

3-29-2011

Celebrating Student and Faculty / Staff Collaborations 2011

St. Norbert College

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celebrating student and faculty/staff collaborations



tuesday march 29, 2011
1:00 – 4:00 presentations
and posters in todd wehr hall
4:00 – 5:00 reception,
remarks, and recognition
in bemis



JOIN US!

COME AND GO AS YOUR SCHEDULE ALLOWS.
REFRESHMENTS PROVIDED THROUGHOUT THE EVENT.

**During the reception and recognition ceremony in the
Hendrickson Dining Room of Bemis,
we will have remarks from John A. Corbett, Ph.D.,
Professor and Chairman of Biochemistry,
Medical College of Wisconsin**



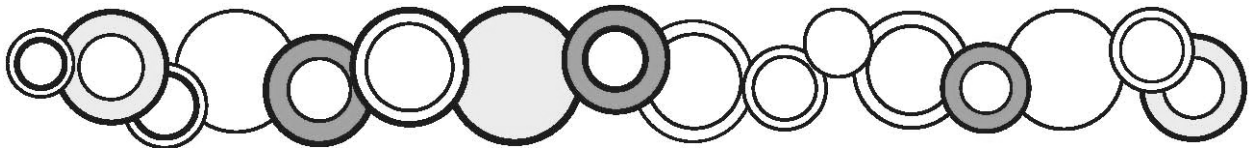
**"The Joys and Benefits of
Undergraduate Research:
One Alum's Journey"**

John A. Corbett received his Bachelor of Science degree in Chemistry from Saint Norbert College in 1985 and his Doctorate in Biochemistry from Utah State University in 1990. He performed postdoctoral studies at Washington University School of Medicine in the Department of Pathology from 1990-94. In 1995, Dr. Corbett joined Saint Louis University as an Assistant Professor in Biochemistry and rose to the rank of Professor in 2005. In 2007, Dr. Corbett joined the University of Alabama at Birmingham as the Nancy R. and Eugene C. Gwaltney Family Endowed Chair in Juvenile Diabetes Research, Professor in Medicine, and Director of The Comprehensive Diabetes Center. Dr. Corbett joined the faculty of the Medical College of Wisconsin in 2010 where he is Professor and Chairman of the Biochemistry Department.

Dr. Corbett's research focuses on how the cells of the pancreas function in the face of disease, especially diabetes. He and his team investigate what factors cause the death of pancreatic cells and how these cells protect themselves, how they interact with various components and products of the body's immune system, and how the function of healthy and diseased pancreatic cells is related to changes in their DNA.

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,
and the
Office of the Dean of the College*

On behalf of the
Office of Faculty Development,
The Collaborative: The Center for Undergraduate
Research, Scholarship and Creative Activities,
and the Office of the Dean of the College,
we extend

A Big Thank You to:

All Participating Student, Faculty and
Staff Collaborators

Copy Center

Conference and Event Services

And We Especially Thank:

Niki Nelson ('13)

Faculty Development Intern
Lead Student Organizer of this Event

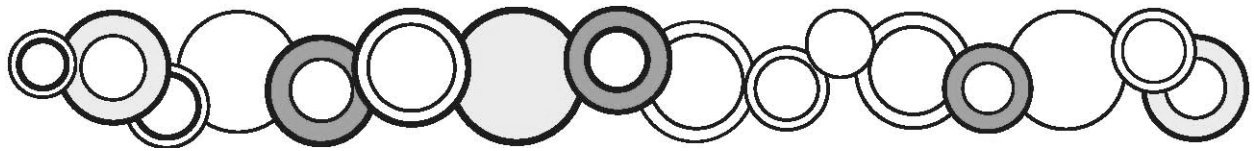
Sarah Christensen ('13)

Faculty Development Assistant

Tori Chenault ('12)

Graphic Designer

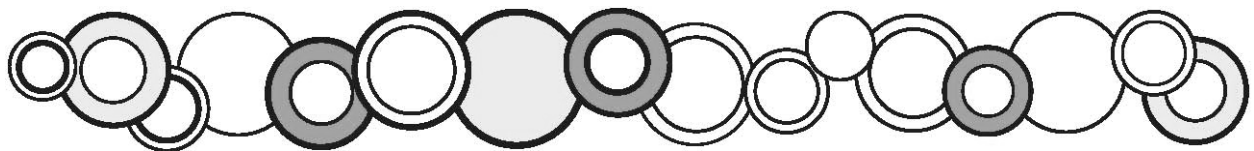
*for consistently practicing a high level of professionalism
and foresight in the preparation for and execution of this
event, making it possible for this Celebration to take place.*



This program is put together listing oral presentations followed by posters and other exhibits in alphabetical order by the project title. Time(s), location and presentation type are listed along with collaborator names, titles, project title and abstract. Oral presentations and performances will occur during the time listed.

Posters and other exhibits will be displayed from 1:00 - 4:00 p.m., but are listed according to the time(s) members will be available to discuss their projects.

A list of all students and faculty/staff participating in *Celebrating Student and Faculty/Staff Collaborations* is available on pages 5 and 6, along with the page numbers where you can find their projects. Some students and faculty/staff may be involved in multiple projects or presenting their project more than once.



Student Participants

Nick Anderson.....	13
Louis Ayensu-Mensah	27
Erin Baganz	18
Blake Bashor	20
Beth Baumann	14
Isabella Benassi	23
Sergii Bilokhatnuik	16, 16
Chase Brosseau	13, 24
Andrea Burklund	20
Katharine Casey	22
Kelley Catenacci	17
Paige Caulum	8
Haoqi Chen.....	15
Sara Coursin	12
Anna Czarnik-Neimeyer	8
Michael Danforth	18
Leivur Djurhuus	11
Rachel Erickson.....	20
John Favret	18
Eric Gale.....	14
Katelyn Gorman	18
Lindsey Grahm	26
Zachery Gregorich.....	11
Christopher Gusman.....	16
Derek Harrington.....	16
Kellie Herson.....	9
Mark Jasso	18
Emily Klug	19
Maren Knutson	9
Jody Kolter	7
Kristen Kutil	18

Lauren Lathers.....	25
Claire Lenz	18
Sarah Lottes	23
Yekaterina Makeyeva	19
Brian Milinski.....	18
Yerzhan Nauruzbayev.....	15
Gretchen Panzer.....	9, 26
Chelsea Pintz	24
Kayla Pope.....	10
Izzy Rauguth.....	23
Anna Reardon	18
Aaron Reynolds	7
Jessica Richards.....	25
Ian Robertson.....	12
Jamilya Sauranbayeva	15
Alison Schaefer	9
Devan Scherer	17
Hannah Schmitt	9
Amanda Sigl	21
Deborah Smrz	19
Bryan Stoppenbach.....	13
Nicole Swanson	27
Arielle Trembl	17
Devin VandeWalle	27
Lisa Vannieuwenhoven.....	18
Sarah VanSchyndel.....	17, 22
Stephanie Weiss	20
Renee Wenig.....	21
KateLyn White.....	26
Rakel Zarb	10

Faculty/Staff Participants

Ravi Agarwal	16, 16
Susan Allen	8
Deborah Anderson	12, 22
David Bailey	19, 20, 23, 24
April Beiswenger	19
Teena Carroll	15, 21
Anindo Choudhury	11, 14
Ryan Cordell	12
Kari Cunningham	27
Russ Feirer	23, 26
John Frohliger	10
Wolfgang Grassel	15
Ashley Hill-Soderlund	17, 22
James Hodgson	13, 16, 24
David Hunnicutt	13, 20, 21
Tod Maki	16
Nancy Mathias	8
Tynisha Meidl	14
Kevin Murphy	21
John Pennington	9, 26
Brian Pirman	11, 18
David Poister	9
Ed Risen	7
Michael Rosewall	7
Jason Senjem	10
Matthew Stollak	25
Amy Vandenberg	20, 25
Jack Williamsen	25

3:00-3:30

Todd Wehr 149

Oral Presentation

Jody Kolter, Senior English and Philosophy Major
Ed Ridsen, Professor of English

Aesthetic of Opposition and Resolution in Blake and Milton

In approaching John Milton's and William Blake's aesthetics concurrently, we can derive a new approach to reconciling the dichotomies that we have failed to notice as a curious and insightful epistemic and aesthetic. Friedrich Nietzsche's *The Birth of Tragedy* will serve as the theoretical framework for our analysis of Blake's *The Marriage of Heaven and Hell* and Milton's *Paradise Lost* because, like tragedy, the epic and prophetic focus on the ills of the present state of society. We will argue that maintaining and incorporating the dynamic integrity and virtues of the *Apollonian* (characterized by self-control, reason, and order) and *Dionysian* (characterized by passion, instinct, and chaos) energies create an aesthetic of opposition. This aesthetic of opposition subsumes the moral resolution for Milton and creative symmetry for Blake under a sensory beauty in both.



3:00-3:15

Todd Wehr 146

Vocal Performance

Aaron Reynolds, Sophomore Music Education Major
Michael Rosewall, Associate Professor of Music

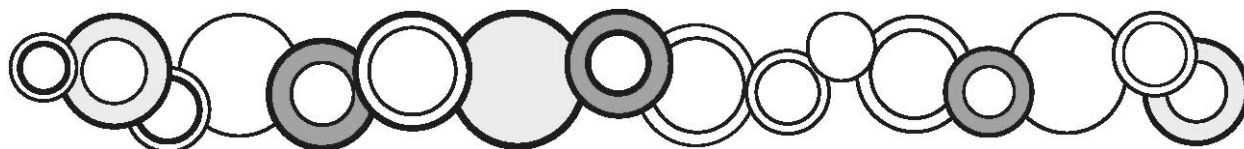
Historical Performance Practice of Vocal Music

As part of his coursework in Applied Vocal Literature, Aaron Reynolds worked with his instructor to select and research advanced music for Baritone soloists. His work included researching stylistic practice from three historical periods, rehearsing with an accompanist, and the performance of a short recital at the North Central chapter of the National Association of Teachers of Singing (NATS) fall meeting at the University of Wisconsin – Milwaukee. As part of the College Division performance auditions at the event, Aaron progressed to the semi-final round of competition. This project includes his research into historical vocal performance and a short performance of vocal music.

Paige Caulum, Senior English Major
Susan Allen, Publication Editor

Models of Non-Narrative Content for Mass Audience Publication

Not all storytelling depends on words. Not all storytelling that uses words depends on traditional forms of narrative. This project has focused on the collection and categorization of examples of non-narrative content in order to provide: 1) a set of models to aid in assignments for new writers; 2) a resource for editors and art directors during the conceptualization, initial planning and pagination of college publications.



Anna Czarnik-Neimeyer, Senior Communication Major
Nancy Mathias, Associate Director of Leadership and Service
in the Office of Leadership Development, Service, and Engagement (LSE)

Multi-level Leadership Development Using Experiential Projects and the LID Model

St. Norbert College boasts a progressive and innovative focus on leadership development in both a curricular and co-curricular setting. A part of this focus is Emerging Leaders, a competitive co-curricular first year student program based on the Leadership Identity Development Model and Social Change Model of Leadership Development. In our project, originally presented in December at the Leadership Educators Institute at the University of South Florida, we share a detailed program description as well as quantitative and qualitative learning outcomes assessment data for the 2010 Emerging Leaders program, which Anna Czarnik-Neimeyer co-coordinated, supervised by Nancy Mathias. Through our session we also discuss effective and creative implementation of leadership theory into multi-level experiential programs at the college level.

Kellie Herson, English and Women's and Gender Studies Major

"Virginity and Performance in Cleland's *Fanny Hill*"

Maren Knutson, English Major

"The Bildungsroman in Victorian Literature"

Gretchen Panzer, English and Women's and Gender Studies Major

"Acton, Darwin, and Chopin: The Influence of Victorian Scientific Developments on Kate Chopin's 'The Storm'"

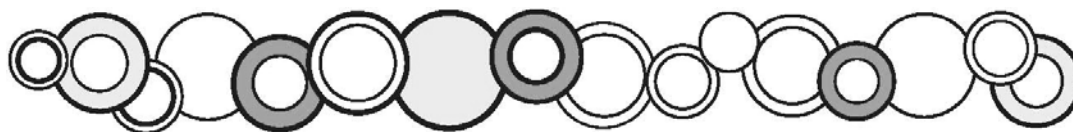
Hannah Schmitt, English Major

"Finding the Frank in Jane Austen's *Emma*"

John Pennington, Professor of English

Scholarly Essays Presented at the Sigma Tau Delta International English Honor Society Convention, March 2011, Pittsburgh, PA

SNC Sigma Tau Delta members presented critical essays and creative writing works at the annual Sigma Tau Delta Convention in Pittsburgh, Pennsylvania. Students prepared for the convention by revising their works and practicing reading in front of a mock audience. At the conference, each student individually presented his or her critical or creative work on a panel with students from other chapters across the country.



3:15-3:30

Todd Wehr 146

Oral Presentation

Alison Schaefer, Junior Chemistry Major

David Poister, Associate Professor of Chemistry and Environmental Science

Stimulation of *Aulacoseira granulata* Growth by Green Algae

Weekly sampling of the Fox River in De Pere in 2010 revealed a July bloom of *Aulacoseira granulata*, a centric diatom common in eutrophic systems. The *A. granulata* bloom coincided with an increase in the abundance of the green algae *Gloeocystis planctonica*. Culture experiments were conducted to test the hypothesis that *A. granulata* growth was accelerated by a chemical signal from *G. planctonica*. Dormant *A. granulata* exposed to *G. planctonica*-treated medium grew faster relative to controls. These results indicate that a chemical cue from *G. planctonica* can trigger the transition of *A. granulata* out of dormancy and into rapid growth.

3:30-4:00

Todd Wehr 149

Oral Presentation

Rakel Zarb, Freshman Biology and Spanish Major

Jason Senjem, Assistant Professor of Business Administration

Values-Centered Entrepreneurs and Their Companies

In doing background research in the emerging field of social entrepreneurship, we chose to read and review the book, *Values-Centered Entrepreneurs and Their Companies*, by David Choi and Edmund Gray. The authors explore ten major commonalities among the 46 entrepreneurs in their research sample. They present these commonalities as lessons for aspiring social entrepreneurs and supplement them with ample representatives of values-driven companies. Their analysis of the cases may lead to a universal definition for the area of social entrepreneurship.



3:00-3:30

Todd Wehr Lobby

Poster

Kayla Pope, Junior Mathematics Major

John Frohlinger, Associate Professor of Mathematics

A Variation of the Counterfeit Coin Problem

The counterfeit coin problem is a classic puzzle involving a number of coins and a balance scale used to determine a single counterfeit among them. We will discuss a variation of the problem in which the number of counterfeits is unknown. We explain how this problem could be interpreted using vectors and dot products. Finally, we will show that the number of weighings needed to solve the problem is sometimes greater than what might be expected at first.

2:30-3:00

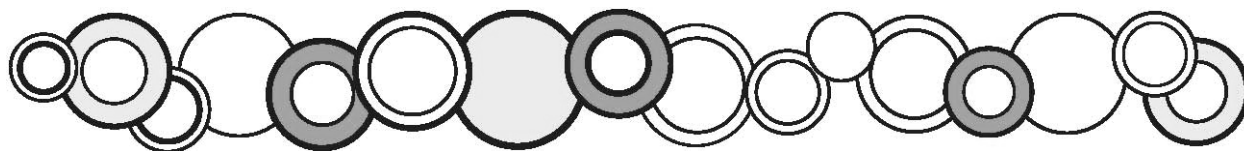
Todd Wehr Lobby

Poster

Zachery Gregorich, Senior Chemistry Major
Anindo Choudhury, Associate Professor of Biology

Applications of Polymerase Chain Reaction (PCR): Detection of Parasite Larval Stages and Molecular Prospecting for New Species

We demonstrate two applications of PCR: First, molecular probes specific for the trout cecal nematode *Truttaedacnitis truttae*, were used to identify, for the first time, larval stages from intermediate hosts. Secondly, amplification of the rRNA genome helped resolve the status of a recently discovered species of tapeworm in the johnny darter. Morphological studies revealed differences with typical *Bothriocephalus cuspidatus* from walleye and pumpkinseed but sequence analyses showed differences only with *B. cuspidatus* from pumpkinseed. These results support the idea of host induced variation but question the conventional use of rRNA genes in arguing for species delineation or synonymy.



2:00-2:30

Godschalx Gallery of the Bush Art Center

Work of Art

Leivur Djurhuus, Junior Art Major
Brian Pirman, Associate Professor of Art

Art History Gallery Installation Collaboration

The project involves design and production of a site specific Installation for the Godschalx Gallery that will address Art History and Graphic Design. The exhibit will contain 10 3' by 3' panels that will be hung together to form one large 6' tall by 15' wide graphic that will be a rich visual account of different Art History movements. Each panel will address a specific movement. The 10 different movements (panels) include Dada, Abstract Expressionism, the Renaissance, Photography, Impressionism, Propaganda Art, Russian Graphic Design, Expressionism, Pointillism and Pop Art. The "Exquisite Corpse" will be the collaborative model used.

2:00-2:30

Todd Wehr Lobby

Poster

Sara Coursin, Junior Biology Major

Deborah Anderson, Associate Professor of Biology

Biodiversity of the Sciuravids from the Eocene of the Wind River Basin, Wyoming

The Wind River Formation of central Wyoming preserves one of the best records of faunal and floral change during the Early Eocene Climatic Optimum (EECO) (53 to 48 million years ago) in North America. The EECO represents a period during the Cenozoic when the highest global temperatures were recorded. Many fossil species doubled in diversity and then significantly decreased when climatic cooling began (50 million years ago). This research documents the biodiversity of the Sciuravids, a group of fossil rodents that were abundant during the Early Eocene. Preliminary results indicate at least five different species of Sciuravids originated at the time of the EECO.



1:30-2:00

Todd Wehr Lobby

Poster

Ian Robertson, Freshman Undecided Major

Ryan Cordell, Assistant Professor of English and Director of Writing-Across-the-Curriculum

celestialrailroad.org

We are working together to build a digital edition and archive of Nathaniel Hawthorne's short story, "The Celestial Railroad." This story was widely reprinted, referenced, and pirated in the 19th century press. Our edition will present images of these editions alongside their text. Many of these editions tinkered with (or outright changed) Hawthorne's text to better suit the readers of a particular newspaper or magazine. Our edition will allow scholars and students to compare different versions of the text, see these changes, and understand the story's place in the larger context of antebellum print culture.

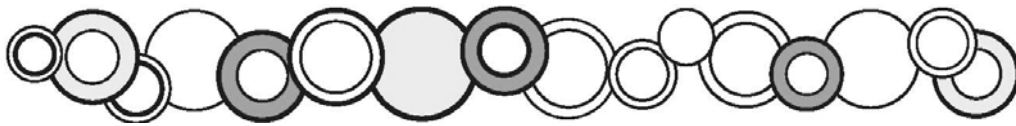
Chase Brosseau, Senior Biology Major

James Hodgson, Professor of Biology and Environmental Sciences

Changing Growth Rates as a Result of a Top-Down Manipulation

Ecosystem responses to manipulation are often not predictable and spark disagreement among fishery managers. In a small, seepage lake of Northern Wisconsin, zooplanktivore populations are declining in response to increased predation by recently introduced largemouth bass.

Increasing growth rates of the dominant zooplanktivore, pumpkinseed sunfish have been observed (0.84 mm/week in 2009, and 2.00 mm/week in 2010). It is hypothesized that if there is a significant decrease in the pumpkinseed population and prey resources remain stable, then pumpkinseed growth rates will increase. Density-dependent effects, perception of predation risk and changing resource use are drivers of the increased growth rates.



3:00-3:30

Todd Wehr Lobby

Poster

3:30-4:00

Todd Wehr Lobby

Poster

Bryan Stoppenbach, Senior Biology Major

Nick Anderson, Senior Biology Major

David Hunnicutt, Assistant Professor of Biology

Comparison of Flavobacterial Fish Pathogens in Zebra Fish

The organism *Flavobacterium columnare* causes columnaris disease in fish, while *Flavobacterium johnsoniae* is normally not pathogenic. In an effort to determine what features of *F. columnare* are necessary for virulence, we used a zebra fish infection model of bacterial infection. Suspected virulence factors include motility, adherence, the secretion of toxins, and the production of digestive enzymes. Zebra fish were incubated with dilutions of wild-type *F. columnare* (Fc2), a mutant deficient in motility (Fc14), or a mutant deficient in the production of the enzyme chondroitin lyase A (Fc-CH-). The concentration of bacteria needed to kill 50% of the fish was compared among these strains. Preliminary analysis indicates slightly lower virulence of the Fc-CH- strain compared to wild type. In addition, two reportedly pathogenic strains of *F. johnsoniae* were tested in the same assay. In contrast to previous *F. johnsoniae* studies, both proved pathogenic, with one (YO-12) being more virulent than the other (YO-64).

3:00-3:30

Todd Wehr Lobby

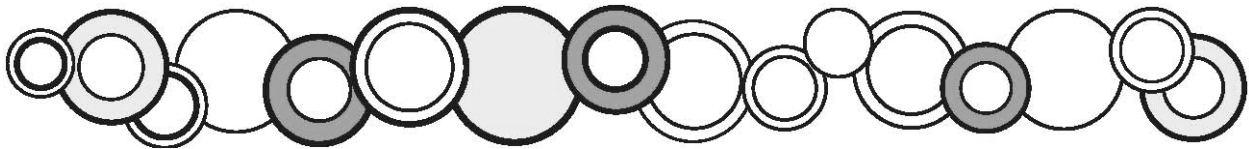
Poster

Eric Gale, Junior Biology Major

Anindo Choudhury, Associate Professor of Biology

**Description of Newly Discovered Species of Parasitic Fluke,
Lissorchis nelsoni n. sp.**

Lissorchis nelsoni (Digenea: Lissorchiidae) a parasitic fluke, is described from the intestines of the spotted sucker, *Minytrema melanops* from the Wolf River in Wisconsin. The species is similar to *Lissorchis mutabile* in its total body dimensions (comparable length and width), similar number and arrangement of vitelline follicles, and trilobed ovary. It differs from all other lissorchiid flukes in possessing a relatively large, “L”-shaped cirrus sac, and it differs from *L. mutabile* in a uterus that extends up the right side of the body. The parasite is also being characterized using rRNA genes.



1:30-2:00

Todd Wehr Lobby

Poster

Beth Baumann, Senior Elementary Education Major

Tynisha Meidl, Assistant Professor of Education

Developing Dispositions in Teacher Candidates Through Community Service

Research has indicated that pre-service teachers learn by doing, justifying the need for field experiences in teacher education programs (Erikson and Anderson, 2005). In addition, research posits that pre-service teachers retain little of what they learn from textbooks and lectures in education courses (Kennedy, 1991). As teacher educators seek to provide authentic classroom learning experiences for teacher candidates, they need to develop the necessary attitudes and behaviors to be effective classroom teachers. The presenters argue that community service is a way for students to develop desired dispositions because of the benefits of engaging in service connected with educational settings.

1:30-2:00
2:00-2:30

Todd Wehr Lobby
Todd Wehr Lobby

Poster
Poster

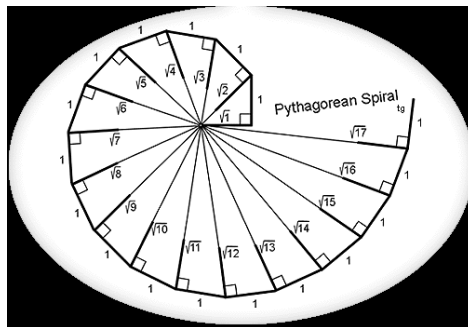
Yerzhan Nauruzbayev, Junior Business Administration and Political Science Major

Jamilya Sauranbayeva, Junior Business Administration and Psychology Major

Wolfgang Grassl, Associate Professor of Business Administration

Developing Logistics Capacities for Kazakhstan: A Market Opportunity Study

For Kazakhstan, as a large and landlocked country with significant reserves of minerals and other commodities, transportation to international markets is a challenge. The study analyzes the supply and demand side of logistics services in the context of economic geography and forecasts of demand for export products. Options for the development of logistics facilities are then presented based on a multicriteria scoring analysis. The result is a prioritized plan for the further development of transport infrastructure and business that may be useful to government entities and to investors in and operators of logistics services.



1:00-1:30

Todd Wehr Lobby

Poster

Haoqi Chen, Junior Mathematics and Physics Major

Teena Carroll, Assistant Professor of Mathematics

Egyptian Fractions and Pythagorean Spirals

Our research began by building sequences whose terms have the same sum and product. The first sequence we studied was related to the Sylvester sequence, whose reciprocals sum to one. This led us to the ancient idea of Egyptian fractions. We developed a tool to enumerate and study Egyptian fraction representations. Computationally, they are difficult to deal with-- there are too many of them to examine meaningfully, and the largest denominators grow quickly. Using the largest denominators present in even representations, we found a connection to the Pythagorean spiral sequence, which encodes an infinite number of Pythagorean triples.

1:00-1:30

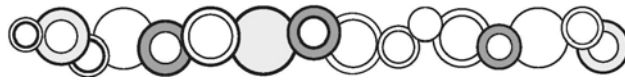
Todd Wehr Lobby

Poster

Sergii Bilokhatnuik, Junior Computer Science and Mathematics Major
Ravi Agarwal, Assistant Professor of Computer Science

Enhanced Security of an Android Device by a Multi-Layer Authentication Application

This research examines the security capabilities of Android open source operating system based on GNU/Linux and components developed by Google. Android's capabilities and limitations were investigated and a multi-level authentication application was developed in attempt to enhance android's security and authentication process. The key challenge was to find mechanisms in Android API's that would lock the device from unwanted access without direct access to hardware or need of root privileges. The application development was done in Java programming language using Android's SDK and Eclipse platform.



2:30-3:00

Todd Wehr Lobby

Poster

3:00-3:30

Todd Wehr Lobby

Poster

3:30-4:00

Todd Wehr Lobby

Poster

Derek Harrington, Junior Computer Science Major
Christopher Gusman, Junior Computer Science Major
Sergii Bilokhatnuik, Junior Computer Science and Mathematics Major
Ravi Agarwal, Assistant Professor of Computer Science
James Hodgson, Professor of Biology and Environmental Science
Tod Maki, Assistant Director of Information Technology

Fish Research Database Management System: Transitioning from Legacy System to a Modern Application

The goal of this project was to convert a thirty-five year old legacy flat-file database system used to store fish information based on forty years of research in the biology department at SNC into an optimized modern relational database system, along with providing necessary tools to access and update the data. A new database was designed with updated system requirements keeping the existing features and functionality intact. Also, a user-friendly Windows form interface using a C# application was created which allows users to enter data into the database easily and also to generate critical reports vital to the research based on the information stored in the database.

2:30-3:00

Todd Wehr Lobby

Poster

3:00-3:30

Todd Wehr Lobby

Poster

3:30-4:00

Todd Wehr Lobby

Poster

Kelley Catenacci, Sophomore Psychology Major

Devan Scherer, Sophomore Psychology Major

Arielle Trembl, Freshman Chemistry Major

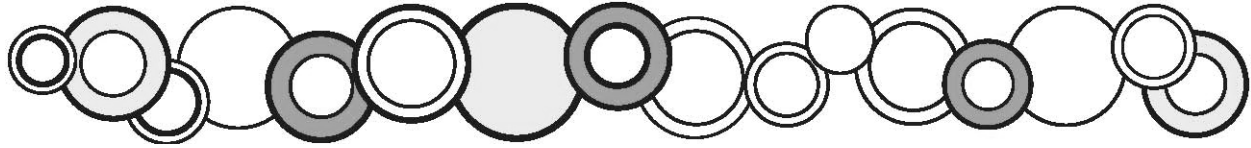
Sarah VanSchyndel, Senior Psychology Major

Ashley Hill-Soderlund, Assistant Professor of Psychology

Gender Differences in Behavior Across Delay of Gratification Tasks

An important developmental milestone in childhood is learning how to delay gratification. Recent research suggests that girls and boys may respond differently to the demands of waiting for a reward. We hypothesize that boys will use avoidance as a strategy to delay more often during the tasks than girls will. Boys will also be more likely to touch the desired object and less likely to persevere on the task. Children ($N \approx 82$; aged 4 and 5) participated in two tasks: the snack delay and the gift delay. These findings may have important implications for caregivers and educators.





<i>1:00-1:30</i>	<i>Todd Wehr Lobby</i>	<i>Poster</i>
<i>1:30-2:00</i>	<i>Todd Wehr Lobby</i>	<i>Poster</i>
<i>2:00-2:30</i>	<i>Todd Wehr Lobby</i>	<i>Poster</i>
<i>2:30-3:00</i>	<i>Todd Wehr Lobby</i>	<i>Poster</i>
<i>3:00-3:30</i>	<i>Todd Wehr Lobby</i>	<i>Poster</i>
<i>3:30-4:00</i>	<i>Todd Wehr Lobby</i>	<i>Poster</i>

Erin Baganz, Senior Art Major
Michael Danforth, Senior Art Major
John Favret, Senior Business Administration Major
Katelyn Gorman, Senior Art Major
Mark Jasso, Junior Art Major
Kristen Kutil, Junior Art Major
Claire Lenz, Senior Art Major
Brian Milinski, Junior Computer Science Major
Anna Reardon, Junior Business Administration Major
Lisa Vannieuwenhoven, Senior Art Major
Brian Pirman, Associate Professor of Art

Graphic Design and Rock and Roll

This is a class project that took place in Advertising Design. The professor presented it at the beginning of the semester and told the students that out of the four projects offered in the class this is the one where we (the professor and the respective student) will work collaboratively together. The professor indicated that it was going to be part of Celebrating Student and Faculty/Staff Collaborations in the Spring of 2011. The specific project is located at: <http://home.snc.edu/brian.pirman/websyllabi/ad/adfour/adfour/adfour.html>. It involves designing a new logo for a made-up rock band or musician (or use an existing one if the student desired to improve it). Then take the logo and apply it to a t-shirt and poster. How is this collaborative? As the students were working on their projects the professor made a concerted effort to be involved in terms of where the students may go directionally, and during the process we worked together to achieve their goals. The final result is 10 posters and 10 t-shirts.



1:30-2:00

Todd Wehr Lobby

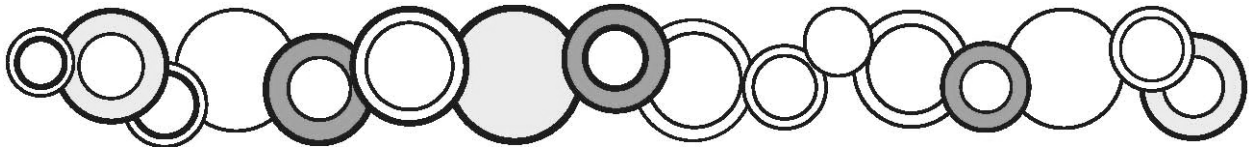
Work of Art

Deborah Smrz, Senior Theatre Studies and Communication and
Media Studies Major

April Beiswenger, Assistant Professor of Theatre Studies

Hay Fever: A Collaborative Theatrical Design

Theatre is, at the center, a collaborative act. Rarely is there one person making all the creative decisions; it usually encompasses dozens of practitioners to bring a theatre piece to fruition. We will be exhibiting the collaborative process we used to create the designs for "Hay Fever." We also would like the viewers of our exhibit to get a bit of a 'behind the scenes' look to see how we create theatrical designs.



3:00-3:30

Todd Wehr Lobby

Poster

3:30-4:00

Todd Wehr Lobby

Poster

Emily Klug, Senior Biology Major

Yekaterina Makeyeva, Freshman Biology Major

David Bailey, Assistant Professor of Biology

Localization of Vesicular Glutamate Transporter and Truncated Tyrosine Kinase B Proteins in Zebra Finch Neurons

In zebra finches (ZFs), a type of memory depends on the hormone estrogen, which increases neuron size, connectivity, and modulates neurotransmitter release. Hypothetically, estrogen acts by increasing growth factor production, which augments portions of (and facilitates communication between) “sending” and “receiving” neurons via tyrosine kinase B (trkB) receptors; whether a type of this receptor is present in ZFs is unknown. Additionally, estrogen increases glutamate neurotransmission, but it is unknown whether ZF neurons possess vesicular glutamate transporter (VGLUT) proteins, which prepare glutamate for release. Our project examines whether ZF neurons possess truncated trkB and VGLUT proteins, and whether these are co-localized.

1:30-2:00
2:00-2:30

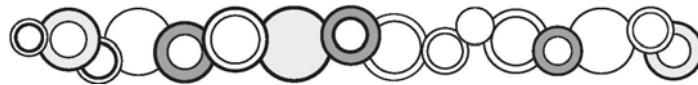
Todd Wehr Lobby
Todd Wehr Lobby

Poster
Poster

Andrea Burkland, Senior Accounting Major
Stephanie Weiss, Senior Business Administration Major with
Finance Concentration
Amy Vandenberg, Assistant Professor of Business Administration

Mark-to-Market to *What* Market?

The United States' economy has been struggling as it attempts to avoid plummeting into a crisis mode. The Financial Accounting Standards Board just recently released an exposure draft; one of the main concerns with this draft is the requirement to use fair value accounting for all financial assets and liabilities. The issue with the proposed disclosure requirements is one of valuation. The majority of the assets that will be affected are ones for which an active secondary market does not exist. We propose to examine the issues surrounding the implementation of this proposed valuation policy.



1:00-1:30
1:30-2:00

Todd Wehr Lobby
Todd Wehr Lobby

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Blake Bashor, Senior Biology Major
Rachel Erickson, Senior Biology Major
David Hunnicutt, Assistant Professor of Biology
David Bailey, Assistant Professor of Biology

Microbial Colonization of the Zebra Finch Gut

Zebra finches are a common model system in neurobiological and endocrinological studies. The sexes display dramatic dimorphisms in brain structure and hormone levels. Many of the bird's hormones may also be used as signaling molecules by bacteria. This raises the possibility that communication and interaction may occur between intestinal bacteria and the host. Understanding that the gut of the zebra finch is colonized by a variety of microbial species, we have begun to characterize species found in fecal samples using molecular techniques. Analysis of 16S RNA PCR amplified from bacteria isolated from the zebra finch gut revealed the presence of *Enterobacter*, *Acinetobacter*, and other genera. Following characterization of these bacteria we hope to assess bacterial responses to manipulation of hormone levels in these birds.

2:00-2:30

Todd Wehr Lobby

Poster

Amanda Sigl, Freshman Chemistry Major

Teena Carroll, Assistant Professor of Mathematics

Kevin Murphy, Assistant Professor of Mathematics

Modeling Chemical Structures Using Origami

The ancient Japanese art of origami has become an important tool for both mathematicians and chemists in exploring and modeling three-dimensional shapes. Modular and polygonal origami can be used to represent chemical structures and molecular bonds. In particular, models of buckyballs and other molecules containing carbon rings lend insight into their underlying chemical structures.



3:30-4:00

Todd Wehr Lobby

Poster

Renee Wenig, Senior Biology Major

David Hunnicutt, Assistant Professor of Biology

Nasal Carriage of *Staphylococcus aureus* in a Population of Healthy College Students

Staphylococcus aureus is a Gram-positive bacterium that is a potential pathogen, but is also commonly carried by healthy individuals with no symptoms. In this experiment, sterile swabs of the external nares of participating individuals were processed to isolate *S. aureus* and the resulting isolates assayed for resistance to specific antibiotics. Prior studies have shown that most antibiotic resistant strains of *S. aureus* are developed in hospital settings, but other risk factors exist, such as exposure to livestock and misuse of antibiotics. A questionnaire was completed by participants in order to establish potential risk factors of being a carrier of *S. aureus*. Further analysis of *S. aureus* strains found is ongoing to discover both levels of antibiotic resistance and risk factors associated with them.

3:00-3:30

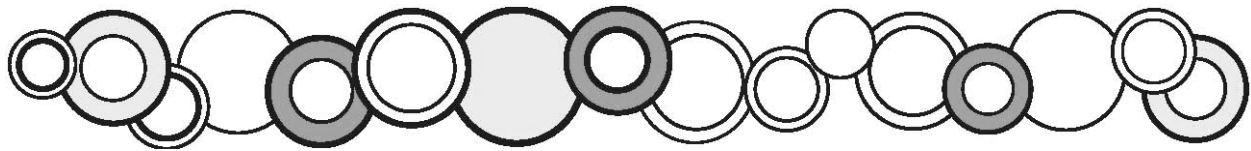
Todd Wehr Lobby

Poster

Katharine Casey, Junior Biology Major
Deborah Anderson, Associate Professor of Biology

Photographing Small Rodent Specimens of the Family Ischyromyidae

It is common practice to photograph fossil dentition when analyzing various characteristics and defining features of specimens. It can be difficult to visualize crown pattern features such as crenulations because of two-dimensional limitations of a photograph. To improve visualization, teeth are coated with a vaporized form of ammonium chloride. Solid ammonium chloride was placed in a glass tube with a rubber bulb at one end. This tube was slowly heated via Bunsen burner until the ammonium chloride vaporized and flowed out freely. This vaporized powder was then expelled onto the crown of the tooth. The quality of visualization was greatly improved due to this refined procedure.



1:00-1:30

Todd Wehr Lobby

Poster

Sarah VanSchyndel, Senior Psychology Major
Ashley Hill-Soderlund, Assistant Professor of Psychology

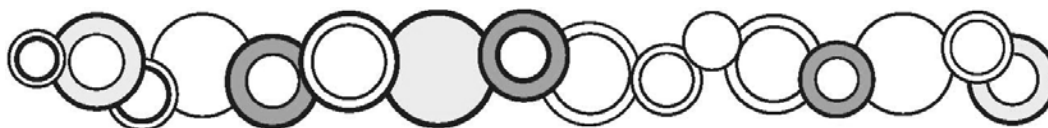
Problematic Emotion Regulation and Frustration during Interactions with a Distressed Simulated Infant

A parent's ability to demonstrate successful emotion regulation (ER) when his or her child is upset may affect the child's ER development. It was expected that students who self-reported having a low distress tolerance and more difficulties with ER would exhibit more frustration during the task. Non-parents completed self-report measures and took part in a laboratory interaction with an inconsolable infant simulator. Participants with a high distress tolerance displayed less frustration. Those with problems controlling impulsive behavior when experiencing negative emotions and those with difficulty flexibly using ER strategies to manage emotion displayed more frustration. The implications for children's social-emotional development will be discussed.

Sarah Lottes, Junior Biology Major
David Bailey, Assistant Professor of Biology

Production of a Zebra Finch Song Archive at St. Norbert College

A zebra finch colony was started at St. Norbert in 2009. These birds are excellent model systems for learning and memory studies, as males learn song from their fathers during a critical developmental period. Given the remarkable similarity between father and son songs, one can compare song structure across generations to determine degrees of learning and relatedness. We have begun recording song from males, some of which came from a supplier or others that hatched at SNC. This archive will allow us to continue to trace lineage and aid in future behavioral and neurobiological tests in both classroom and laboratory settings.



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 2:30-3:00

Todd Wehr Lobby
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Isabella Benassi, Junior Biology Major
Izzy Rauguth, Senior Biology Major
Russ Feirer, Associate Professor of Biology

Resveratrol and Polyamines: Effect on Biosynthetic and Catabolic Enzymes, and Interactions with DFMO and DenSpm in Breast Cancer and Uveal Melanoma Cell Lines

Resveratrol inhibits the growth and initiation of cancer cells *in vitro* and tumorigenesis in mice. In one cell line, resveratrol affected the metabolism of polyamines, compounds essential for the proliferation of cells. Affecting the enzymes involved in polyamine metabolism has been the object of potential anti-cancer treatments. Difluormethylornithine (DFMO), an inhibitor of ODC, and diethylnorspermine (DenSpm) have been shown to reduce growth of cancer cells. Resveratrol has been shown to reduce ODC activity and induce SSAT activity in a colon cancer cell line. The current study extended those findings to melanoma and breast cancer cell lines. Interactions between resveratrol, DFMO and DenSpm were also investigated. Resveratrol was found to affect the expression of ODC and SSAT. Combinations of resveratrol and DFMO or DenSpm reduced cell proliferation to a greater degree than any of the compounds used alone.

3:00-3:30

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Chase Brosseau, Senior Biology Major

James Hodgson, Professor of Biology and Environmental Sciences

Sampling Implications from a Comparative Analysis of Largemouth Bass Diets (Pelagic vs. Littoral)

Largemouth Bass (*Micropterus salmoides*) are apex predators in many north temperate lakes. In 2006, we intensively sampled diets from littoral (shallows) and pelagic (open water) foraging bass of Paul Lake, a small, unexploited lake in Michigan's Upper Peninsula. We hypothesized (null hypothesis) that there would be significant difference in the diets in fish sampled from the two foraging zones. Although littoral foraging fish consumed more odonates than pelagic fish, and pelagic fish consumed more *Chaoborus* than littoral fish, we reject our null hypothesis that the diets differ relative to where they are collected.



3:30-4:00

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Chelsea Pintz, Senior Biology Major

Students in Endocrinology Fall 2010 class

David Bailey, Assistant Professor of Biology

Short-term Effects of Corticosterone on Spatial Memory in Zebra Finches

Studies in our lab (and in Biology 385: Endocrinology) suggest that a one week treatment of zebra finches with a stress hormone, corticosterone, is toxic to the hippocampus, a brain region important in declarative memory. However, no demonstrable effect on memory was observed with this treatment length. We hypothesized that a shorter-term (two day) treatment would decrease memory function. Corticosterone-treated birds learned a task more quickly than controls, but their performance during memory trials did not differ. Thus, while long-term corticosterone treatment is toxic to neurons involved in this type of memory, sustained and short-term release appears to accelerate learning.

1:30-2:00

Todd Wehr Lobby

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Lauren Lathers, Senior Psychology and Sociology Major
Jack Williamsen, Data Analyst, OIE

SNC Seniors: How Do They Compare?

Using data from recent national surveys, we compared SNC seniors with a national sample of seniors as well as with seniors from private colleges. More specifically, we looked at variables such as student-faculty interaction, active and collaborative learning, diversity, and overall satisfaction to see how SNC fared.



3:30-4:00

Todd Wehr Lobby

Poster

Jessica Richards, Junior Biology and Environmental Science Major
Matthew Stollak, Assistant Professor of Business Administration
Amy Vandenberg, Assistant Professor of Business Administration

Student Budgeting and Spending Behaviors: A Comparative Study

Free from the comforts of home, many students are experiencing being on their own for the first time. One of the challenges they face is budgeting. This becomes particularly problematic when an expected budget item changes. This study examines how students at a small Midwestern liberal arts college meet the budgeting challenge. Do students plan and budget for discretionary items differently than required items? Through this sample, student behaviors and a discussion of the implications for practice are assessed.

2:00-2:30
2:30-3:00

Todd Wehr Lobby
Todd Wehr Lobby

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KateLyn White, Sophomore Biology Major
Lindsey Grahn, Junior Biology Major
Russ Feirer, Associate Professor of Biology

The Effects of DCA and Resveratrol on the Metabolism of Glucose by Cancer Cell Lines

In normal cells, glucose is oxidized by the mitochondria and converted into ATP, CO₂ and H₂O. In cancer cells the pyruvate produced from glucose is instead rerouted into the production of lactate. Cancer cells are thus inefficient in their metabolism of glucose, meeting their energy demands by consuming larger amounts of glucose. Breast cancer and melanoma cell lines were treated with dichloroacetate (DCA). Treatment with DCA resulted in an increase in glucose uptake and a decrease in lactate production. This suggests that the metabolism was shifted back to glucose oxidation. Treatment with resveratrol appeared to be more effective than DCA in reducing the utilization of glucose by the cells.



2:30-3:00

Todd Wehr Lobby

Computer Presentation

Gretchen Panzer, Junior English and Women's and Gender Studies Major
John Pennington, Professor of English

The North Wind: A Journal of George MacDonald Studies Digital Archive

The *North Wind: A Journal of George MacDonald Studies* Digital Archive is now complete, housing all 29 volumes of the critical journal, thus making the full-text journal sources accessible to scholars around the world. In addition, we published an article discussing the digital archive and the evolution of MacDonald scholarship: "George MacDonald in the Virtual Library: The *North Wind* Digital Archive and the Evolution of MacDonald Scholarship."

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Nicole Swanson, Senior Chemistry Major
Devin VandeWalle, Senior Chemistry Major
Louis Ayensu-Mensah, Sophomore Chemistry Major
Kari Cunningham, Assistant Professor of Chemistry

The Variable Reactivity Pattern of 1,10-Phenanthroline Derivatives

Creating derivatives of 1,10-phenanthroline can be accomplished by either ring-closure reactions that incorporate the desired groups onto the backbone of the ring or by reactions that modify the existing heteroaromatic ring system. Our research focuses on the latter process for the modification of the phenanthroline ring via nucleophilic attack of the alpha-carbon using alkyl lithium reagents such as methyl lithium, isopropyl lithium and t-butyl lithium. We have found that the position of alkyl groups on the phenanthroline starting material can either activate or deactivate the ring toward this type of reaction. A step-wise approach to creating these compounds affords nearly quantitative yields of these novel phenanthroline derivatives.



