4-2-2013

Celebrating Student and Faculty / Staff Collaborations 2013

St. Norbert College

Celebrating Student and Faculty/Staff Collaborations

Tuesday, April 2, 2013

1:00 - 4:00
Presentations
in Todd Wehr Hall

4:00 - 5:15
Reception in
Hendrickson
Dining room

During the reception and recognition ceremony in the Hendrickson Dining Room of Bemis, we will have remarks from Kathy Licht, Ph.D., Associate Professor of Earth Sciences, Indiana University-Purdue University Indianapolis

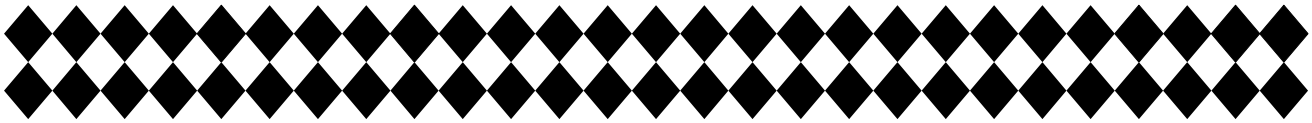
Kathy Licht began her journey and love for geology with her first introductory course in college. After realizing the relevance to everyday life she decided that was the path she would like to continue to follow. Her time is now divided between her research and teaching graduate, intermediate, and introductory level geology courses at Indiana University-Purdue University Indianapolis.

Licht focuses her research on the Antarctic ice sheet history. She has participated in five trips, two as a student and led an additional three as a faculty member, with the last being completed in 2011. On this trip she was accompanied by a SNC student and professor. They camped on East Antarctic glaciers in the Transantarctic Mountains and collected rock samples to learn how the glacial deposits act as a recorder of the ice sheet's history and better understand how global climate has changed over time.

Licht received a B.S. in Natural Sciences from St. Norbert College in 1992, a M.S. in Geological Sciences from the University of Colorado, Boulder in 1995, and a Ph.D. in Geological Sciences from the University of Colorado, Boulder in 1999.

Celebrating Student and Faculty/Staff Collaborations focuses on the valued tradition at St. Norbert College of collaborations taking place in labs, studios, and other scholarly or creative settings, resulting in a rich array of scholarly research and creative works.

This celebration features collaborative projects that evolved out of independent studies, class assignments, and casual interactions, as well as those formal collaborations supported through the Office of Faculty Development, the Collaborative, and the Research Fellows Program.



Co-sponsored by the
Office of Faculty Development;
The Collaborative: The Center for Undergraduate Research, Scholarship and Creative Activities;
The Office of the Dean of the College;
and the Office of College Advancement

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Day-At-A-Glance

Poster Presentations

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Day-At-A-Glance

Oral Presentations

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3:00-3:30	Page 19	TWH 146	Samantha Finnigan	Humanities and Fine Arts
3:30-4:00	Page 14	TWH 149	Rachel Conrad	Natural Science
3:30-4:00	Page 21	TWH 146	Zaccary Haney	Humanities and Fine Arts

TWH Lobby
3:00-3:30

The Effects of dredging activity in the lower Fox River on the surrounding aquatic ecosystem

Maria Dzurik, Senior Biology and Environmental Science Major

Dr. Carrie Kissman, Ecology and Biology Professor

Water bodies adjacent to paper mills and other industries are often contaminated by polychlorinated biphenyl (PCBs). Remediation via dredging to remove contaminated sediments may have unintended consequences for the local water clarity, quality and species diversity. The lower Fox River, an EPA Superfund site, is currently being dredged to remove contaminated sediments. This project analyzes the effects of the recovery of the Fox River Superfund site on the water quality, clarity and biodiversity of the algae, zooplankton, and macroinvertebrates. Data collected in 2012 is compared to historical water quality and biotic data collected by other sources prior to the start of dredging to assess long term dredging effects.

TWH Lobby
3:00-3:30

Food Deserts and Fundamental Cause: The Relationship between Socioeconomic Status, Access, and Obesity

Olivia Poepping, Senior Sociology Major

Dr. Jamie Lynch, Assistant Professor of Sociology

Are food deserts unhealthy? A food desert is a geographic area in the United States with limited access to affordable and nutritious food, commonly located in low-income neighborhoods. Food deserts are associated with generally poor health. However, it remains unclear if food deserts cause poor health or are simply corelated with food insecurity. In this study, I use Fundamental Cause theory to explore the relationship between food deserts and health by analyzing pre-determined factors of access. With this analysis the data shows a link between food deserts and health status, mostly seen through the concentration of obesity in these communities.

TWH Lobby
3:30-4:00

New organic framework for luminescent boron complexes

Zachary Zander, Senior Chemistry Major

Dr. Kari Cunningham, Assistant Professor of Chemistry

Previously, the two most commonly studied luminescent boron complexes have been based on either dipyrromethene or a diketonate functionality that creates an emission from short-lived singlet π-π^* excited state. To improve this existing design, this project uses ligands based on a keto-phenolate core, such as with 2-hydroxybenzophenone and derivatives, to create novel boron complexes. Preliminary results reveal that these compounds emit in both solution and solid state. The unexpected intense and blue-shifted emission of the 2'-hydroxyacetophenone derivative suggests that the ketone side of the complex has more direct control of the fluorescence.

TWH Lobby
3:30-4:00

Time-averaged accumulation of late Cretaceous oysters (Pycnodonte newberryi) in the Tropic Shale of southern Utah

Amy Hamby, Senior Geology Major

Dr. Rebecca McKean, Assistant Professor of Geology

The Tropic Shale is a late Cretaceous (~90 million year old) formation in southern Utah that was deposited along the margin of an ancient seaway. Extensive, high density oyster beds dominated by one species (Pycnodonte newberryi) are located in the lower sections of the shale. Extensive mapping, sampling of sediment and fossils, and analysis of fossil preservation revealed characteristics of the oyster beds that helped determine how they were preserved. The high density and fragmentation of the oysters at the surface suggest an accumulation of the oysters slowly over time by modern erosional processes rather than an in-place, life accumulation.

TWH Lobby
3:30-4:00

Formation of Attitudes toward International Trade- the American Case

Viktoriya Zotova, Senior Economics Major

Dr. Marc von der Ruhr, Professor of Economics

International trade is a rather misunderstood phenomenon whose implications for a given country are often misinterpreted by the general population and many politicians. This project aims to determine what factors influence the formation of attitudes toward international trade, and thus shed light on how to effectively educate the general population about its true impacts. The project focuses on the United States and how variables such as gender, age, education, employment status, occupation, earnings, among a number of other variables, influence one's opinion about the amount of international trade the United States should engage in. The project will contribute to the existing knowledge by exploring the significance of variables that have not been tested before.

TWH Lobby
3:00-3:30

Coherent Light Generation Using Four-wave Mixing

Laura Alderson, Senior Physics Major

Dr. Erik Brekke, Assistant Professor of Physics

Four-wave mixing is a nonlinear optical process that uses the coupling of four atomic levels to produce coherent emission of the generated photons. The objective of our experiment is to use a single, high power, 778nm diode laser in the parametric four-wave mixing process in Rubidium to generate two coherent beams, one of which being 420nm. The laser frequency is locked using two-photon spectroscopy and amplified using a tapered amplifier chip to produce an output laser of 2W with the same frequency characteristics as the input laser. We observed coherent output of 420nm light as a function of input power and frequency.

TWH Lobby
3:00-3:30

Applications of Polymerase Chain Reactions (PCR) in Differentiating Parasite Species from Salmonid Fishes in the Yukon

Marc Popp, Junior Biology Major

Dr. Anindo Choudhury, Professor of Biology and Environmental Sciences

I use PCR for the molecular identification of parasites collected from a survey of salmonid fishes in the Yukon, Canada. Parasites collected from necropsy work on thawed fish included several species of tapeworms and flukes. Extracted DNA is amplified for sequences of selected regions of the genome. To date, I have amplified DNA and obtained partial sequences of the 28S rRNA genes and complete sequences of the ITS-2 region of the rRNA genome from two tapeworm species. Next, I will be targeting two species of flukes. Such techniques are useful when sample quality is compromised by freezing and thawing.

TWH Lobby
1:00-1:30
2:30-3:00

Why (do) Private Companies Comply with the Sarbanes-Oxley Act?

Emily Strehlow, Senior Accounting Major

Crystal Flasch, Senior Accounting Major

Dr. Amy Vandenberg, Assistant Professor of Business Administration

Mr. Jason Haen, Instructor of Accounting, Business Administration

The passage of the Sarbanes-Oxley Act (Sox) in 2002 was the result of corporate disasters such as Enron and WorldCom who failed primarily because of unethical practices and inadequate corporate governance. While currently SOX compliance is limited to publically traded companies some private companies voluntarily choose to comply. What is motivating private companies to comply with SOX? Do the benefits outweigh the costs? Are private companies forced to comply with SOX to appease external and internal parties? This study researched pertinent literature and conducted interviews with private companies to gain an understanding why private companies choose to comply with provisions.

TWH Lobby
2:30-3:00

Analyzing the United States Criminal Justice System through Ethical Criticism

Rachel Gintner, Junior English Major and Religious Studies Minor

Dr. Bridget Burke-Ravizza, Associate Professor of Religious Studies

I ethically examine the American criminal justice system by utilizing the argument made by civil rights advocate Michelle Alexander, in which she claims mass imprisonment in the United States reflects a racial caste system. My paper includes four sections; I first claim that our criminal justice system is racially impeded due to certain historical and cultural factors unique to the US. I then expand on the particular rhetoric utilized to keep this racist system functioning. Third, I suggest that in order to radically transform the system, we must address mass incarceration as a moral and humanitarian issue. Within this umbrella of tackling criminal justice as an interconnected and complex societal problem, I consider how personal narrative and memoirs have the ability to shape our moral life. First-hand narrative from people on the "inside"—prisoners, lawyers, ex-gang members, etc.—encourage one to fight for racial justice in our criminal justice system through a process of internalization and empathy. The paper concludes with examples of positive, constructive change that envision racial justice in the system, such as the 11 X 15 campaign of Milwaukee.

TWH Lobby
3:00-3:30

ESPN in Asia: How Television Programming Translates Across Cultures

Kelley Catenacci, Senior Psychology Major

Dr. Hyang-Sook Kim, Assistant Professor of Communications and Media Studies

Many challenges arise during the global expansion of television programming such as language and cultural differences, government regulation, and program popularity. The primary objective of this research is to examine details of the globalization of a US-originated sport program network, ESPN, in terms of its programming strategies properly tailored to Asian markets. This case study utilizes core propositions of the circuit of the culture model to (1) critically analyze current practices of ESPN in Asia, and (2) provide the relevant area of the industry with practical guidelines of successful sport television programming in a particular region of the globe.

TWH Lobby
1:30-2:00

Diagnostic of the Leadership Program Defensive Leaders of our Country (LDP) through the Organization Children with Hope (NCUE) in Cienfuegos, Dominican Republic/ Un Diagnóstico del Programa Líderes Defensores de Nuestro País (LDP) dentro de la Organizació

Hannah Loppnow, Senior Sociology Major

Ms. Rosemary Sands, Director of Study Abroad

The purpose of this study is to determine whether LDP is accomplishing the group's original goals and if not, how they can make them a reality in their daily work at NCUE. Upon examination of the daily tasks of the leadership students as well as through interviews and surveys with students of LDP and staff of NCUE, it is clear that LDP is accomplishing their original goals. Through the research we have discovered the students have great potential to lead however they are lacking opportunities and consistency in their guidance. We recommend to focus on opportunities for the future, formalizing the group, and involving the NCUE staff in the leader's projects to secure sustainability for the future.

TWH Lobby
3:00-3:30
3:30-4:00

Indole-based Analogues of Modafinil

Arielle Tremel, Junior Biochemistry Major

Rakel Zarb, Junior Biochemistry and Biology Major

Kristen Vincent, Junior Chemistry Major

Dr. Jonathon Russel, Associate Professor of Chemistry

Dr. Cynthia Ochsner, Assistant Professor of Chemistry

Modafinil is a clinical psychostimulant that competitively inhibits the dopamine transporter (DAT). In light of the structural variation found within other known inhibitors of dopamine transport, one of the research goals has been to modify alternate structural motifs to further probe the mechanism of DAT inhibition. A survey of the literature revealed that Modafinil analogues bearing an isopropyl amide functionality have proven to be effective inhibitors of DAT. This functionality was bound to various indole scaffolds and the resulting Modafinil analogues will be further tested to identify alternate DAT inhibition mechanisms.

TWH Lobby
3:00-3:30
3:30-4:00

Nature of Xenoliths in 1.48 to 1.52 Ga Granitic Rock Complexes in Wausau, WI

Trevor Osorno, Junior Geology Major
Cody Heinze, Junior Geology Major
Dr. Tim Flood, Professor of Geology

The 1.48 Ga Wolf River Batholith and the 1.52 Ga Wausau Syenite Complex are two anorogenic igneous complexes, both of which contain dark colored xenoliths. The purpose of this investigation was to note the variety of xenoliths and the nature in which the xenoliths interacted with the magma. Outcrop and hand sample descriptions were performed in the field. Petrographic analyses including modal point counts were performed in the laboratory. The abundance of the minerals hornblende and biotite indicate that the xenoliths are mafic in composition, and along with textural observations, indicate little to no interaction between the xenoliths and the magma.

TWH Lobby
3:00-3:30
3:30-4:00

Granites from the 1.5 Ga Wausau Syenite Complex, Wausau, WI

Zachary Osborne, Junior Geology Major
Kenneth Oxendorf, Junior Geology Major
Allison Shackelton, Junior Geology Major
Dr. Tim Flood, Professor of Geology

The Wausau Syenite Complex is a large anorogenic complex that formed between 1.48 Ga and 1.52 Ga years ago. It is associated with the Wolf River Batholith plutonic complex that intruded into central and northeastern Wisconsin about 1.45 Ga. The purpose of this study was to determine mineralogical percentages of the supposed alkaline granite samples through petrographic modal point count analysis and to infer mineral relationships from observable textures in thin section that are not visible to the naked eye. The rock samples collected by this group were determined to be granite, alkali feldspar granite, or quartz alkali feldspar syenite.

TWH Lobby
3:30-4:00

As Assessment of Leadership Studies Minors

Mara Aparnieks, Sophomore Elementary Education/Early Adolescene with a minor in Spanish
Dr. Corday Goddard, Associate Dean for Student Development

Using competencies based on leading an organization, self and others, Dr. Goddard, Dr. Wegge and I surveyed alumni of the leadership minor program about the effectiveness of their leadership skills. We also asked the alumni to identify someone who works closely enough with them that they might be able to provide some thoughts about their leadership in action, as they have observed it. The ultimate goal is to examine the effectiveness of the leadership minor program and see if we can discover new ideas on how the program could be improved based on the competencies.

TWH Lobby
1:00-1:30

Seasonal diet changes of Bluegill (Lepomis macrochirus) and Pumpkinseed Sunfish (L. gibbosus) in a small, hypertrophic lake.

Cody Jones, Senior Enviornmental Science Major
Dr. Carrie Kissman, Assistant Professor of Biology

Adult bluegill (Lepomis macrochirus) and pumpkinseed sunfish (L. gibbosus) occupy different lake habitats, and feed on different aquatic invertebrates. Adult bluegills feed on zooplankton in the pelagic zone when they are large enough to avoid predation by largemouth bass (Micropterus salmoides). In contrast, adult pumpkinseed feed primarily on snails in the littoral zone. We investigated adult bluegill and pumpkinseed diets in Dream Lake, Hobart WI to assess food web dynamics prior to implementing a trophic cascade. Preliminary gut content analyses reveal adult bluegill feed on insects, while pumpkinseed and hybrid of the two species feed on insects and snails.

TWH Lobby
3:00-3:30
3:30-4:00

A 48 Hour Attempt to Make the Ultimate Brownie Pan

Jeff LaJeunesse, Senior Mathematics and Physics Major
Erik Miller, Senior Mathematics and Business Finance Major
Alex Christiansen, Senior Mathematics Major with an Economics Minor
Dr. Kevin Murphy, Assistant Professor of Mathematics

During a 96 hour COMAP math modeling competition, we were told to create the perfect brownie pan by creating a model for heat distribution across the edges of various pan shapes as well as an optimal shape that maximized the number of pans that could be put in an oven. We investigate modeling heat distribution using different heat transfer laws as well as concepts that govern other physical phenomena and construct a weighting mechanism that takes into account heat distribution and packing density. We found that a circular pan creates the best brownie and optimizes the quantity of brownies produced.

TWH Lobby
1:30-2:00
2:00-2:30

Does the path to completion of 150 credit hours affect CPA Exam pass rates?

Lauren Janes, Sophomore Accounting Major
Katie Conlon, Sophomore Accounting Major
Dr. Amy Vandenberg, Assistant Professor of Business Administration
Mr. Jason Haen, Instructor of Accounting, Business Administration

This study examines how the path to completion of 150 credit hours (150-hour requirement) affects CPA exam pass rates by focusing on degree requirements for specific higher education institutions in the State of Wisconsin. The institutions in the study (a total of five) fall into one of two categories; colleges offering only bachelor's degrees in accounting and those that offer master's degrees in accounting. Accounting majors at three schools offering only bachelor's degrees in accounting were surveyed in order to gather information on how and in what topic areas students obtain additional credits beyond their bachelor's degree. Information from the two master's degree programs was collected from the institutions' websites. Significant differences exist between how the students at the colleges fullfill the 150-hour requirement. The differences in CPA exam pass rates were also found to be significant, but further analysis showed little if any association between college attended and overall pass rates.

TWH Lobby
1:30-2:00
2:00-2:30

Smart Adviser: A software tool to help advisors pick courses for their advisees

Kristen Kleckner, Sophomore Computer Science Major
Jonathan Sullivan, Sophomore Computer Science Major
Dr. Ravi Agarwal, Assistant Professor of Computer Science

The goal of this project was to develop a software tool that can help faculty/staff in academic advising by suggesting possible courses that their advisees can take from the list of courses offered in the following semester(s). The application aids in selecting courses that a student can take depending on his/her previous course work and their intended major(s) and minor(s) by checking all the prerequisites for the course. The project is implemented as a web application that interacts with an Oracle database. The programming languages used are PHP and SQL.

TWH Lobby
1:00-1:30
1:30-2:00

A Three-Dimensional Software Development Process Animation Tool to Aid Software Project Management

Eric Sallmann, Junior Computer science and Business Administration Major
Jordan Henkel, High School Junior
Dr. Ravi Agarwal, Assistant Professor of Computer Science

Using a well-defined software development process by an organization can lead to significant cost reduction and improvement in software quality, but training software professional to understand various software development processes is often expensive. One approach to understanding the dynamics of software development process is through simulation. This research project is a continuation of an earlier work to develop a visualization tool that animates several software development processes. This collaborative research project extends the current 2-D software

development process animation by upgrading it to a 3-D gaming environment. The tool presents various software development processes in a non-technical interactive game to help visualize the steps in designing and successfully developing a software project. Software engineering students and professionals can use this tool to gain better understanding of software development process. The application development was done using C# programming language and Microsoft XNA Game Studio API.

TWH 149
3:30-4:00

Determination of Flavobacterium columnare Virulence Factors in Zebra Fish

Rachel Conrad, Junior Biology Major

Dr. David Hunnicutt, Associate Professor of Biology

Flavobacterium columnare is a gram negative rod that is the cause of Columnaris disease in a variety of fish including ecologically and economically important species in Wisconsin. Virulence is highly strain dependent, as is suitability of the bacteria to genetic manipulation. We are conducting infection assays using a zebra fish (Danio rerio) model to identify virulence factors in F. columnare using two wild type bacterial strains, C#2 and 094081. To assess the importance of gliding motility and digestive enzymes on virulence, zebra fish were exposed to solutions containing a wild-type F.columnare (C#2), a mutant deficient in gliding motility (gldJ-), or a mutant deficient in AC chondroitin lyase (clsA-). The loss of either the clsA gene or the gldJ gene reduced virulence approximately 4-fold. In order to expand these findings, more mutants will need to be generated. A recently developed system for the generation of unmarked deletion mutants in other Flavobacteria requires the use of spontaneous streptomycin resistant mutants. The F. columnare wild type 094081 and streptomycin resistant mutants derived from it are currently being tested in zebra fish to determine virulence levels. Preliminary data suggest that two streptomycin resistant mutants are slightly less virulent than the 94081 wild-type strain, but similar in virulence to the C#2 wild type strain and therefore potentially useful for future gene deletion experiments.

TWH Lobby
3:30-4:00

SNC Student Service: What do we know?

Anna Spies, Sophomore Mathematics and Secondary Education Major

Ms Nancy Mathias, Director of the Sturzl Center for Community Service and Learning

Who is serving? Are females or males more likely to volunteer? Does the Michels Hall experience inspire students to care more about their community? Which majors score highest in "Social Agency"? We will answer these questions and others by utilizing student survey data and then make suggestions to improve service programs at St. Norbert College.

TWH Lobby
2:00-2:30

Participation in Varsity Sports and Academic Achievement at SNC

Catherine March, Senior Mathematics Major

Mr. Jack Williamsen, Data Analyst

The purpose of this project is to examine the relationship between student participation in a varsity sport and academic achievement at St. Norbert College. We will examine a variety of different varsity sports at SNC and their relationships with a variety of academic variables, such as GPA and credits earned, while controlling for pre-college academic achievement differences.

TWH Lobby
3:30-4:00

Comparison of fungal species diversity and richness between lowland tropical rainforest and cloud forest in Panama

Anna Neu, Junior Enviornmental Science Major

Dr. Carrie Kissman, Assistant Professor of Biology

In January 2013 we conducted rapid assessment of three 2500 m2 transects in both lowland tropical rainforest in Soberania National Park and cloud forest in La Amistad National Park in Panama. For an allotted amount of time researchers marked the location of fungal fruiting bodies. Fungal population, species richness, and species diversity were determined. We predicted that lowland tropical rainforest would have a greater diversity than the cloud forest due to temperature stability. Preliminary results indicate cloud forest had significantly greater species diversity (t_{calc}= 4.66, p=0.01, df= 4) than the lowland rainforest and richness did not differ significantly between locations.

TWH Lobby
1:00-1:30

Academic Service-Learning at St. Norbert College: Students and Faculty

Kelsie George, First year Spanish and International Business and Language Area Studies Major
Dr. Deirdre Egan-Ryan, Academic Service-Learning Ex Officio
Ms. Nancy Mathias, Academic Service-learning Ex Officio

Academic Service-learning is a high impact pedagogy that increases student learning in and out of the classroom. This presentation will show the history of ASL at SNC, steps needed to provide more of these opportunities for students and a brief introduction to the ASL Faculty Fellows program.

TWH Lobby
3:00-3:30
3:30-4:00

The Effectiveness of Tank Washing Procedures at Hinterland Brewery

Rachel Conrad, Junior Biology Major
Riley Smith, Junior Biology Major
Dr. David Hunnicutt, Associate Professor of Biology

Hinterland Brewery conducts standard protocols to clean fermentors following brewing runs. To determine the effect of these cleaning procedures, samples are being collected before and after brewing, and before and after specific washes of the brewing vessels. Additional samples are being collected from other areas of the brewery. Samples are being analyzed for bacterial and fungal loads by serial dilution and quantitative plating on selective media. Nutrient agar are being used to assess bacterial counts and dextrose agar supplemented with antibiotics to assess fungal counts. The results of this analysis should assist the brewery in its quality control.

TWH Lobby
2:00-2:30
2:30-3:00

Petrogenesis of 1.5GA Wausau Syenite from Wausau, Wisconsin

Grant Zwiefelhofer, Sophomore Geology Major
Chaz Topacio, Junior Geology Major
Dr. Tim Flood, Professor of Geology

The Wausau Syenite Complex is a plutonic igneous intrusion associated with the Wolf River Batholith. In our study, we examined and collected samples of syenite in the field. For the laboratory portion of our study, we used selected thin sections to determine the composition of the sample via point count analysis. We also analyzed different crystal textures in thin section to determine the cooling history of the samples. Compositionally, the rocks are mostly quartz syenite. Texturally, euhedral quartz crystals are commonly surrounded by perthite, suggesting that quartz crystalized first in the system, which is unique to most magma systems.

TWH Lobby
3:00-3:30

An Exploration in Differential Equations for Modeling Population Growth

Jeff LaJeunesse, Sophomore Mathematics and Physics Major
Dr. Terry Jo Leiterman, Assistant Professor of Mathematics

We study a system of coupled, linear, constant-coefficient difference equations that were built to model particle population dynamics influenced by piece-wise constant growth and settling in a fluid system arranged as vertically stacked horizontal layers. We transform the set of difference equations to a set of differential equations and compute exact solutions under limiting conditions on the coefficients. These conditions model idealized physical scenarios of particle growth and settling. We focus on the mathematical approaches required to compute and analyze the model solutions. We offer time-varying predictions for the dynamics of specific particle populations associated with fixed parameter conditions.

TWH Lobby
1:00-1:30

Paleoclimate Interpretation based on Mapping of Inland Sand Dunes Using LiDAR (Light Detection and Ranging), Oconto County, Wisconsin

Karen Zelzer, Senior Geology Major
Dr. Nelson Ham, Professor of Geology

Light Detection and Ranging (LiDAR) data was used to construct a high-resolution digital elevation model (DEM) in a Geographic Information System (GIS) for Oconto County, Wisconsin. The DEM shows several hundred transverse to parabolic dunes (previously unmapped) in seven distinct dune fields, many of which are located on old glacial lake plains. In an earlier study, several dunes were dated to be between about 8,500 and 10,000 years old. Paleowind analysis based on the orientations of 205 dunes shows they formed mostly by NNW winds. Modern winds in NE Wisconsin are generally from the SW, W, or NE.

TWH Lobby
2:30-3:00

The Role of Communication Between Primary Caregivers and their Children's Academic Achievement

Maira Rodriguez, Junior Sociology-Human Services and Spanish Double Major with a Psychology Minor
Dr. Tynisha Meidl, Education Profesor

This research focused on storytelling as a primary form of communication between primary caregivers and their elementary children and the influence it has on their elementary children's love for school and gaining knowledge. The researcher focused on parent/school-aged child interactions with primary caregivers whose children are enrolled in the SuperSummer program in the Green Bay area. While looking at the interactions, the researcher explored the primary caregivers' communication and their children's academic achievement. The clear conclusion that can be drawn from this case study is that the relationship between primary caregivers and children's academic achievement varies from family to family. Storytelling as the type of communication between primary caregivers and children's academic achievement is approached differently in every case.

TWH Lobby
1:00-1:30
1:30-2:00
2:00-2:30
2:30-3:00
3:00-3:30
3:30-4:00

Developing Behaviors for the KTX Humanoid Robot

Quang Bui, Junior Computer science and Business Administration Major
Dr. Bonnie McVey, Associate Professor of Computer Science

The KTX is a humanoid robot with multiple motors, a camera, and an onboard computer. The robot's behavior can be controlled by software created using traditional programming methods or by use of a graphical interface. Additionally, the KTX can be programmed to respond to commands it receives wirelessly from controllers. The goal of this project is to develop behaviors that can be executed individually or in conjunction with other behaviors to provide more complex behaviors.

TWH Lobby
1:30-2:00
2:00-2:30
2:30-3:00

Quantification of Vesicular Glutamate Transporter Protein in Song-Associated Brain Areas in Zebra Finches (Taeniopygia guttata)

Yekaterina Makeyeva, Junior Biology Major
Tara Mendez, Senior Biology Major
Natasha Thern, Junior Biology Major
Dr. David Bailey, Assistant Professor of Biology

Vesicular glutamate transporter (VGLUT) proteins shuttle glutamate into vesicles prior to release. Glutamatergic neurotransmission is central to normal avian brain function, including the formation of song and spatial memories. Previous work uncovered male-biased VGLUT2 expression in the zebra finch hippocampus, a region responsible for spatial memory. In this project we are quantifying VGLUT2 protein expression in other areas important for memory and song behavior (Area X, cerebellum, caudomedial nidopallium, septum and hypothalamus). This work will allow us to further determine the distribution of VGLUT2 in the songbird brain and to perhaps uncover additional sexual dimorphisms in its expression.

TWH Lobby
1:30-2:00
2:00-2:30

Afferent Connectivity of the Substance P Reactive Nucleus (SPf) in the Zebra Finch

Kevin Beine, Junior Biology Major
Hannah Andrekus ,Junior Biology Major
Dr. David Bailey, Assistant Professor of Biology

Projections to and from neurons of the hippocampus in zebra finches (Taeniopygia guttata) reveal connections with regions that suggest homology with the mammalian hippocampus. The lateral boundary of the hippocampus in birds, a band of cells named SPf (given high levels of expression of a neuropeptide known as substance P), may be a homolog of the mammalian entorhinal cortex, the primary input to the hippocampus. To determine this additional homology, we injected a retrograde tracer, cholera toxin (subunit B), into the SPf to determine the afferent connections of the region and to compare these to similar regions in mammals.

TWH Lobby
1:00-1:30

Reducing algal blooms in Dream Lake: Pre-manipulation algal and zooplankton seasonal dynamics indicate weak top-down control by largemouth bass (Micropterus salmoides)

Kristin Kniech, Junior Biology Major

Dr. Carrie Kissman, Assistant Professor of Biology and Enviornmental Science

In 2012-2014, we are implementing a top-down trophic cascade by adding piscivores and a bottom-up reduction of fertilizer inputs to reduce algal blooms in Dream Lake. We hypothesize that by combining top-down and bottom-up techniques, algal bloom frequency will decline and recreational value and sport fishing will increase. Pre-manipulation data were collected from April - October 2012. Despite confirmation of fish consumption by largemouth bass, persistent algal blooms and dominance by small -bodied zooplankton indicate size selective predation by zooplanktivorous fish and weak top-down control by largemouth bass. Dream Lake will likely respond to manipulations to reduce algal blooms.

TWH Lobby
1:00-1:30
1:30-2:00
2:00-2:30
2:30-3:00
3:00-3:30

Computer Science Alumni Website

Quang Bui, Junior Computer science and Business Administration Major

Nathan Heppe, Junior Computer Science Major

Mary Spies,Senior Computer Science Major

Jordan Peart, Junior Computer Science Major

Brandon Fox, Junior Computer Science Major

Dr. Bonnie McVey, Associate Professor of Computer Science

Working as a team, we have analyzed, designed, chosen appropriate technologies for, and are building a system that provides information about SNC CS and CS alumni. The system will enable CS alumni to update their information, review the information of other alumni, and maintain contact with CS alumni and the CS discipline. Prospective and current students will be able to use the system to investigate the CS major at SNC and explore career paths of SNC CS alumni. The computer science faculty will be able to use the system to maintain contact with alumni and to gather individual and aggregate data.

TWH 149
2:30-3:00

"The Means to Succeed: Mother-Daughter Solidarity in Agnes Smedley's Daughter of Earth"

Tara Lovdahl, Junior English major with a Creative Studies Emphasis

Dr. Karlyn Crowley, Associate Professor of English, Director of Women's and Gender Studies and Editor of Sigma Tau Delta Journals

Agnes Smedley may not be a household name for contemporary readers, but her autobiographical novel, Daughter of Earth (1929), is a radical, under-appreciated text. Smedley's narrator, Marie Rogers, a penniless, white girl, tries to defy societal and familial class and gender expectations to educate herself and become free. Though Marie often holds her family together, she still feels the urge to separate herself from her mother in order to not become like her--trapped and oppressed. Some critics argue that matrophobia, the fear of becoming one's mother, motivates Marie to gain class ascension over and against her mother, Elly. This belief, however, overlooks the solidarity between Marie and her mother that facilitates Marie's academic and personal success. Marie primarily gains freedom by acquiring an education. Yet Marie makes this gain because of her strong relationship to her mother, not in spite of it. Marie and her mother Elly have a common vision about education and female liberation and thus they work toward the same goal of Marie's social and vocational freedom.

TWH Lobby
1:30-2:00

SNC Trailblazers: Mapping a Pathway to Success

Hannah Sternig, Sophomore Education Major

Ms. Nancy Mathias, Director of the Sturzl Center for Community Service and Learning

Ms. Krissy Lukens, Instructional Technology Specialist

Using new arcGIS technology we have mapped the different ways in which St. Norbert has an impact on the Green Bay School District through our Teacher Education program and the Youth to Youth service programs on campus. This interactive mapping technology allows us to see where our resources are going, in relation to other factors in the Green Bay community. This was created as a possible model for an asset mapping tool for the Green Bay Area School District to be able to analyze all of the extended learning resources available to each of the Green Bay Area schools.

TWH Lobby
2:00-2:30
2:30-3:00

Dopamine Transporter Inhibition by Modafinil and Structurally Similar Molecules
Matthew Rooyakkers, Junior Biochemistry Major
Becky Jackan, Sophomore Biochemistry Major
Dr. Cynthia Ochsner, Assistant Professor of Chemistry
Dopamine is a neurotransmitter used by neurons for communication between the presynaptic cells and postsynaptic cells. Post-communication, reuptake of dopamine in the synapse is performed by the dopamine transporter. Modafinil, a commercially produced drug used for treatment of narcolepsy, shiftwork sleep disorder, and daytime sleepiness inhibits the dopamine transporter allowing for increased neuron communication. The functionality of Modafinil can be replicated and varied in the lab, creating new, analogous drugs that inhibit the dopamine transporter. Isopropyl amide indole analogs were tested with the dopamine transporter for inhibition. Mathematical analysis was used to determine the mode of inhibition.

TWH Lobby
1:00-1:30

Identification and Quantitation of Terpene Oils in Citrus Fruits
Amanda Whipple, Senior Chemsitry Major
Dr. Cynthia Ochsner, Assistant Professor of Chemistry
A Gas Chromatography Mass Spectrometer (GCMS) was used to identify and quantify terpene oils from lemon, lime, orange and grapefruit peel. The procedure was optimized to be used for a laboratory experiment in Chemistry 312, Instrumental Analysis.

TWH Lobby
3:00-3:30
3:30-4:00

Evaporation Investigation
Jaci Kulow, Senior Mathematics Major
Laura Sommerfeld Senior Mathematics Major
Dr. John Frohliger, Associate Professor of Mathematcis
We will investigate various factors of water fountain evaporation in order to determine a more practical way of calculating the amount of water lost in these decorations. Through research and calculations, it is possible to gain a better understanding and draw conclusions as to how much water is being wasted.

TWH Lobby
1:00-1:30

A thirty year diet record of largemouth bass from a small north temperate lake
Aaron Schoofs, Senior Natural Science Major with a Concentration in Biology
Thomas Purdom, Senior Enviornmental Science Major
Dr. James Hodgson, Emeritus Professor of Biology
Mr. Tod Maki, Assistant Director of Information Techonolgy
We reported on the diet of LMB over a 30 year period from a small lake in Michigan's UP. We condensed the data into seven functional diet groupings. We used an annual composite Index of Relative Importance to measure diet changes. Because of high conspecific LMB density relative to prey abundance, LMB in Paul Lake are foraging generalists. We address the question to what affect will interannual density fluctuations have on LMB diet? We hypothesize that diet will vary significantly, but independent of LMB interannual density fluctuation. We chronicled diets of 5098 adult LMB from Paul Lake over three decades. Significant variation occurred in each of the seven diet categories (variance=24-59%), but these were not related to interannual cycles in LMB population density.

TWH Lobby
3:00-3:30

An Exploration in Alternative Energies for Automotive Transportation.
Matt Larson, Sophomore Enviornmental Science Major
Dr. Terry Jo Leiterman, Assistant Professor of Mathematics
There has been much interest and research in employing alternative and renewable energies for automotive travel. We present a small-scale model of a vehicle that uses wheel generators, solar panels, and wind turbines in non-traditional and imaginative ways for power. Our focus in this presentation is to introduce the current model prototype, discuss future engineering plans and their present difficulties, as well as share the introductory questions we need to investigate. The project is ambitious, and long-term. The primary goal is to learn new insights regarding the technology associated with renewable energies and the efficiency and challenges associated with electric automobiles.

TWH Lobby
3:30-4:00

Digitizing Orts: The Newsletter of the George MacDonald Society: Completing a Scholarly Database for the George MacDonald Society

Jaena Manson, Sophomore English and Religious Studies Major
Dr. John Pennington, Professor of English

Our project is a complement of one in which Gretchen Panzer and John Pennington received Student-Faculty Development Endowment Fund Awards for completing an international research database for the study of George MacDonald (1824-1905), Victorian author, who wrote in a variety of genres: realistic novel, sermon, literary and cultural criticism, children's realistic fiction, poetry, fairy tale, and fantasy literature. That archive can be accessed at the St. Norbert College website. The new project will focus on the George MacDonald Society's newsletter, Orts, which has been in existence since 1982. After receiving funds from the Student-Faculty Development Endowment Fund we will digitize all back issues of Orts (John Pennington is current editor of the journal, North Wind) to create an informational/research database for MacDonald scholars and MacDonald Society members. The digitizing process includes scanning all past issues into Adobe Fine Reader program, converting the issues into a Word document, copy-editing and formatting of all issues, and finally placing them onto database via the NetStorage computer program. Once we complete the digitizing of the newsletter, we will link to the Victorian Web to create a comprehensive database that will be available for MacDonald scholars, students, and general readers around the world.

TWH 146
3:00-3:30

"Structural Coherence within the Leibeslieder and Neue Liebeslieder Waltzes by Brahms"

Samantha Finnigan, Junior Music Performance Major
Dr. Blake Henson, Assistant Professor of Music

Johannes Brahms composed Liebeslieder Waltzes, in 1870 with a second set, "Neue Liebeslieder Waltzer" in 1875. The score layout, intent, and voicing of each set is similar; the music in the second set is highly chromatic and highlights a later, more evolved idiom for Brahms. However, their similarities are aurally perceptible, suggesting a structural relationship between the sets. To demonstrate this relationship, I conducted a Schenkerian (structural) analysis on selections from each set to identify structural similarities as they relate to one another, to the structure of the larger set, and to similar movements in opposite sets.

TWH Lobby
1:30-2:00

Comparison of fungal species diversity and richness in a tropical lowland rainforest in 2012-2013

Adam Potopa, Junior Enviornmental Science Major
Dr. Carrie Kissman, Assistant Professor Biology

We used a rapid assessment technique to compare species diversity and richness of fungi in a tropical lowland rainforest in Soberania National Park, Panama in 2012 and 2013. We divided the sample area into three 2500 m2 transects, and recorded abundance of fungal fruiting bodies. Species diversity was determined using the Shannon-Weiner index. Results show significantly greater species diversity in 2012 ($t_{calc} = 3.092$, $df = 4$, $p = 0.036$), but species richness did not differ between the two years ($t_{calc} = -0.898$, $df = 4$, $p = 0.42$).

TWH Lobby
2:00-2:30

Social Support, Health, and Life Satisfaction in Diabetic and Non-Diabetic Native Americans

Crystal Skenandore, Junior Psychology Major
Dr. Raymond Zurawski, Associate Professor of Psychology

The present study examined the self-reported health benefits associated with social support among diabetic and non-diabetic samples of American Indians. Experiment 1 examined the effects of diabetic status and social support in a nationally representative sample of 6034 American Indian males and females. Experiment 2 examined these same effects in a local sample of 648 members of a tribe in northeastern Wisconsin. Generally, participants who indicated that they always or usually received the social and emotional support they needed reported better general, physical, and mental health, and better life satisfaction than did their counterparts who reported that they only sometimes, or rarely or never received such support. Social support was beneficial for both groups, and provided evidence to support the "direct effects" hypothesis regarding the mechanisms by which social support confers its benefits.

TWH Lobby
1:30-2:00

The validity of a brief, online version of Eysenck's Extraversion scale

Janette Tulachka, Sophomore Psychology Major

Dr. Raymond Zurawski, Associate Professor of Psychology

We examined the validity of the Extraversion scale of a brief, online version of the Eysenck Personality Inventory. Thirty-three undergraduates enrolled in a Theories of Personality course at a small, Midwestern, church-affiliated liberal arts college completed measures of several personality traits. As predicted, scores on the Eysenck Extraversion scale were strongly correlated with scores on other measures of extraversion, moderately correlated with scores on measures of traits similar to extraversion, and unrelated to scores on measures of personality traits regarded as dissimilar to extraversion. These findings have important implications for many of the potential users of such instruments.

TWH Lobby
3:30-4:00

Exploring mental and physical disabilities' effect on college participation

Mary Close, Sophomore Biochemistry and English Major

Dr. Jamie Lynch, Assistant Professor of Sociology

In the past three decades, many studies have found that mental and physical disabilities are associated with a 41% lower postsecondary education participation rate. The U.S. Department of Education's 1996 study and the National Longitudinal Transition Study of 1992 suggest that those with emotional and behavioral disabilities are among the least likely to continue their education. However, these studies indicate that the most influential factor is the student's socioeconomic standing. This study, analyzing data from the Current Population Survey of October 2004, will investigate whether socioeconomic status is indeed the most significant factor in disabled students' participation in postsecondary education.

TWH Lobby
3:00-3:30

Teaching Morals with Reader-Response Theory

Maggie Hogan, Sophomore Early Childhood Education Major

Emily Gardner, Senior Education

Dr. Christopher Meidl, Assistant Professor of Teacher Education

Teaching morals is an important part in developing students' positive social skills. For younger students a common practice for teachers to present the concept of moral development is through the use of children's literature. The way educators present literature discussion is just as imperative as the actual literature, including children's books. The way students respond to the literature formatively guides teachers' decisions on planned and implemented curriculum and direction of learning. Through reflections and observation of three preservice teachers, moral lessons were taught to several groups of students ages 2 ½-4, 4, and 5. Pedagogical planning and preparation documents along with data from lesson observation were analyzed with the intent to inform future lesson plans for moral education development. Implementing the reader-response theory into moral learning through literature involves several scaffolding skills: working through metaphors, language as a means to create context, blossoming questions, and students' interpretations.

TWH Lobby
1:00-1:30

Teaching Native American Folktales

Katie Sixel, Senior Early Childhood Education Major

Dr. Christopher Meidl, Assistant Professor of Teacher Education

The research presented in this report is designed specifically to help educators develop a sense of Native American/American Indian culture. The purpose of this study was to take a critical look at the approaches of incorporating quality Native American Folktales into the elementary school classroom. This is qualitative research based on a case study tradition. Participants consist of 3 teachers who self-describe their pedagogy as including Native American folklore. The categories that evolved from the data were: 1) signs of a disconnect, 2) enlightenment and explanation for disconnect, 3) attempts to bridge disconnect by celebrating multiculturalism, and 4) falling short.

TWH Lobby
1:30-2:00
2:00-2:30
2:30-3:00

Yellow Stone Trail

Michael Heim, Junior Elementary Education Major with a minor in broad field science
Claire Tocco, Sophomore Elementary education Major with minors in music and language arts
Ryan Teal, Sophomore Elementary Education Major with a minor in broad field social studies
Dr. Steve Correia, Associate Professor of Education
Ms. Krissy Lukens, Instructional Technology Specialist

Crowdsourcing was used to create a map of the Yellowstone Trail. It covers what the trail comprises of, how people used to travel on the trail, and some of the many cities and towns the trail goes through today. It has a bigger emphasis on the Wisconsin parts of it, to help tie the trail into today's mindset. It also helps students and other interested people realize that something from long ago, is right here not far from where they live. Our poster aims to connect the past with the present.

TWH 146
3:30-4:00

A Conversational Piece

Zaccary Haney, Senior Religious Studies Major
Dr. Karen Park, Assistant Professor of Religious Studies

Marian icons and their legends convey not only hierarchical authority, but a dialogue of authorities within the city - especially the various laity and their devotions, indicating that certain icons become a truly conversational piece of art.

TWH 146
2:00-2:30

Empedocles and Emergentism: A Closer Look at Fragment D23

Joel Van Fossen, Senior Philosophy Major
Dr. Joel Mann, Assistant Professor of Philosophy

Establishing a clear theory of iconography within the 6th to the 9th centuries, my paper examines how each group within the city of Rome used the Salus Populi Romani icon at S. Maria Maggiore. Why was the icon important to the lay, clerical, and other populations in the city during this period? Further, this will examine how each group plays off of one another to claim authority through the icon.

TWH Lobby
2:00-2:30
2:30-3:00

Systematic Performance Evaluation of Inline Skating Wheels

Emily Herman, First year Physics Major
Zach Werginz, First Year Physics Major
Dr. Michael Olson, Assistant Professor of Physics

This project represents the first phase of a planned multi-phase physics and engineering study encompassing a series of highly standardized experiments to systematically determine the performance characteristics of inline skating wheels and bearings. The specific objective of this (phase 1) study is to systematically and quantitatively evaluate unsubstantiated industry claims of enhanced performance (i.e. “Better Roll”) of inline racing wheels based on increased wheel diameter, independent of external factors such as wheel bearings, assembly and installation methods, and individual skater ability.

TWH Lobby
3:00-3:30

Fox River Phytoplankton: Pigments and Allelopathic Interaction

Katelyn Richards, Junior Biology
Dr. David Poister, Associate Professor of Chemistry-Environmental Science

To assess seasonal shifts in the abundance of major taxonomic groups of phytoplankton, algal pigments and abundance were assessed in samples collected weekly from the Fox River during the summer of 2010. Pigment concentrations and microscopic analysis indicate that Gloeocystis planctonica contributed to a green algae bloom at the beginning of July and that Aulacoseira granulata was a major component of a subsequent diatom bloom. In conjunction with cross□culturing experiments performed in the laboratory, these data suggest that G. planctonica stimulates the growth of dormant A. granulata and initiates the bloom of the diatom through allelopathic stimulation.

TWH Lobby
1:00-1:30
1:30-2:00

The effect of Alliaria petiolata and Centaurea maculosa extracts on the proliferation of cancer cell lines

Mark Schemmel, Junior Biology Major
Riley Smith, Junior Biology Major
Dr. Russ Feirer, Associate Professor of Biology

Two species of allelopathic plants, garlic mustard and spotted knapweed, contain certain compounds that have potential anti-proliferative activity in human cancer cells through cell cycle arrest and induction of apoptosis. In the present study, the effects of methanol extracts from these two plant species on cell proliferation and viability were tested. Extracts of both species were found to cause cell death in a dose dependent manner in two breast cancer cell lines via Cell Titer Blue viability tests. The mechanism of cell death is currently being investigated through staining using Hoechst dyes, monodansylcadaverine , or propidium iodide to determine if cell death is occurring by apoptosis,

TWH Lobby
3:30-4:00

Effect of Stress Hormones on Bactria Associated with the Zebra Finch Gut

Brianna Skrzypcak, Senior Biology/Pre-Med Major
Dr. David Hunnicutt, Associate Professor of Biology
Dr. David Bailey, Assistant Professor of Biology

Zebra finches are a model organism for the study of microbial endocrinology. Intestinal bacteria were isolated from the fecal matter of adult and juvenile birds; some isolations were conducted during antibiotic treatment of the birds for an unrelated infection. Several bacterial species were identified by 16S rRNA sequencing. Juvenile antibiotic treated birds yielded only Staphyloccocus species. Previous research has shown that some bacteria respond to stress hormones such as epinephrine and corticosterone. We are investigating the effect that these hormones have on the growth rate of the bacteria isolated from the zebra finch gut and similar bacteria obtained from commercial sources.

TWH Lobby
2:30-3:00
3:00-3:30
3:30-4:00

Sheltered Instruction Observation Protocol (SIOP) Analysis of ESL Classrooms

Rebecca Liming, Sophomore Education Major
Kelsey Noskowiak, Junior Education Major
Katherine Spude, Junior Education Major
Lisa Worklan, Junior Education Major
Brianna Klink, Sophomore Education Major
Hannah Frazier, Sophomore Education Major
Laura Petrie, Sophomore Education Major
Dr. Yoko Mogi-Hein, Assistant Professor of Education

Sheltered Instruction Observation Protocol (SIOP) is a research-based instructional framework that provides content and academic language to English language learners (ELL) in pre-K-12 grade-level classes. Based on SIOP guiding questions, this collaborative project examined how teachers can develop content and language objectives, emphasize key vocabulary, promote interaction, and incorporate effective review and assessment techniques within the context of ESL classrooms at Eisenhower Elementary School in Green Bay, WI.

Student Recognition
Number of Years of Event Participation

Third Year

Kelley Catenacci
Arielle Tremel
Rakel Zarb
Yekaterina Makeyeva
Tara Mendez
Natasha Thern

Second Year

Maria Dzurik
Olivia Poepping
Viktoriya Zotova
Mara Aparnieks
Kevin Beine
Brandon Fox
Brianna Skrzypcak
Rebecca Liming
Jeff LaJeunesse
Rachel Conrad
Riley Smith

First Year

Amy Hamby
Zachary Zander
Laura Alderson
Marc Popp
Emily Strehlow
Crystal Flasch
Rachel Gintner
Hannah Loppnow
Kristen Vincent
Trevor Osorno
Cody Heinze
Zachary Osborne
Kenneth Oxendorf
Allison Shackelton
Cody Jones
Erik Miller
Alex Christiansen
Lauren Janes
Katie Conlon
Kristen Kleckner
Jonathan Sullivan
Eric Sallmann
Jordan Henkel
Anna Spies
Catherine March
Anna Neu
Kelsie George
Grant Zwiefelhofer
Chaz Topacio
Karen Zelzer
Maira Rodriguez
Quang Bui
Hannah Andrekus
Kristin Kniech
Mary Spies
Nathan Heppe
Jordan Peart
Tara Lovdahl
Hannah Sternig
Matthew Rooyakkers
Becky Jackan
Amanda Whipple
Jaci Kulow
Laura Sommerfeld
Aaron Schoofs
Thomas Purdom
Matt Larson
Jaena Manson
Samantha Finnigan
Adam Potopa
Crystal Skenandore
Janette Tulachka
Mary Close
Maggie Hogan
Emily Gardner
Katie Sixel
Michael Heim
Claire Tocco
Ryan Teal
Zaccary Haney
Joel Van Fossen
Emily Herman
Zach Werginz
Katelyn Richards
Mark Schemmel
Kelsey Noskowiak
Katherine Spude
Lisa Worklan
Brianna Klink
Hannah Frazier
Laura Petrie

Thank you for your commitment to Undergraduate Research and Creative Works

Student Participants

Laura Alderson.....10
Hannah Andrekus.....16
Mara Aparnieks.....12
Kevin Beine.....16
Quang Bui.....1,6 17
Kelley Catenacci.....11
Alex Christiansen.....13
Mary Close.....20
Katie Conlon.....13
Rachel Conrad.....14,15
Maria Dzurik.....9
Samantha Finnigan.....19
Crystal Flasch.....10
Brandon Fox.....17
Hannah Frazier.....22
Emily Gardner.....20
Kelsie George.....15
Rachel Gintner.....11
Amy Hamby.....9
Zaccary Haney.....21
Michael Heim.....21
Cody Heinze.....12
Jordan Henkel.....13
Nathan Heppe.....17
Emily Herman.....21
Maggie Hogan.....20
Becky Jackan.....18
Lauren Janes.....13
Cody Jones.....12

Kristen Kleckner.....13
Brianna Klink.....22
Kristin Kniech.....17
Jaci Kulow.....18
Jeff LaJeunesse.....13, 15
Matt Larson.....18
Rebecca Liming.....22
Hannah Loppnow.....11
Tara Lovdahl.....17
Yekaterina Makeyeva.....16
Jaena Manson.....19
Catherine March.....16
Tara Mendez.....16
Erik Miller.....13
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