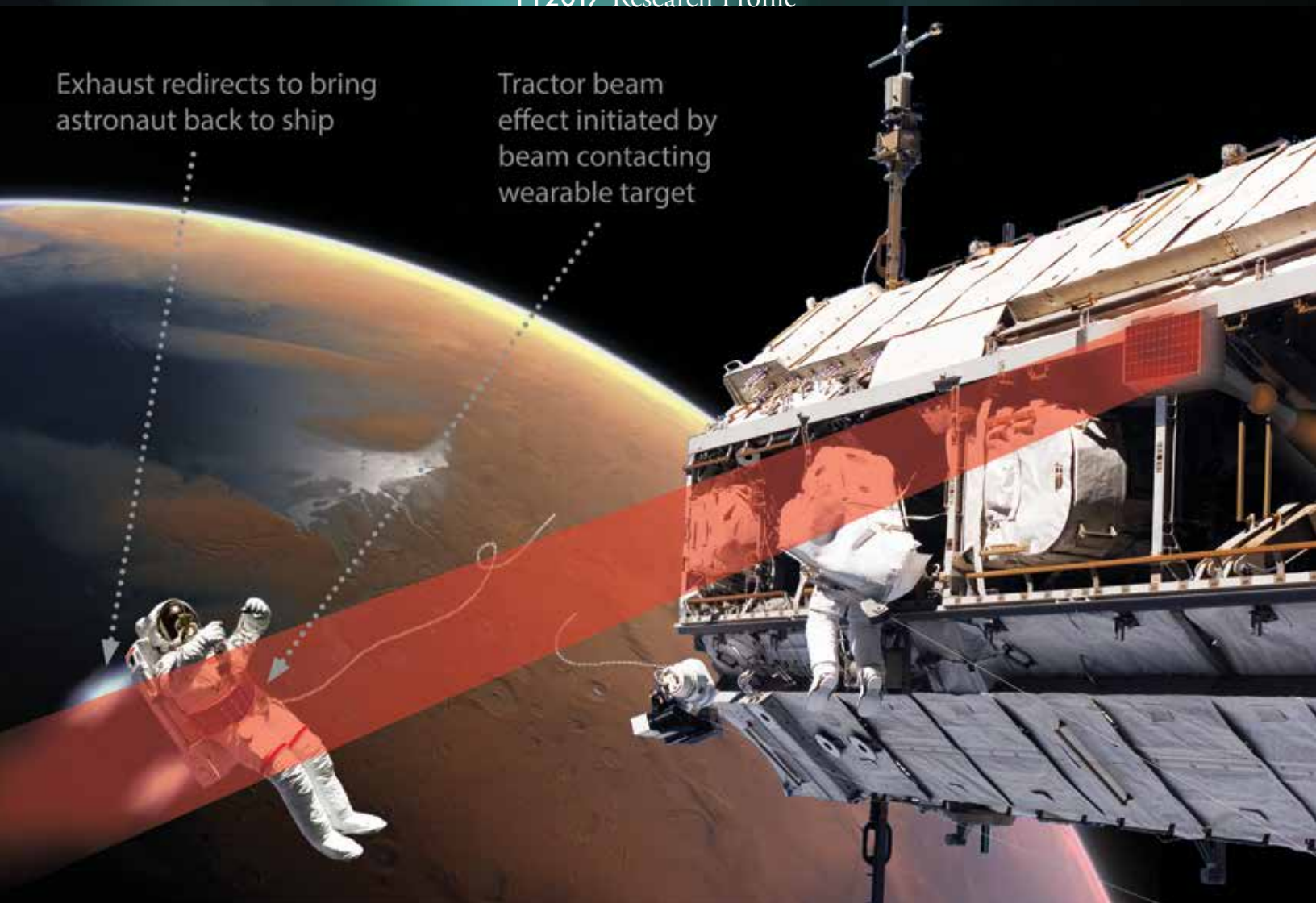
John Sinko working on the project



Left: Tyler Baxter and David Corgard working on the project



Target (orange) being illuminated by laser beam (appears pink)



Exhaust redirects to bring astronaut back to ship

Tractor beam effect initiated by beam contacting wearable target

University Graphic Designer, Gary Bailey's, concept image based on drawings by John Sinko and student Tyler Baxter.

Laser propulsion is a unique emerging technique to provide thrust for space assets. In traditional rocket propulsion, the energy is stored in the propellant chemicals, which are burned to generate thrust. In laser propulsion, the energy for thrust is delivered remotely by a laser, so much less propellant mass is needed on the spacecraft. The concept studied here is to pull a cooperative object back towards the laser source, essentially like a science fiction tractor beam. The target can't be arbitrary – a special receiver unit is needed. The laser vaporizes a solid propellant material into gaseous exhaust. The exhaust gas is directed through thin tubes to the opposite side of the target (such as an astronaut), providing a net thrust back towards the laser by Newton's third law ("every action has an equal and opposite reaction"). The system is unique in that a several hundred kilogram macroscopic object – such as an astronaut in a space suit – could be retrieved from up to a kilometer away.

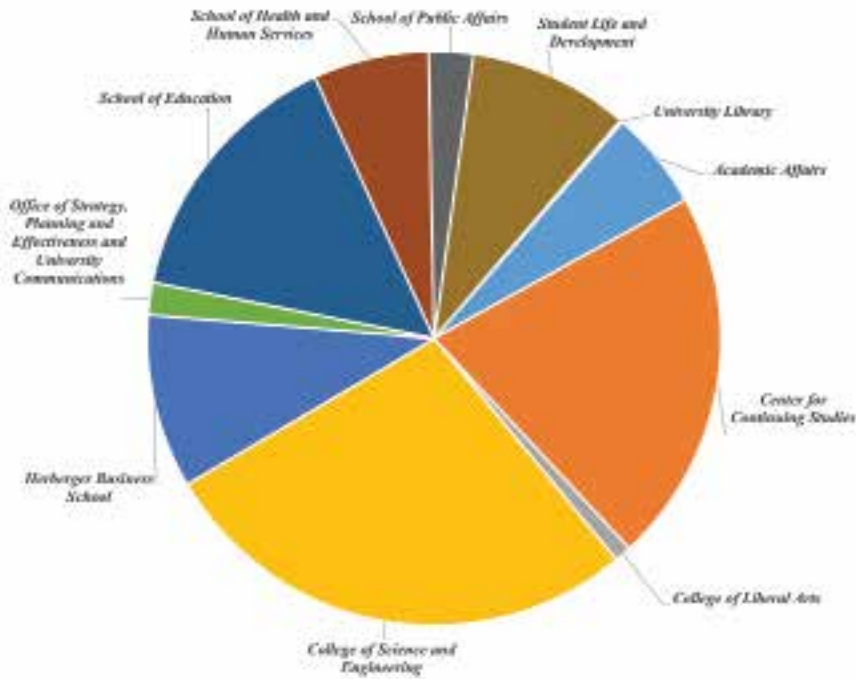
This study is hosted in the Optics Lab in the Integrated Science & Engineering Laboratory Facility (ISELF), where Dr. Sinko has set up a high vacuum chamber for simulating pressures in space. Two high power lasers in ISELF – an argon laser with continuous multi-Watt output and a pulsed Nd:YAG laser – are directed into

the chamber to irradiate 3D-printed composite targets, thereby vaporizing propellant to produce propulsion. Thrust and propellant mass use are measured using top-of-the-line piezoelectric force and pressure sensors.

Several undergraduate students engaged in this research and three technical papers were coauthored by undergraduates in two international conference proceedings. One student made an oral presentation of his work developing mixtures of graphite-doped carbonate powders for laser propulsion propellants at the American Institute for Aeronautics and Astronautics Joint Propulsion Conference in Atlanta, Georgia, in July 2017. The research also hosted four high school student researchers participating in the pipeline summer research camp: St. Cloud State University's Advanced Program for Technology and Science (APTS), run by Dr. Robert Johnson, in July 2016 and July 2017. Students involved in laser propulsion research at St. Cloud State University participate in Our Husky Compact by thinking creatively and critically, seeking and applying knowledge, communicating effectively, and engaging as members of a diverse and multicultural world.

External Grants and Contracts AWARDED

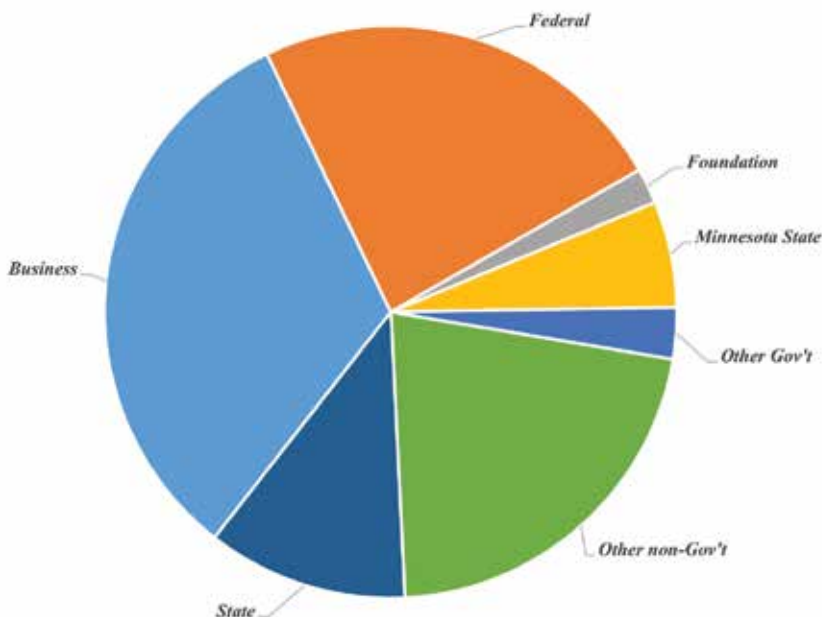
Scientific investigation, scholarly activity and creative achievement are vital to St. Cloud State University's mission of offering accessible, high quality education. In fact, research at the University is as much about effective teaching as it is about contributing to knowledge. Through research activities, faculty members improve expertise in their disciplines and pedagogy and also engage students in the excitement of discovery and creation.



Funding by College/School/Unit

Academic Affairs	\$473,000	6.8%
Center for Continuing Studies	\$1,787,074	25.8%
College of Liberal Arts	\$79,600	1.1%
College of Science and Engineering	\$2,324,220	33.5%
Herberger Business School	\$828,550	11.9%
Office of Strategy, Planning and Effectiveness and University Communications	\$154,965	2.2%
School of Education	\$1,273,240	18.4%
School of Health and Human Services	\$552,803	8.0%
School of Public Affairs	\$211,960	3.1%
Student Life and Development	\$766,352	11.0%
University Library	\$11,240	0.2%

Grand Total **\$8,463,004**



Funding by Source

Business	\$2,735,148	39.4%
Federal	\$2,019,193	29.1%
Foundation	\$169,514	2.4%
Minnesota State	\$508,178	7.3%
Other Gov't	\$245,418	3.5%
Other non-Gov't	\$1,824,327	26.3%
State	\$961,226	13.9%

Grand Total **\$8,463,004**

From July 1, 2016 to June 30, 2017, more than
50 business/industry partners, regional
foundations, and regional and international
partners collaborated with St. Cloud State
through extramural opportunities.

ACADEMIC AFFAIRS

Glenn Davis - \$25,000

University College, *"Best Practices in Advising"* – Minnesota State

Robert C. Johnson - \$384,000

Access and Opportunity Program, *"Enhancing Opportunities for Academic Success and College Readiness"* – Minnesota Office of Higher Education

Robert C. Johnson - \$50,000

Access and Opportunity Program, *"St. Cloud Area Schools Partnership"* – St. Cloud Area Schools

Kristy Nelson Ramos - \$10,000

Center for International Studies, *"Syria Consortium for Higher Education in Crisis"* – Institute for International Education

Martha Noyola and Precious Palmer - \$4,000

Advising Center/Multicultural Student Services, *"Institute for Mexicans Abroad BECAS Scholarship Program"* – Consulate of Mexico in Saint Paul

CENTER FOR CONTINUING STUDIES

Tammy Anhalt-Warner - \$3,200

Workforce Development and St. Cloud State University Welcome Center, *"Central Minnesota Society for Human Resources Management Fund"* – Central Minnesota Community Foundation

Larry Nadeau - \$981,751

Minnesota Highway Safety and Research Center, *"Driving Range"*

Larry Nadeau - \$778,542

Minnesota Highway Safety and Research Center, *"Driver Improvement Program"*

Larry Nadeau - \$2,500

Minnesota Highway Safety and Research Center, *"In-Vehicle Dynamics Curve Speed Warnings at High Risk Rural Curves Pilot Study"* – University of Minnesota

Larry Nadeau and Gail Ruhland - \$7,000

Minnesota Highway Safety and Research Center/Corporate Education and Outreach, *"Teen Crash Avoidance"* – State Farm Automobile Insurance Company

Elizabeth Valencia-Borgert - \$14,081

Community and International Outreach, *"Latino Parent-Child Language/Literacy Group"* – United Way of Central Minnesota

Teen Crash Avoidance

by Larry Nadeau

The Minnesota Highway Safety & Research Center (MHSRC) at St. Cloud State University offers a life safety training program for youthful drivers and their parents. This important initiative “Teen Crash Avoidance and Parent Awareness Program” was launched in 2012. The goal of the program is to make a positive impact on the lives of young drivers by reducing serious injury and fatal crashes. This is important because young drivers (15-20 years of age) continue to be overly represented in vehicle crashes on Minnesota roadways. Additionally, we know that vehicle crashes are one of the highest causes of death for young people in our society.

The Teen Crash Avoidance and Parent Awareness program began as a joint effort between the Minnesota Department of Public Safety, Office of Traffic Safety and MHSRC. At that time, a grant from the Governor’s Highway Safety Administration and the National Highway Traffic Safety Administration funded a two day event at the MHSRC facility in St. Cloud. We trained 219 young drivers on our closed course at MHSRC during that first event. Since the original event, we have continued to promote the program and the demand has been strong.

Some have asked, “Is this like a typical driver’s education program?” The answer is no. This is Driver’s Ed on steroids! Teens and their parents come to the MHSRC facility, usually on a Saturday morning, for an intensive four hours of training. After a short orientation period, young drivers head out to the driving range in MHSRC owned training vehicles, ready to be put through challenging driving exercises. The specific driving maneuvers the young drivers will perform are designed after studying Minnesota crash data and the casual factors of crashes young drivers are often involved in. Some of the maneuvers include: off road recovery,

collision avoidance (limits of human reaction time, reinforcing effective visual scanning and vehicle dynamics), emergency braking, lateral skid recovery and distracted driving. The distracted driving maneuver actually involves the use of lights and sirens in our training vehicles. This is high energy stuff! Finally, we set up a simulated emergency scene within our closed course road network to reinforce the safe practices of the “move over” law.

While the young drivers are being challenged on the range, parents are in a classroom listening to a presentation of the realities of teen driving. Parents are presented information about Minnesota crash facts, the financial realities of youthful drivers, and recommendations and resources to help young drivers succeed. Parents are then bused out to the training range where they observe their young driver in action. Parents find this very interesting, as well as entertaining at times. Some parents have even had an opportunity to partake in some lateral skid recovery training, an added fun factor!

Since the original event, this program has grown. We have served as many as 750 attendees annually. Each year we have held a capstone event in July and have enhanced the program through cooperative efforts with other safety partners and guest speakers. This past July the event became a larger traffic safety event open to the public with participation from the St. Cloud Police and Fire Departments, Minnesota State Patrol, Stearns Benton Toward Zero Death Coalition, Life Link III air ambulance, CentraCare, Minnesota Department of Transportation, Sartell Police Department, St. Cloud State University Admissions, and



Several young drivers from the Teen Crash Avoidance and Parent Awareness program and Instructor Kurt Franke.



State Farm Insurance. It was a huge success by all measures. We have been fortunate to be supported by grant funding through State Farm Insurance the past four years.

The majority of our instructional staff at MHSRC are current or retired emergency responders. These people know first-hand the tragic results of motor vehicle crashes. We also know the vast majority of crashes are totally preventable. Therefore, we are energized to carry this fun, lifesaving initiative forward and continue to make a positive impact on the families we serve. Help spread the word about this program to your family and friends who may have young drivers. Stay safe.



COLLEGE OF LIBERAL ARTS

Jon Frederick - \$9,000

Psychology, *"Brain Mechanisms of Attention, Executive Control and Problem Solving"* – BrainTrain, Inc.

Marie Kim - \$42,100

History, *"Marie Kim Fellowship"* – Freiburg Institute for Advanced Studies

Rob Mann - \$15,000

Sociology and Anthropology, *"Archaeological Investigations at George Wilson Homesite and Associated Cemetery"* – Chippewa National Forest

Eddah Mutua - \$10,000

Communication Studies, *"Embracing Intercultural Communication"* – St. Cloud State University Foundation

Terry Vermillion - \$3,500

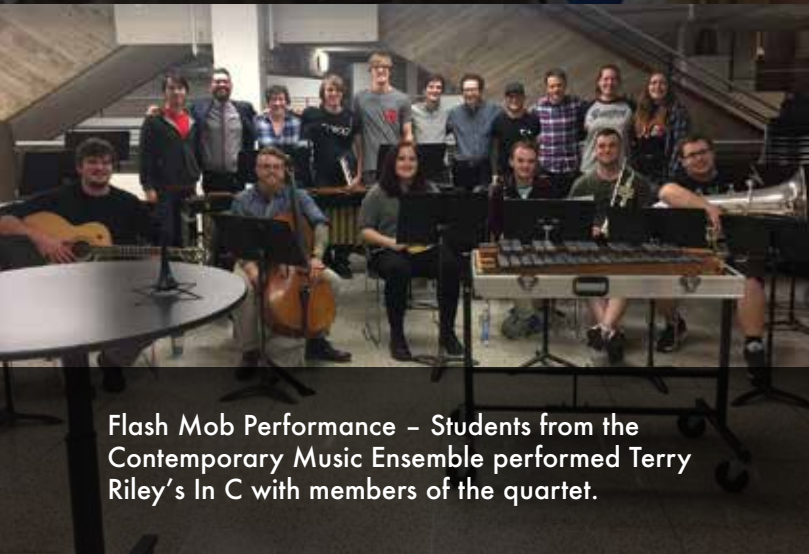
Music, *"Third Coast Percussion Residency"* – Central Minnesota Arts Board



School Demonstration – the quartet in a performance demonstration for the entire school at Clearview Elementary as part of a morning that explored the variety of percussion instruments and the music made.



The quartet performing during an open rehearsal in the Ruth Gant Recital Hall that explored and examined the music they were going to perform on the evening public performance.



Flash Mob Performance – Students from the Contemporary Music Ensemble performed Terry Riley's In C with members of the quartet.



Peter Martin explaining how to perform Terry Riley's In C before the Contemporary Music Ensemble performed with the quartet over in the Atwood Center.



Careers Discussion – the quartet in an open discussion on careers in the arts with music and entrepreneurship students.

COLLEGE OF SCIENCE AND ENGINEERING

Adel Ali - \$42,500

College of Science and Engineering, “GeoComm” – GeoComm

Adel Ali - \$38,162

College of Science and Engineering, “Integrated Science Engineering Laboratory Facility”

Adel Ali - \$1,631

College of Science and Engineering, “Statistical Consulting and Research Center”

Jorge Arriagada - \$27,440

Biology, “Monitoring and Controlling Invasive Species at Camp Ripley and Arden Hills Military Training Sites” – Minnesota Department of Military Affairs

Jiang-Ping (Jeff) Chen - \$30,000

Mathematics and Statistics, “The Evolution of Mathematical Reasoning in Trigonometry in China” – Inner Mongolia Normal University, Inner Mongolia, China

Chieh (Jeff) Cheng - \$4,950

Atmospheric and Hydrologic Sciences, “Statistical Hydrology Data Analysis” – Minnesota Department of Natural Resources

Chieh (Jeff) Cheng and Charles Rose - \$3,500

Atmospheric and Hydrologic Sciences/Environmental and Technological Studies, “Quarry Park Water Quality Analysis and Hydrological Modeling” – Stearns County Park Department

Matthew Davis - \$38,356

Biology, “Xcel Energy 316(b) Fishes Identification” – Xcel Energy

Ryan Fink - \$19,050

Biology, “Field Validation of Matrix-Assisted Laser Desorption Ionization Time of Flight Mass Spectrometry for the Identification of Dairy Microorganisms Critical for Safety and Quality” – University of Minnesota

Ryan Fink - \$46,965

Biology, “Evaluation of polylactose as a prebiotic dietary fiber” – University of Minnesota

Ryan Fink and William Cook - \$103,907

Biology, “No Waste: Fine-tuning Digesters’ Microbiome to Maximize Biogas Production” – Minnesota State: Xcel Energy Renewable Development Fund

Tirthankar Ghosh, Mark Schmidt and Susantha Herath - \$871,661

Computer Science and Information Technology/Information Systems, “CyberCorps: Scholarship for Service” – National Science Foundation

Tirthankar Ghosh - \$2,500

Computer Science and Information Technology, “Offering Bridge Course for two-year College Students” – National Cyber Watch Center

Mark Gill and Adel Ali - \$50,000

College of Science and Engineering, “Visualization Lab” – Pine Technical and Community College

Melissa Hanzsek-Brill and Kaelyn Dudley - \$2,500

Mathematics and Statistics/College of Science and Engineering, “Tech Saavy” – American Association of University Women

Melissa Hanzsek-Brill and Kaelyn Dudley - \$6,500

Mathematics and Statistics/College of Science and Engineering, “Tech Saavy”

Kurt Helgeson - \$1,163

Environmental and Technological Studies, “Mobile Labs Program” – St. Cloud State University Foundation

Kurt Helgeson - \$186,837

Environmental and Technological Studies, “Project Lead the Way”

Kurt Helgeson and Charles Hentges - \$170,000

Environmental and Technological Studies, “TEAM Industries Mobile Lab Program” – TEAM Industries

Matthew Julius - \$5,000

Biology, “Algal Animal Feeds” – Queen’s University Belfast: Agri Group Food Quest

Matthew Julius - \$50,532

Biology, “Mass Culture of Lake Superior Eukaryotic Microbes for the Great Ships” – Northeast Midwest Institute

Matthew Julius - \$367,071

Biology, “Microbial Power and Bioproduct Production using Food Waste from a College Campus” – Minnesota State: Xcel Energy Renewable Development Fund

Matthew Julius - \$1,854

Biology, “Phytoplankton Lab”

Matthew Julius - \$12,200

Biology, “Xcel Energy Project Oversight and Progress Evaluation” – Minnesota West Community and Technical College

Rebecca Krystyniak - \$10,718

Chemistry and Biochemistry, “Chemistry Textbook Royalties”

Christopher Kvaal - \$20,462

Biology, “Yeast as a Lignocellulosic Biomass Source for Biofuel Production” – SarTec Corporation

TEAM Industry/St. Cloud State University Mobile Lab Project

by Charles Hentges
and Kurt Helgeson

Participants: Kurt Helgeson, Charles Hentges, Jim Russ (TEAM Industry), Clearbrook-Gonvick Schools, Lake Park-Audubon Schools, Park Rapids Schools, Win-E-Mac Schools, Detroit Lakes Schools, Cass Lake-Bena Schools, and Rothsay Schools

The TEAM/SCSU Mobile Lab Project is an extension of the existing St. Cloud State University Mobile Lab program. The first part of this project involves students in grades K-12 to experience Science, Technology, Engineering, and Mathematics (STEM) activities with the use of equipment and technologies that schools may not be able to purchase. Technology and Equipment such as 3D printers, laser engravers, laptop computers with CADD software, CNC machines and robotic kits are delivered to a school after the instructor has filled out a grant application. The equipment is then left at the school for approximately two to three weeks and can also be used several times during the school year. Curriculum can also be provided to instructors to assist with the use of the technology and equipment.

The last part of this project involves the development of a certified youth apprenticeship program between TEAM Industry and the local high schools. The apprenticeship program allows student who are the ages of 16-18 to work in the TEAM manufacturing plants. Students who show an interest and knowledge in manufacturing are chosen by teachers to apply to TEAM industry. St. Cloud State University guides teachers, schools and TEAM Industry in this apprenticeship process.

Because of the exposure to the equipment, technology and the apprenticeship program students, parents and administration can see the benefits and opportunities in the manufacturing area. As some of these students go onto higher education, the exposure of St. Cloud State University may have an impact on the decision where they may want to attend college. The partnership between TEAM Industry, the schools and St. Cloud State University has provided a strong three legged stool to benefit all participants. TEAM Industry is creating awareness and employment opportunities for students. Students in the high schools become aware of the equipment and technologies that are used in the manufacturing areas. St. Cloud State University has the opportunity to work with both industry and the K-12 schools to create strong partnerships and possible recruitment of students in the STEM area.

The TEAM/SCSU Mobile Lab program provides students with technology and equipment that they may never have the chance to encounter. This exposure can energize students because of the experiential type of learning that takes place. This type of learning reinforces the skill sets that business and industry are looking for. Ability to communicate, think creatively, and be able to apply the knowledge and technology to which they have been exposed to. In return, our incoming students are better prepared for higher education and the work force.



Heiko Schoenfuss - \$12,660

Biology, "Collaborative Research RUI: Assessing Load Reduction and Biological Recovery after 500 MGD Treatment Upgrades in an Effluent-Dominated Aquatic Ecosystem Supplement" – National Science Foundation

Heiko Schoenfuss - \$118,699

Biology, "Developing Predictive Approaches to Identify Contaminants of Emerging Concern Adversely Impacting Great Lakes Tributaries" – United States Fish & Wildlife Service

Heiko Schoenfuss - \$3,798

Biology, *"Excotoxigenomics based water quality monitoring in Minnesota"* – Minnesota Pollution Control Agency

Kannan Sivaprakasam - \$1,200

Chemistry and Biochemistry, *"S2TOP Self Sealing Therapy"* – Eden Medical, Inc.

Nancy Sundheim - \$35,688

Environmental and Technological Studies, *"North Star STEM Alliance: Louis Stokes Alliances for Minority Participation"* – University of Minnesota/National Science Foundation

Yi Zheng and Adel Ali - \$36,717

Electrical and Computer Engineering/College of Science and Engineering, *"Soft Tissue Characterization"* – Born-Fuke Medical Equipment Co., Ltd

HERBERGER BUSINESS SCHOOL

Jim Qingjun Chen - \$519,001

Information Systems, *"Maverick On-campus IT Internship Program"* – Maverick Software Consulting

Barry Kirchoff - \$293,223

Small Business Development Center, *"Small Business Development Center"* – Minnesota Department of Employment and Economic Development

Barry Kirchoff - \$11,326

Small Business Development Center, *"Small Business Development Center Program Income"*

Adesegun Oyedele - \$5,000

Marketing, *"Export Market Development & Opportunity Assessment for Rural Renewable Energy Alliance in Nigeria"* – Initiative Foundation

SCHOOL OF EDUCATION

Steven Hoover - \$49,648

School of Education, *"Ignite Center"*

Kathy Johnson - \$70,000

Confucius Institute/School of Education, *"St. Cloud State University Confucius Institute: Confucius Classrooms"* – Hanban

Kathy Johnson - \$141,479

Confucius Institute/School of Education, *"St. Cloud University Confucius Institute"* – Hanban

Kathy Johnson - \$40,813

Confucius Institute/School of Education, *"St. Cloud University Confucius Institute Summer Camps"* – Jilin Province

Kathy Johnson - \$961,300

Confucius Institute/School of Education, *"St. Cloud State University Confucius Institute: Supplemental Funding"* – Hanban

Ming-Chi Own - \$10,000

Child and Family Studies, *"Greater St. Cloud Area Thrive"* – Initiative Foundation

SCHOOL OF HEALTH AND HUMAN SERVICES

Sara DeVos - \$48,205

Social Work, *"Medical Education and Research Costs"* – Minnesota Department of Health

Teresa Heck - \$10,875

Kinesiology, *"Academy for Co-Teaching"*

Amy Hebert Knopf and Brad Kuhlman - \$196,403

Community Psychology, Counseling and Family Therapy, *"Rehabilitation Training: Rehabilitation Long-Term Training"* – United States Department of Education, Office of Special Education and Rehabilitative Services

Amy Hebert Knopf, Barbara Vesely and Brad Kuhlman - \$199,994

Community Psychology, Counseling and Family Therapy, *"Rehabilitation and Addiction Counselor Education Program"* – United States Department of Education, Office of Special Education and Rehabilitative Services

Trista Olson - \$3,248

Kinesiology, *"Cooling spray and its effect on core temperature and perceived exertion during submaximal cycling endurance"* – Invictus Life Sciences

Mary Pfohl - \$94,078

Social Work, *"Bachelor of Social Work Child Welfare Consortium"* – University of Minnesota Twin Cities, School of Social Work

Cooling Spray and its Effect on Core Temperature and Perceived Exertion during Submaximal Cycling

by Trista Olson | Participants: Trista Olson, David Bacharach, Serge von Duvillard, Joe Schiessl, Alex Stokes, and Jessie Hubley

For almost 50 years the Human Performance Lab has served to educate students and conduct research in the field of exercise science. Trista Olson, Assistant Professor in the Department of Kinesiology, along with three student-researchers, Joe Schiessl, Alex Stokes, Jessie Hubley and consultants, Drs. David Bacharach and Serge von Duvillard conducted research investigating the effects of a cooling spray on perceived exertion, core temperature, and performance while cycling. The research was funded by Invictus Life Sciences with a grant of \$3,248. The lab regularly provides consulting and research services to various corporations and industries. These research opportunities provide both graduate and undergraduate students with hands-on experience conducting research under the direction of a faculty mentor.

Project Description: Increased body temperature plays a negative role in perceived exertion and endurance performance. Cooling prior to or during exercise are strategies that have been investigated to prolong exercise time and/or improve performance. Approximately 100 original investigations have examined the effectiveness of cooling on performance and results indicate that external cooling methods, have a positive effect on performance. The vast majority of these methods, however, are time consuming and impractical.

Impact: Considering the evidence and limitations of current cooling methods, Invictus Life Sciences developed a portable topical cooling spray that is meant to be sprayed on the nape of the neck, making it quick and easy to apply during a wide variety of endurance and sport activities. They provided grant support for staff from the Human Performance Lab to determine if this specific cooling spray would impact core temperature, perceived exertion, and performance during submaximal stationary cycling.

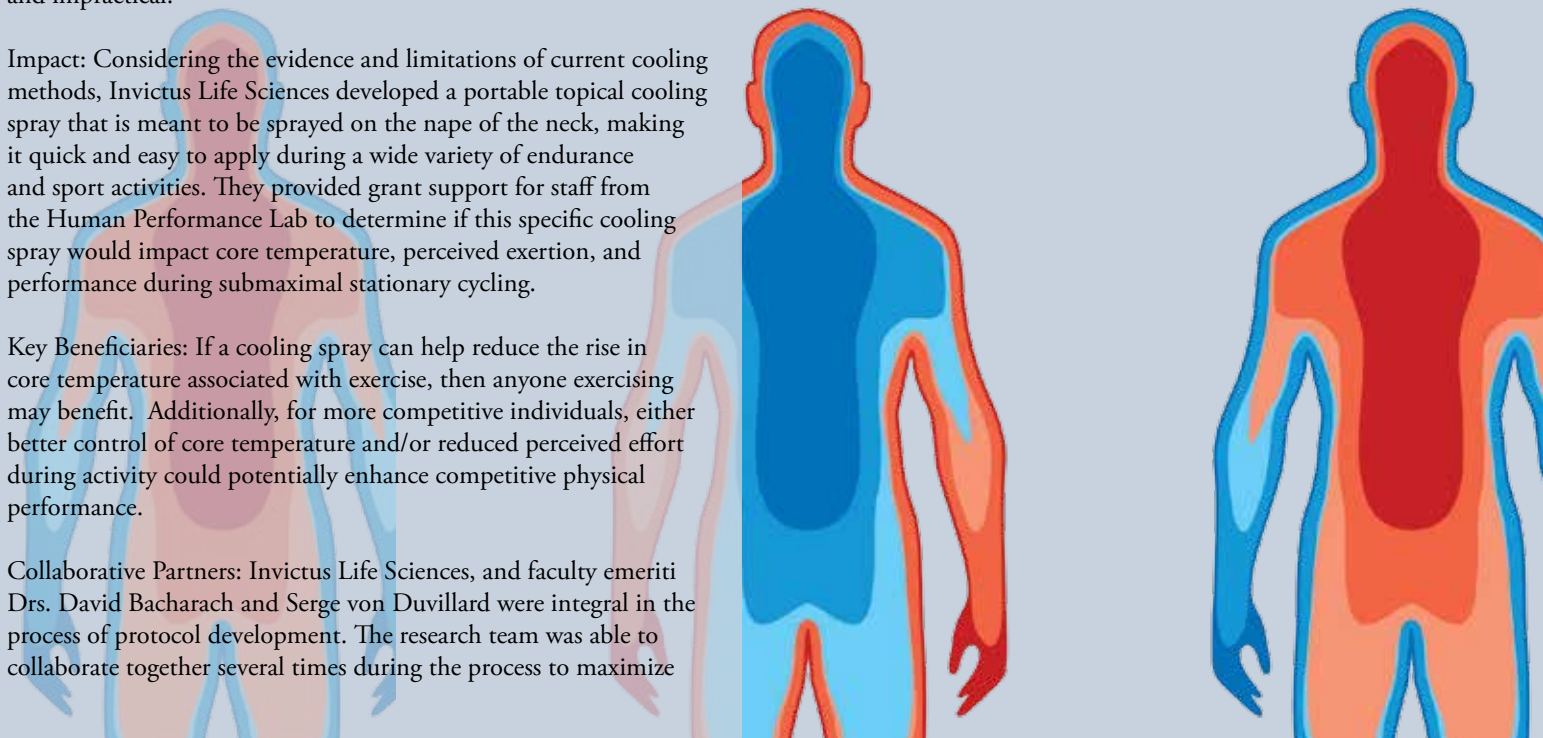
Key Beneficiaries: If a cooling spray can help reduce the rise in core temperature associated with exercise, then anyone exercising may benefit. Additionally, for more competitive individuals, either better control of core temperature and/or reduced perceived effort during activity could potentially enhance competitive physical performance.

Collaborative Partners: Invictus Life Sciences, and faculty emeriti Drs. David Bacharach and Serge von Duvillard were integral in the process of protocol development. The research team was able to collaborate together several times during the process to maximize

the outcome. Having quality consultants available to student-researchers is invaluable in the learning process.

Methods and Procedures: Nine undergraduate students were recruited to take part in the study. Various physiological measures were assessed during two cycling trials, one with the spray (treatment) and one without. Treatment trials were randomized and cycling was chosen as the endurance activity due to the necessity to measure core temperature and closely control exercise intensity. Initial resistance was set to 0.5 kp increasing 0.5 kp every 15 minutes up to 2 kp with subjects self-selecting pedal cadence between 60-80 rpm. Subjects then continued to cycle at 2 kp until volitional fatigue. Core temperature, rating of perceived exertion, skin temperature, heart rate, and power output were recorded every five minutes and total time to exhaustion was recorded when each subject finished.

Results: A repeated measures t-test with a Bonferoni correction indicated core temperature and heart rate were significantly lower in the cooling spray trial. Skin temperature and perceived exertion were not significantly different between trials. Participants tended to



cycle longer during the spray trial than during the non-spray trial, however, results were not significant at the $p < .05$ level. As this was a pilot study, the number of participants was quite low, affecting statistical power.

Future Directions: Considering the relationship between core temperature and fatigue, lower core temperature and heart rate observed with a cooling spray may have implications for improved performance during longer exercise trials or trials in a warmer environment. Results of this study were presented at the Northland Regional Chapter of the American College of Sports Medicine in April of 2017. Invictus Life Sciences is hoping to continue working with our lab to expand and build on the results of this study.

Think Creatively and Critically: Our lab was given a broad task to determine if a cooling spray applied to the nape of the neck would have a physiological influence on core temperature and with that potential impact on exercise performance. Type of exercise, conditions for testing as well as physiological and psychological variables to measure were all open for discussion. Students were involved in reviewing literature, determining appropriate methodology, protocol, and procedures needed to accomplish this task. After finding issues pilot testing the first protocol, students needed to think creatively and critically on how to fix the protocol.

Seek and Apply Knowledge: In developing the protocol it was necessary for our team to search prior investigations involving cooling and performance and apply it to our intended outcome. Students were able to apply skills learned in the classroom to a project that could potentially have an impact on sport performance.

Communicate Effectively: Student-researchers were tasked with recruitment, scheduling, obtaining informed consent, and explaining the protocol to the participants. Once the study was complete, it was necessary to effectively communicate the results through abstract and poster development for presentation.

Integrate Existing and Evolving Technologies: Student-researchers were trained to use standard lab equipment needed to measure core temperature, heart rate, perceived exertion and cycling power output, in addition to adapting this equipment to investigate a new performance development in the cooling spray.

Engage as a Member of a Diverse and Multicultural World: Research measuring physiological variables in humans is globally universal. Results can be applied to all people and therefore can be far reaching in its impact. Giving student-researchers the opportunity to do this first hand is paramount to their own growth and development as multicultural citizens.

Act with Personal Integrity and Civic Responsibility: As a member of the research team, student-researchers acted professionally with all subjects. They maintained subject safety by upholding the Institutional Review Board standards for protecting human subjects. All data were treated confidentially and only aggregate data were presented in all published findings. Results were disclosed to the public and no data were withheld regardless of the impact it may or may not have had on the product being tested.

SCHOOL OF PUBLIC AFFAIRS

Mary Clifford, Stewart Wirth and Lindsey Vigesaa - \$100,000

Criminal Justice, "*Enhancing Law Enforcement Response to Victims*" – International Association of Chiefs of Police

Jim Cottrill, Ann Finan, Monica Garcia-Perez, Amanda Hemmesch Breaker and Sandrine Zerbib - \$12,960

Survey Center, "*City of St. Cloud Community Survey*" – City of St. Cloud

Jim Cottrill, Ann Finan, Monica Garcia-Perez, Amanda Hemmesch Breaker and Sandrine Zerbib - \$70,000

Survey Center, "*Annual Minnesota Lottery Survey*" – Minnesota Lottery

Cynthia Fitzthum and Lynn MacDonald - \$3,000

Social Studies Education/Economics, "*Winter Institute*" – Initiative Foundation

Richard MacDonald and King Banaian - \$7,500

School of Public Affairs Research Institute, "*St. Cloud Area Economic Scorecard*" – Greater St. Cloud Development Corporation

Richard MacDonald and King Banaian - \$10,000

School of Public Affairs Research Institute, "*Quarterly Economic and Business Conditions Reports*" – Office of the Minnesota Secretary of State

Richard MacDonald and King Banaian - \$8,500

School of Public Affairs Research Institute, "*St. Cloud Area Quarterly Business Report*" – Greater St. Cloud Development Corporation

2017 Winter Institute “Ideas and Innovation”

by Cindy Fitzthum and Lynn MacDonald



2017 marked the 55th year of the Winter Institute, making it the longest continually running educational program at St. Cloud State University. The Winter Institute is an annual conference celebrating economic education and is a joint venture between the Economics Department, the Center for Economic Education, and the School of Public Affairs.

The Winter Institute presents an opportunity to socialize, engage and exchange ideas with a wide audience including: students, faculty, staff, business leaders, and community members. The 2017 Winter Institute theme was “Ideas and Innovation.” Cindy Fitzthum, Interim Director of Social Studies Education, and Lynn MacDonald, Associate Professor of Economics, both served as Co-Directors of the 2017 Winter Institute.

Each year the Winter Institute accomplishes three main goals by offering:

- High-quality educational programming featuring renowned speakers and stimulating ideas.
- Accessible economic education sessions for a general audience as well as targeted economic education sessions for K-12 educators.
- The Economic Outlook featuring national, state and regional economic forecasts interpreted for a community and business audience.

This event takes place over two days with a full slate of exciting programming that focuses on economic education and/or the “Ideas and Innovation” theme. In 2017, the Winter Institute offered a wide array of educational programming through a variety of concurrent sessions such as “Innovation in Action,” “Regional Consortium on Cybersecurity and Workforce Development,” “Rocks to Rock Candy: Why Money and Inflation Matter,” and many more.

2017 marked an exciting year for the Winter Institute with Deirdre McCloskey, renowned economist and LGBTQ rights advocate, headlining the event with “Liberal Ideas, Not Capital or Institutions, Make Us Rich.” Her keynote address pushed students and attendees to challenge traditional economic assumptions as she made the case that it’s really innovative ideas that propel economic growth rather than the traditional view of growth solely stemming from institutions, resources, and capital. McCloskey also offered multiple other talks over the two days. One powerful topic



Nimanthan Manamperi, King Banian and Luke Greiner.

addressed was “Adventures of a New Transwoman: 1995-2017” in which she shared her experience of transitioning. Additionally, in “Tests of Statistical Significance are Virtually Meaningless,” McCloskey challenged some of the assumptions and interpretation of statistics.

This presentation was co-sponsored with the Mathematics and Statistics Department as a talk in the Statistics Colloquium series. While here, McCloskey graciously set aside time for our students. Interested



Deirdre McCloskey



2017 Winter Institute audience

students had the opportunity to meet with her to discuss economic concepts and ideas. Approximately 30 students participated in this intimate, salon-style discussion and the feedback was overwhelmingly positive. Many students indicated that this was a formative experience and the highlight of the entire event.

In addition to McCloskey, St. Cloud State University welcomed Corey Tollefson, distinguished alum ('00), as a featured speaker. Tollefson offered an exciting perspective on digital disruption. As the SVP and GM of Retail at Infor, Tollefson took the opportunity to speak to SCSU students urging them to both work hard and follow their passion as they are developing their careers. His own



Greater St. Cloud Development Corporation Session

path mirrored the advice he shared with current students and alumni. Tollefson made a point to emphasize both his successes and failures along the way as he highlighted “How to Grow a Business from an Idea to 900 Employees in 18 Months.” With the 2017 theme being, “Ideas and Innovation,” Tollefson focused on innovation in the tech industry and the changing face of retail with new and exciting integrative technologies.

Further pushing the audience to engage with new ideas and technologies, the Dayta Marketing duo of Aaron Moore and Erin Perry Boron, offered a session on “Innovation: A Branding Guide.” This session taught participants new ways to engage with technology and social media. St. Cloud State University Entrepreneurship students presented their ideas in a SCSU Shark Tank and Sauk Rapids-Rice High School DECA students presented their market research emphasizing social media applications for business uses. These are just a few examples of the many excellent concurrent session. In addition to the full day of programming for a general audience, the Winter Institute offered a full day workshop “Fundamentals of Environmental Economics and Entrepreneurship” for K-12 teachers. The Foundation for Teaching Economics presented this well-received workshop that armed primarily grades 6-12 teachers with additional tools and materials to use in their respective classrooms.

Building on the success of 2017 as well as on 55 years of exceptional programming, the 2018 Winter Institute will be held on February 1-2, 2018. For more information, visit: <https://www.stcloudstate.edu/conferences/winter-institute/>

We want to recognize and thank the following generous sponsors who made the 2017 Winter Institute possible:

Economics Department
Center for Economic Education
School of Public Affairs
American Heritage National Bank
Central Minnesota Community Foundation
College of Liberal Arts
College of Science and Engineering
Communication Studies Department
Custom Catering
Executive Express
Falcon National Bank
Foundation for Teaching Economics
Granite Equity Partners
Great River Federal Credit Union
Greater St. Cloud Development Corporation
Herberger Business School MBA Program
Honors Program
Initiative Foundation
Insight Eye Care
Institute for Humane Studies John Templeton Foundation
LGBT Resource Center
MFP, Inc.
Microbiologics
Mike Helgeson
Miller Auto and Marine
Minnesota Council on Economic Education
Minnwest Bank
Multicultural Student Services
Quarks Bento
Rejuv Medical
Sandler Training
School of Education
School of Health and Human Services
Small Business Development Center
St. Cloud Area Chamber
StringLine Motion Picture Company
Times Media
University Library
White Horse
Xcel Energy

We also want to recognize the following groups who offered support and assistance for this year's event: Center for Continuing Studies, Admissions, Chartwells, Central Minnesota Manufacturers Association, Viking Coke, University Advancement, University Archives, and University Programming Board.

OFFICE OF STRATEGY, PLANNING AND EFFECTIVENESS AND UNIVERSITY COMMUNICATIONS

Lisa Foss - \$12,750

Office of Strategy, Planning and Effectiveness and University Communications, "*Minnesota Pilot Consortium*" – Association of American Colleges and Universities

Jo McMullen-Boyer - \$783

KVSC 88.1 FM, "*Arts and Cultural Heritage Legacy Grant*" – Minnesota Department of Administration

Jo McMullen-Boyer - \$94,686

KVSC 88.1 FM, "*Corporation for Public Broadcasting Community Service Grant*" – Corporation for Public Broadcasting

Jo McMullen-Boyer - \$46,746

KVSC 88.1 FM, "*Program Support*" – St. Cloud State University Foundation

STUDENT LIFE AND DEVELOPMENT

Corie Beckermann - \$68,816

Student Health Services, "*Student Insurance Advocacy*" – United Healthcare Student Resources

Jennifer Johnson and Jen Sell Matzke - \$2,500

UChoose/Student Life and Development, "*Minnesota Organization on Fetal Alcohol Syndrome Prevention*" – Minnesota Organization on Fetal Alcohol Syndrome

Shawn Kakuk and Chee Moua-Yang - \$210,000

Student Life and Development/Center for International Studies, "*Student Crisis/Emergency Grant*" – Great Lakes Community Investments

Jen Sell Matzke - \$29,788

Student Life and Development, "*St. Cloud State University Recovery Community*"

Jen Sell Matzke - \$35,210

Student Life and Development, "*St. Cloud State University Recovery Community*" – St. Cloud State University Foundation

David McCandless - \$7,000

Campus Involvement, "*Lemonade Art Fair – Symphony Orchestra*" – Central Minnesota Arts Board

Dennis Mergen - \$120,588

Lindgren Child Care Center, "*Young Student Parent Support Initiative*" – Minnesota Department of Health

Dennis Mergen - \$126,000

Lindgren Child Care Center, "*Student Parent Support Initiative*" – Minnesota Office of Higher Education

Dennis Mergen - \$1,900

Lindgren Child Care Center, "*Child Care Aware*" – Child Care Aware of Minnesota

Dennis Mergen - \$75,000

Lindgren Child Care Center, "*Pathways II Early Learning Scholarship*" – Minnesota Department of Education

Jane Olsen - \$9,550

Women's Center, "*Project Care: MNSURE Health Insurance Access for Students*" – Mid-Minnesota Legal Aid

Michelle Schmitz - \$80,000

Career Center, "*Enhance St. Cloud State University EdPost*" – Minnesota Board of Teaching

Lemonade Concert and Art Fair

by David McCandless and Bretta Edwards

The Lemonade Concert and Art Fair has been held annually on the St. Cloud State University Campus for 44 consecutive years starting in 1974. It has grown to include more than 200 art, craft, and food vendors and an annual concert by the St. Cloud Symphony Orchestra. Planned by the St. Cloud State Department of Campus Involvement under the leadership of David McCandless, Assistant Director of Campus Programs and Spirit Groups and Bretta Edwards, Art Vendor Coordinator, it was founded and led by community member Ginny Tennant for the first 42 years of its existence. We received a \$7,000 Project Grant from the Central Minnesota Arts Board to help fund the cost of the St. Cloud Symphony Orchestra performance so we could continue our 21-year tradition of working with that great community group.

The Lemonade Concert and Art Fair is a community tradition and is St. Cloud State University's premiere community engagement event each year. We welcome more than 10,000 guests to campus to browse the more than 200 art and food vendors and attend the annual St. Cloud Symphony Orchestra Concert. Some key collaborators include: St. Cloud Mayor Dave Kleis and staff, Granite City Days planning committee, Paramount Arts District, St. Cloud State University Advancement, St. Cloud State University Communications, and our many great staff who volunteer each year to assist with the event.

In 2017, we rolled out our online vendor list and map, facilitated thru a mobile-friendly website, www.lemonadeartfair.com, designed by St. Cloud State University Alum Dylan Edwards. This integration of technology into the event will allow us to be more sustainable and provide a better customer experience going forward. We also bring in musical performances from a variety of different backgrounds and encourage community engagement and participation at all levels of the event, engaging as members of our diverse and multicultural world. This event is a key part of the civic fabric of the city of St. Cloud and the Central Minnesota region and is the kick off for the four-day Granite City Days festival.



UNIVERSITY LIBRARY

Cindy Gruwell and Rachel Wexelbaum - \$2,240

University Library, "NN/LM AIDS Exhibit Support" – National Network of Libraries of Medicine – Greater Midwestern Region

Tom Steman - \$9,000

University Library, "Investigating the Cultural Geography of St. Cloud State University" – Minnesota Historical Society

LEVERAGED EQUIPMENT Grants

Through legislative funding, Minnesota State Colleges and Universities is afforded an opportunity to offer the Leveraged Equipment Program. This program allows the acquisition of state-of-the-art equipment for instructional programs that produce graduates with skills in high-demand occupations.

Dennis Guster - \$7,193

Information Systems, *"Enterprise grade cloud server, high performance disk storage and associated switches"*

Kurt Helgeson, Charles Hentges and Mark Schroll - \$20,270

Environmental and Technological Studies, *"EMCO CNC MILL55, Siemens Operate Controller, EMCO E-Learning Software"*

William Hudson - \$7,875

Finance, Insurance and Real Estate, *"Web Based Financial Database"*

Matthew Julius, Ryan Fink and William Cook - \$147,930

Biology, *"Energy Sustainability, Food Sciences, and Natural Material Sciences"*

Satomi Kohno - \$13,883

College of Science and Engineering, *"Synergy HTX Multi-Mode Microplate Reader (BioTek)"*

Eric Little - \$62,243

Mechanical and Manufacturing Engineering, *"CM Machines"*

Larry Nadeau - \$123,611

Minnesota Highway Safety and Research Center, *"Fire Service and Professional Driving Students"*

Benjamin Richason - \$15,012

Geography and Planning, *"Establishment of an UAS-GIS Immersive Technology and Teaching Lab"*

Kannan Sivaprakasam, Sarah Petitto and John Sinko - \$98,414

Chemistry and Biochemistry/Physics and Astronomy, *"Initiative to transform education, research and workforce development at St. Cloud State University and partnering institutions"*

During fiscal year 2017, more than
120 St. Cloud State University faculty
and staff engaged with external
grant and contract activities.

St. Cloud state University's funding portfolio includes external and internal awards. In fiscal year 2017, a total of **147** grants were awarded, of which 69% were externally funded and 31% funded through internal grant competitions.

INTERNAL GRANTS

SHORT-TERM Faculty Improvement Grants

The primary purpose of a short-term faculty improvement grant is educational in focus. Faculty members participate in a workshop to gain skills, prepare for current or new teaching assignments, and support professional development plans.

Cassidy Dobson - \$1,227

Chemistry and Biochemistry, "*Bossed UP! Bootcamp*"

Peter Happel Christian - \$2,060

Art, "*Alnwick Program Development Workshop*"

Susantha Herath - \$1,647

Information Systems, "*Critical Thinking Assessment Training Workshop*"

Stephanie Houdek - \$1,314

Academic Learning Center, "*Supporting Student Productive Struggle*"

Annette Lee - \$1,962

Physics and Astronomy, "*Digital Storytelling Workshop*"

Mary O'Dea - \$795

University Library, "*Great Lakes Science Boot Camp*"

Mary Pfohl - \$2,186

Social Work, "*Alnwick Workshop*"

Grama N. Rangamani - \$2,163

Communication Sciences and Disorders, "*Alnwick Castle Course Development*"

John Sinko - \$1,712

Physics and Astronomy, "*Successful Measurement of Dynamic Force, Pressure and Acceleration*"

Nancy Sundheim - \$2,048

Environmental and Technological Studies, "*IDEAL (Institute for the Development of Excellence in Assessment Leadership)*"

Matthew Vorell - \$1,953

Communication Studies, "*Alnwick Program Development Workshop*"

Hung-Chih Yu - \$1,850

Geography and Planning, "*The Certificate of Hospitality Educator Workshop at University of Houston*"

Peiyi Zhao - \$643

Mathematics and Statistics, "*Raising Calculus to the Surface*"

RESEARCH Faculty Improvement Grants

Research grant awards support research, creative achievement or the scholarly pursuit of knowledge using recognized procedures in the faculty member's discipline.

Sohel Ahmad - \$3,660

Management and Entrepreneurship, *"Product Modularity and Product Quality: Mediation Effects of Supplier Involvement and Mass Customization Capability"*

Mikhail Blinnikov - \$8,770

Geography and Planning, *"From nomads to farmers: searching for early traces of agriculture in the forest-steppe of Tatarstan"*

Sudarshana Bordoloi - \$5,650

Sociology and Anthropology, *"Health Seeking Behavior among Somali Immigrants in Central Minnesota: A Case Study of Experiences in Health Care Access and Utilization"*

Marina Cetkovic-Cvrlje - \$9,929

Biology, *"Does Garcinia Kola Extract Affect Type 1 Diabetes Development and Severity in an Experimental Mouse Model?"*

Robert Galler - \$4,932

History, *"Crow Creek Tribal School: A History of Adaptations and Tribal Influence in Education"*

Alexa Horochowski - \$10,000

Art, *"Manufactured Vortex: Drawing"*

Elena Kurinski - \$10,000

Languages and Cultures, *"Language – thought relations in adult language learners: the case of Hungarian and German native speakers learning Spanish"*

Christopher Kvaal - \$3,500

Biology, *"Testing Parasites Disease Drug Target Genes in Yeast"*

Scott Miller and Mark Gill - \$9,967

Music/College of Science and Engineering, *"Raba"*

Elisha Polomski - \$6,359

Physics and Astronomy, *"Astrophysical Dust Evolution from Shock Waves"*

Michele Traub - \$9,998

Community Psychology, Counseling and Family Therapy, *"Evaluating the Role of Visual Acuity and Tactile Discrimination on Breast Self-Examination"*

New Researcher AWARDS

New researcher awards encourage newly hired faculty and staff to pursue research or scholarly activities by providing support monies early in their career with St. Cloud State University.

Nathan Bruender - \$3,998

Chemistry and Biochemistry, *"Expression and Purification of Phosphoribosyl Transferase Enzyme from streptomyces rimosus"*

Matthew Davis - \$3,999

Biology, *"The Repeated Evolution of Bioluminescence across the Evolution of Pelagic Lizardfishes"*

Michele Mahr and E. Justin Page - \$7,600

Community Psychology, Counseling and Family Therapy, *"A Multidisciplinary Approach to Impacting Physical Activity in College Students and Disabilities"*

Mehdi Mekni and Benjamin Witts - \$7,872

Computer Science and Information Technology/Community Psychology, Counseling and Family Therapy, *"Automated Modular Invertebrate Research Environment"*

Louise Millis - \$3,661

Medical Lab Science/Biology, *"The Threat of Mosquito Borne Viruses in Minnesota, a Problem at the Virome Level"*

John Sinko - \$4,000

Physics and Astronomy, *"Target Chamber Optimization for Laser Tractor Beam Astronaut Retrieval"*

Lindsey Vigasaa - \$3,965

Criminal Justice, *"An Examination of the Characteristics, Criminal Histories, and Barriers Encountered by Residents Housed at the Overcomers International Fellowship Dream Center in St. Cloud, MN"*

University Researcher FUNDS

University researcher funding provides a multi-faceted support system to help faculty and staff with preliminary research, scholarly or creative activities, and hone the skills needed to be successful in seeking external funding.

Mikhail Blinnikov - \$4,829

Geography and Planning, *"Tracking origins of agriculture in Bolgar, Tatarstan through soil micromorphology and phytolith analysis"*

Daren Protolipac - \$4,896

Psychology, *"Generalization of the Strong Interest Inventory in Chines Culture: A Translation, Validation, and Cross-Cultural Comparison Study"*

Kannan Sivaprakasam - \$4,938

Chemistry and Biochemistry, *"Acquisition of dedicated cooling system to collect preliminary results for external proposals submission"*

Hellervik PRIZE

In collaboration with St. Cloud State University Foundation, the Hellervik Prize is St. Cloud State University's premier award encouraging research or scholarly activity which advances knowledge.

Eddah Mutua - \$10,000

Communication Studies, *"Embracing Intercultural Communication"*

Embracing Intercultural Communication Pedagogies in Globalizing Local Classrooms in Central Minnesota

by Eddah Mutua

This project was designed to explore pedagogical practices relevant to promoting intercultural and global understanding in globalizing local (glocal) classrooms in Central Minnesota. It builds on my ongoing work on "Communicating Common Ground" involving St. Cloud State University students enrolled in an upper division, intercultural communication class that I have taught for the last 10 years. Other participants in the project include 70 high school students of diverse cultural and racial backgrounds, and geographical locations in Central Minnesota (Technical, Apollo, Sauk Rapids-Rice, Foley, and ROCORI) and Kenya (Naisula school in Kajiado), 15 middle school students (North Junior High School, St. Cloud) and a fifth grade class (Cold Spring Elementary School).

Globalizing economic, political, migratory and communicative processes are increasingly transforming and linking different local contexts around the world. Along with positive aspects of this process, there have been problems, including both reasonable and reactionary resistance to change. As Ahmed Samatar observes "The emerging logos of our age-ought to start with the recognition of the dialectic of multiple differences that cannot be obliterated or wished out of existence, yet they must co-evolve with each other" (Samatar, 2007).



Eddah Mutua

This project is an effort to globalize the study of intercultural communication in order to strengthen increased mutual understanding, peaceful coexistence and even cooperation among culturally diverse students in their respective schools, and countries. According to Shome & Hedge (2002), globalizing the study of communication "...is to continually produce a resistant body of knowledge about vectors that connect and disconnect culture, space, and inevitably power."

Lectures and readings informed university students both how diverse cultures interact, clash or unite in new intercultural contexts, and how to engage in constructive dialogue with those of other cultures. This was practiced between local and international students within the university classroom and in the broader community. Students learn to give voice to their experiences, share family narratives of culture and migration, and explore possibilities of peaceful co-existence. Students also engaged in guided activities to showcase enveloping local and global communication contexts, such as Skype sessions about peaceful co-existence with students and NGO workers in Kenya and research assignments on global and local conflicts, peace movements and pacifism.

The university students further implemented their theoretical and practical lessons by facilitating dialogue sessions among high school students in Central Minnesota. Students' dialogues centered on how diverse groups (in their own schools) interact and sometimes clash with insults and violence, and also unite to address problems encountered.

Additionally, as overseen by select university students, students from ROCORI and Apollo High Schools facilitated dialogue sessions respectively at Cold Spring Elementary and North Junior High Schools. To some extent, this snowball approach follows the model of "paying forward." We learned that intercultural communication has the nature of promoting more understanding.

Other activities for both university and high school students included a guest speaker series and a workshop on mindfulness and inner peace.

This project points to future directions for teaching about cultural diversity in a globalized world. What lessons can be learned from what we have done? How do we sustain the paying forward model in intercultural communication? Intercultural communication is not merely a subject to be memorized, but a practice that promotes itself as beneficial. A tolerant learning environment, carefully chosen learning resources, and encouragement of cross-cultural dialogues forge new global and local understandings.

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