

4-8-2008

A Day of Celebration of Student and Faculty / Staff Collaborations 2008

St. Norbert College

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On behalf of the
Office of Faculty Development
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:

Ben Petry ('09)

Faculty Development Intern

Stephanie Schauer ('10)

Faculty Development Office Assistant

*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.*

**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.

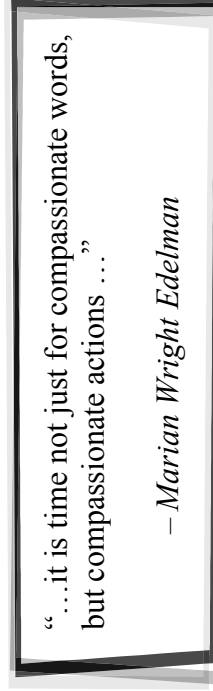
This celebration features collaborative projects that evolved out of independent studies, class assignments, and casual interactions, as well as those collaborations supported through Student-Faculty Development Endowment Grants or the Research Fellows Program.

*Co-sponsored by the
Office of Faculty Development
and the
Office of the Dean of the College*

Alicia Brinkman, Sophomore Mathematics and Secondary Education Certification
Nancy Mathias, Associate Director of Leadership and Service

POWER OF TWO-TORING

The M3C Program at St. Norbert College is a group of mostly first year students who are motivated in community service and developing their leadership skills. The M3C Program is primarily devoted to collaborating with the Jefferson Elementary after-school program to tutor low-income students. This project will show the impact that both cohorts have on one another and various ways that the M3C Program has impacted the community.



This program is put together in sequential order. Time, location, and presentation type are listed at the top of each page. Oral presentations and performances will occur during the time listed. Posters and other exhibits will be displayed from 2:00 - 5:00 p.m., but are listed according to the time 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 the following two pages, 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, and are listed accordingly.

Student Participants

Luis Altamirano	16, 23	Kassie Lang.....	19
Alicia Brinkman	16, 23, 30	Kathleen Miller	16, 23
Heather Brosig	6	Teresa Patitucci.....	15
Cristina Burrill	13	Jenny Paul	18, 24
Matthew Captaine	16, 23	Ryan Pavlik.....	16, 23
Brandon Clemens.....	16, 23	Justin Pierce	16, 23
John Cremer	16, 23	Katie Pierre	18, 24
Laura Daly	25	Rachel Sayer	10
Jonathan Daun.....	28	Stephanie Schauer..	16, 23, 28
Andy Farrell	26	Amber Schuh	22
Steve Gale.....	12	Heather Schulze	16, 23
Maggie George.....	25	Richard Scott.....	18, 24
Molly Gill.....	14	Alexandra Skibbie.....	11
Samantha Goeben	17	Michael Szadkowski	29
Amber Hartl	18, 24	Olivia Traczyk	11
Kate Kaminski	16, 23	Katie Vater	8
Emily Kapszukunftwicz	6	Caitlin Whitney.....	21
Kim Keil.....	20	Jamie Wieting	22
Ian Klein.....	7, 9	Jennifer Wirth	16, 23
Stephanie Kohler.....	27	Yukiyasu Yamada.....	14
Steve Kraft	7, 9		

Michael Szadkowski, Junior Biology Major

Anindo Choudhury, Associate Academic Dean &

Associate Professor of Biology and Environmental Science

MOLECULAR CHARACTERIZATION OF THE HUMAN BROAD TAPEWORM

The goal of this project is to determine the origin of the North American human broad tape worm, *Diphilabothrium latum*. The current hypothesis is that they were introduced from Europe by humans and became established in the North American ecosystem. However, there are also alternate hypotheses that they came over in human hosts via the ancient migratory path over the Bering land bridge, or that they are an ancient parasite of a wild animal. By comparing the molecular phylogeny between the specimens from Europe, Asia, and North America we hope to address these hypotheses.

Jonathan Daun, Sophomore Economics Major
Stephanie Schauer, Sophomore Mathematics Major and
 Secondary Education Certification
John Frohlinger, Associate Professor of Mathematics

Faculty/Staff Participants

Deborah Anderson	20
Anindo Choudhury	12, 29
Kari Cunningham	7, 9
Cynthia Earles Ochsner	22
Deirdre Egan	11
Bradford Ellis	8
Russ Feirer	15
John Frohlinger	28
David Hunnicutt	14
Terry Jo Leiterman	16, 23
Krissy Lukens	25
Nancy Mathias	13, 30
Yoko Mogi-Hein	17
John Pennington	10, 18, 24
David Poister	19, 26
Jonathon Russell	22
Jason Senjem	6
Matthew Stollak	21
Michelle Tichy	27

GENERATING SUDOKU PUZZLES

A (solved) Sudoku puzzle can be viewed as a function

$$f : (\mathbf{Z}_3)^4 \rightarrow \mathbf{Z}_9$$

with certain “near one-to-one” properties. In this case, for fixed a and b , $f(x,y,a,b)$, $f(a,x,y,b)$ and $f(a,b,x,y)$ are injective functions of (x,y) . An unsolved puzzle gives you some of the values of f , you need to find the rest. We will use certain classes of these functions to generate some Sudoku puzzles.

	6	1				9	3	
2			8		1			6
	2	4	3		7	6	8	
				5				
	9	6	4		2	1	7	
6			2		5			1
	1	8				5	2	

Heather Brosig, Sophomore Business and Economics Major

Emily Kapsukiewicz, Sophomore Communications and Economics Major

Jason Senjem, Assistant Professor of Business Administration

THE STRUCTURES AND DYNAMICS OF NON-PROFIT ORGANIZATIONS

By working with two non-profit organizations, we were able to distinguish distinct aspects of both and make comparisons and contrasts as well. Our findings show the unique aspects of business models used in non-profit organizations. We can show through case study which methods work better and which may not. We also show strengths, weaknesses, enablers, and constrictions that non-profit organizations must face and overcome to be successful.

Stephanie Kohler, Senior Elementary Education
Michelle Tichy, Assistant Professor of Education

FEMINISM AND EARLY CHILDHOOD EDUCATION

This project has examined the tension in early childhood education between the almost exclusive role of women as professionals in it and the lack of this profession embracing feminism and feminist pedagogy. There is limited social science research in the field of early childhood education, so this study is a step in the direction of creating solid empirical evidence regarding the state of the field of early childhood education and the primary attitudes that lead to a resistance to embracing feminist ideals and pedagogical methods in early childhood education. This project combines a thorough literature review with a survey based study.



4:00-4:30

Lounge

Poster

Andy Farrell, Junior Environmental Science Major and Organismal Biology Concentration
David Poister, Associate Professor of Chemistry and Environmental Science

2:00-2:30

Lounge

Poster

2:30-3:00

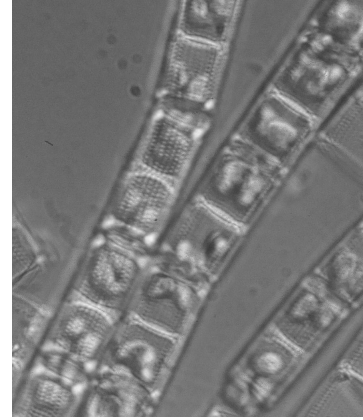
Lounge

Poster

Ian Klein, Sophomore Chemistry Major
Steve Kraft, Senior Chemistry Major
Kari Cunningham, Assistant Professor of Chemistry

EFFECTS OF ECOLOGICAL COMPETITION ON *AULACOSEIRA* ABUNDANCE AT TROUT LAKE

Aulacoseira is a colonial diatom present in inland water bodies. The goal of this project was to study the effects of ecological competition on the abundance of *Aulacoseira* colonies in Trout Lake, Vilas County, Wisconsin. Samples were collected weekly during the spring and fall diatom bloom in the ice-free season of 2006. The samples were analyzed to determine *Aulacoseira* abundance and colony size. Competitor density was assessed by measuring the concentration of chlorophyll-a. Maximum *Aulacoseira* abundance was measured during the last part of May and was followed by a rapid decline to the mid summer minimum. Laboratory experiments indicate that the termination of the spring *Aulacoseira* bloom was likely caused by



competition from green algae for non-silica nutrients.

FREED FROM THE FRIEDELANDER: DERIVATIVE OF NOVEL 1,10-PHENANTHROLINE

Ligands such as 1,10-phenanthroline are very versatile in creating a homologous series of coordination compounds. This bidentate ligand not only binds various metals more rapidly than other nitrogen chelates, but it also offers a wider variety of possible substitutions along the ligand backbone. Our current research has created a synthetic scheme to functionalize the 2 and 9 positions separately. Through this inventive, two-step synthesis, we have found that we have achieved both high overall yields of product and an increased flexibility in derivatization in an already versatile ligand.

“I am among those who think that science has great beauty. A scientist in his laboratory is not only a technician: he is also a child placed before natural phenomena which impress him like a fairy tale.”

- Marie Curie

Katie Vater, Senior Spanish and German Major
Bradford Ellis, Assistant Professor of Spanish

**A WOMAN BETWEEN TWO WORLDS:
 IDENTITY, PLACE AND DESIRE IN
 SOR MARCELA DE SAN FELIX'S
 MUERTE DEL APETITO**

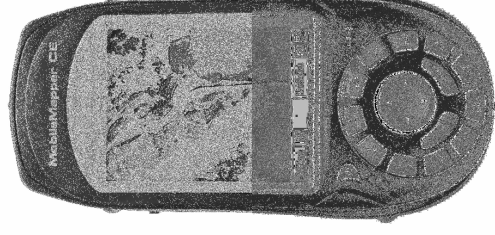
The tumultuous early life of Sor Marcela de San Félix, the illegitimate daughter of the great Spanish playwright Lope de Vega, factored heavily in her decision to join the Trinitarian Order at the Convent of San Ildefonso in Madrid when she was sixteen. While sequestered behind the convent walls, she followed in her father's footsteps and became a writer, incorporating into her earlier works the dichotomy between earthly life and the spiritual life of her new self-imposed asceticism within the convent. This study explores textual representations of this dichotomy in Sor Marcela's earliest short play, *Muerte del Apetito* (*The Death of Desire*), as a means to better understand not only the way she tried to cope with physical separation from the world she knew, but also her own struggle as a religious woman to master worldly appetites and desires.



Laura Daly, Senior Education Major
Maggie George, Senior Education Major
Krissy Lukens, Instructional Technology Specialist

**WHERE IN THE WORLD:
 AN INTERACTIVE GPS LESSON**

This model lesson, highlighting GPS and GIS technologies, was created, field-tested, and revised by four senior education students from St. Norbert College as part of an enrichment project, partnering with a local middle school. The inspiration for this lesson came from their desire to create lessons that would actively involve students in the use of GPS and have them experience real life situations.



4:00-4:30
3:30-4:00

Shield Room
Shield Room

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

Lounge
Lounge

Poster
Poster

Amber Hartl, Senior English Major
Jenny Paul, Senior English Major
Katie Pierre, Senior English Major
Richard Scott, Senior English Major
John Pennington, Professor of English

Ian Klein, Sophomore Chemistry Major
Steve Kraft, Senior Chemistry Major
Kari Cunningham, Assistant Professor of Chemistry

**WHAT THE DICKENS? A DISCUSSION OF THE
WORK OF CHARLES DICKENS:
PANEL PRESENTATION FOR THE SIGMA TAU
DELTA NATIONAL CONVENTION IN
LOUISVILLE, KY, MARCH, 2008**

Our panel will discuss the legacy of Charles Dickens, arguably the greatest novelist in the English language, certainly one of the most popular novelists to ever write. Amber Hartl will discuss the importance of characterization in Dickens, focusing on the heroic types he uses to structure his novels *Oliver Twist* and *Hard Times*. Jenny Paul will also focus on characterization, though she will examine how Dickens uses comedy as moral identification with characters in *Oliver Twist* and *Great Expectations*. Katie Pierre will challenge Dickens, particularly in his depiction of women in *David Copperfield*, *Bleak House*, and *Great Expectations*; Katie argues that Dickens is ambivalent about women, though Estella in *Great Expectations* hints at a changing attitude toward women. Finally, Richard Scott will examine what most people associate with Dickens - Christmas; Richard examines character transformation in *A Christmas Carol*, *The Haunted Man*, and *The Story of the Goblins Who Stole a Sexton*.

**FREED FROM THE FRIEDELANDER:
DERIVATIVE OF NOVEL 1,10-
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Ligands such as 1,10-phenanthroline are very versatile in creating a homologous series of coordination compounds. This bidentate ligand not only binds various metals more rapidly than other nitrogen chelates, but it also offers a wider variety of possible substitutions along the ligand backbone. Our current research has created a synthetic scheme to functionalize the 2 and 9 positions separately. Through this inventive, two-step synthesis, we have found that we have achieved both high overall yields of product and an increased flexibility in derivatization in an already versatile ligand.

2:30-3:00

Lounge

Poster

Rachel Sayer, Senior English Major
John Pennington, Professor of English

PETER PAN AND THE TRAGIC SUSPENSION OF DISBELIEF

Our project argues that Barrie’s work depicts his version of human tragedy through Peter, who is trapped in a kind of arrested development between child and adult. As the beginning of *Peter and Wendy* claims: “All children except one, grow up.” Peter’s inability to grow up is connected to the reader’s desire for this perpetual youth. In other words, the reader grasps at the suspension of disbelief so he or she can identify with Peter. In a key chapter called “Do You Believe in Fairies?” (and central component to the play), Tinkerbell has ingested some poison and is dying; readers are asked to clap their hands if they believe in fairies, and they do. Tink is saved. But the reader recognizes the hollowness of this belief, for Peter lives in Neverland, a place that only exists in the imagination. Peter’s perpetuity as a child, the reader realizes, is an illusion, an impossibility that is captured at the end when Wendy, now grown up and a mother, touches the “hair of the tragic boy,” who only has the vaguest remembrance of her. Peter is tragic because he exists “Betwixt-and-Between,” a realm the reader desires but recognizes as an illusion. Our study concentrates on three major texts: “Peter Pan in Kensington Gardens” (first published in *The Little White Bird* - 1902); *Peter Pan* (the play - 1904); and *Peter and Wendy* (the novel - 1911).

3:30-4:00

Lounge

Exhibit

3:00-3:30

Lounge

Exhibit

Luis Altamirano, Senior Physics Major
Alicia Brinkman, Sophomore Mathematics Major and
Secondary Education Certification

Matthew Captaine, Senior Physics and Mathematics Major
Brandon Clemens, Junior Physics and Mathematics Major
John Cremer, Junior Business Administration and

Mathematics Major

Kate Kaminski, Junior Business Administration and
Mathematics Major

Kathleen Miller, Sophomore Mathematics Major
Ryan Pavlik, Senior Computer Science and
Mathematics Major

Justin Pierce, Sophomore Computer Science and
Mathematics Major

Stephanie Schauer, Sophomore Mathematics Major
and Secondary Education Certification

Heather Schulze, Senior Mathematics and Spanish Major
Jennifer Wirth, Senior Mathematics Major

Terry Jo Leiterman, Assistant Professor of Mathematics

THE SQUARE WHEEL BICYCLE

To the students, the task sounded impossible. Build a square wheel bicycle that moves smoothly; one you could pedal all day long if you wished. With an ah-ha moment, a short loss of interest, many hours, several mistakes, and no grade, a square wheel bicycle was built (and ridden!) by a class of twelve Mathematical Modeling students. During this exhibit, the bicycle will be ridden, the mathematics will be discussed, and the secrets will be told!

Amber Schuh, Senior Chemistry Major with
Biochemistry Concentration

Jamie Wieting, Senior Biology and Chemistry Majors
Cynthia Earles Ochsner, Assistant Professor of Chemistry
Jon Russel, Assistant Professor of Chemistry

INVESTIGATION OF THE MECHANISM OF INHIBITION OF THE DOPAMINE TRANSPORTER BY MODAFINIL

Rotating disk electrode voltammetry (RDEV) was used to measure the time-resolved transport of dopamine into human embryonic kidney (HEK) cells stably expressing the human dopamine transporter (hDAT). Dopamine transport was first order with a K_m and V_{max} of 0.7 mM DA and 21.6 pmol DA/sec/ 10^4 cells respectively. Modafinil, a drug used to treat narcolepsy, was shown to inhibit the human dopamine transporter. The mechanism of inhibition appears to be competitive.

In conjunction with efforts to probe the mechanism of dopamine transport inhibition, we have begun an investigation of the synthesis of modafinil. On route to modafinil, analog forms of the drug have been synthesized, purified, and tested for inhibitory activity. The first analog form contained a methyl ester in place of the amide functionality found in modafinil, and the second analog contained a modified amide bearing an isopropyl group. Both modafinil analogs were active inhibitors of the dopamine transporter. In particular, the analog containing the methyl ester functionality had a higher efficacy for inhibition than the intermediate containing the isopropyl amide. The synthesis of modafinil analogs and data supporting a proposed mechanism of inhibition of the dopamine transporter will be presented.

Alexandra Skibbie, Senior English Major
Olivia Traczyk, Senior English Major
Deirdre Egan, Assistant Professor of English and
Director of American Studies

TRANSFORMATIVE SERVICE LEARNING: AIDS DISCOURSE IN THE CLASSROOM AND COMMUNITY

We want to present how we have worked to link our academic endeavors with our service experiences at SNC. Last fall, we conducted an independent study focused on the Literary and Artistic Responses to AIDS/HIV in America, which asked the overall question of how art can respond to loss. As an offspring of our independent study, we also collaborated with the T.R.I.P.S. program to create a new service trip to San Francisco over Spring Break that focused on AIDS/HIV. From there, we had a new vision to apply our studies of artistic and literary responses about the issue as an educational program for our service trip. At each weekly meeting we brought in art, texts, and professors (Egan, Rupsch, Neilson), who helped educate our members by means of looking at different analyses of the arts. Finally, on the trip we used the arts to respond to the service work we were involved in, and created our own artistic reflections. This is an innovative way to explore artistic responses, as well as combine the value of classroom learning with the T.R.I.P.S. program to create transformative service learning experiences for students on this campus.

Steve Gale, Junior Biology Major
Anindo Choudhury, Associate Academic Dean &
 Associate Professor of Biology and Environmental
 Science

**COMPARISON NA SEQUENCES BETWEEN
 EUROPEAN AND NORTH AMERICAN
 ISOLATES OF THE INVASIVE EUROPEAN
 SNAIL *BITHYNIA TENTACULATA***

Partial sequences from the 18S rRNA, 12S rRNA, and
 Cytochrome *c* oxidase subunit 1 genes were used to characterize
 populations of the invasive European snail *Bithynia tentaculata*.
 DNA was extracted, amplified, purified, and sequenced to
 genetically compare isolates of this snail species. The data
 demonstrate some genetic differences between the geographically
 isolated populations, highlighted by small differences in the 12S
 sequences, larger differences in the COI genes, and the greatest
 difference in the 18S rRNA gene sequences. These data are being
 used to monitor how this invasive species has changed since its
 introduction into Eastern North America.

Caitlin Whitney, Senior Business Administration Major
Matthew Stollak, Assistant Professor of Business
 Administration

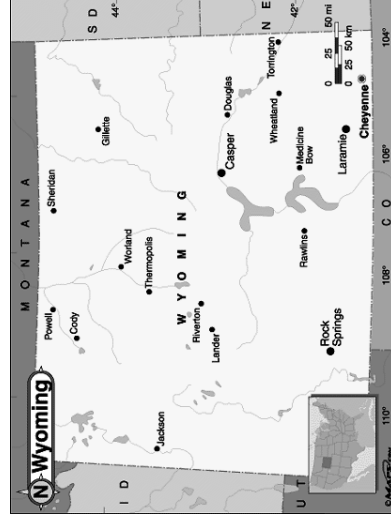
**EXAMINING EMPLOYER AND APPLICANT
 EXPECTATIONS OF THE RECRUITING
 PROCESS IN NORTHEAST WISCONSIN**

Northeastern Wisconsin has experienced a “brain drain” of
 college graduates leaving the state. In 2006, the Green Bay Area
 SHRM chapter members recognized a perceived disconnect
 between the wages, hours, and terms and conditions of
 employment offered to recently graduated college students and
 the expectations of students taking their first job. Further,
 members recognized differences between their evaluation of
 recent graduate’s competencies and the graduates own perception
 of skill level. Were these contributing factors to the brain drain?
 This project attempted to explore differences in expectations
 between applicant and employers regarding the recruiting process
 and applicant competencies.

Kim Keil, Sophomore Biology Major
Deborah Anderson, Associate Professor of Biology

EVOLUTIONARY CHANGES IN *THISBEMYS* (RODENTIA; ISCHYROMYIDAE) RECOVERED FROM THE BRIDGER FORMATION, GREEN RIVER BASIN, WYOMING

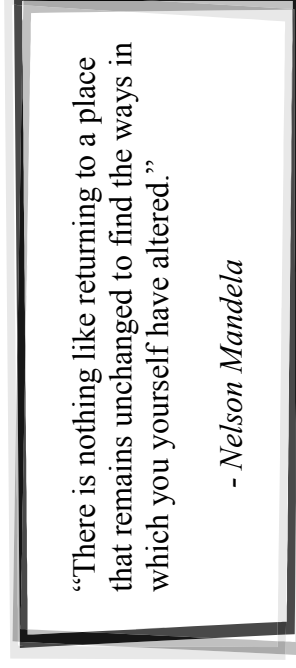
Due to abundance, morphology, and a short geologic range, *Thisbemys* has the potential to be a useful biochronologic zone fossil for the Bridgerian NALMA. Molars have well-developed crenulations; incisors are triangular in shape, unique among the Ischyromyidae. Original classification of several species of *Thisbemys* based on their different stratigraphic locations within the Bridger Formation has led to confusion about the alpha taxonomy. A quantitative and qualitative analysis of *Thisbemys* specimens recovered from the Bridger Formation of Wyoming was completed. Results of the study include a taxonomic revision of *Thisbemys* and evidence of a gradual increase in size during the Bridgerian.



Cristina Burrill, Senior Sociology and Spanish Major
Nancy Mathias, Associate Director of Leadership and Service

EFFECTS OF COLLEGE STUDENT LEADERSHIP PROGRAMS ON STUDENT DEVELOPMENT

The purpose of this study was to determine the effects of college student leadership programs on student development of the values outlined by the social change model of leadership. Differences in development of these values based on gender were also tested. Finally, the effects of leadership programs on student involvement in organizations and leadership positions held within those organizations were also studied.



Molly Gill, Senior Biology Major
Yukiyasu Yamada, Senior Biology Major
David Hunnicutt, Assistant Professor of Biology

***FLAVOBACTERIUM COLUMNARE* AND INFECTION OF ZEBRA FISH (*DANIO RERIO*)**

Flavobacterium columnare is the causative agent of Columnaris Disease (CD), a serious problem in aquaculture, fish hatcheries, and wild fish populations. The zebra fish (*Danio rerio*), a common model of vertebrate development, has been adapted as a model system to study this disease. Several strains of *F. columnare* are being evaluated to determine relative pathogenicity in this model. Mutant bacterial strains which lack motility may be less pathogenic. Additionally, a plasmid carrying the gene for green fluorescent protein (Gfp) is being used to detect the bacteria and track infection in tissues.



Kassie Lang, Sophomore Biology and Environmental Science Major
David Poister, Associate Professor of Chemistry and Environmental Science

EFFECTS OF ENVIRONMENTAL VARIABLES ON THE COLONY SIZE AND CONCENTRATION OF *AULACOSEIRA* IN THE GREEN BAY SYSTEM

In order to determine what factors influence colony size and concentration of the diatom *Aulacoseira*, water samples from Green Bay and the adjoining Fox River were collected and analyzed in 2005 and 2007. Distinct differences in colony size were observed between water samples collected weekly at the two locations. These differences appeared to be related to changes in phytoplankton abundance as measured by chlorophyll-a concentration. Experiments were conducted to investigate the mechanism by which the presence of other phytoplankton influences *Aulacoseira* colony size. Results indicate that differences in the chemical composition of the water in Green Bay and the Fox River are the likely cause of the colony size differences. Although the chemical differences at the two sites are likely created by differing amounts of primary production and clearly influence *Aulacoseira* abundance, factors such as nutrient depletion do not appear to influence *Aulacoseira* colony size.

3:30-4:00
4:00-4:30

Shield Room
Shield Room

3:00-3:30

Lounge

Poster

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Jenny Paul, Senior English Major
Katie Pierre, Senior English Major
Richard Scott, Senior English Major
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**A SIMPLIFIED METHOD FOR THE
MEASUREMENT OF PROLINE IN
STRESSED TISSUES**

Higher plants produce the amino acid proline in the response to dehydration. A commonly used spectrophotometric technique for the measurement of free proline in plant tissues (Bates et. al, 1973) was modified to simplify the protocol and utilize smaller amounts of tissue. The utility of the technique was confirmed by the detection of elevated proline levels in osmotically-stressed *Arabidopsis thaliana* tissues and then used on intact and in vitro derived *Ceratopteris richardii* tissues. These tissues were subjected to osmotic stress by a 24 hr exposure to 0.6 M sorbitol, with no significant rise in proline levels being observed.

3:00-3:30
3:30-4:00

Lounge
Lounge

Exhibit
Exhibit

Room 201BC

Oral Presentation

Luis Altamirano, Senior Physics Major
Alicia Brinkman, Sophomore Mathematics Major and
Secondary Education Certification
Matthew Captaine, Senior Physics and Mathematics Major
Brandon Clemens, Junior Physics and Mathematics Major
John Cremer, Junior Business Administration and
Mathematics Major
Kate Kaminski, Junior Business Administration and
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Kathleen Miller, Sophomore Mathematics Major
Ryan Pavlik, Senior Computer Science and
Mathematics Major
Justin Pierce, Sophomore Computer Science and
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3:30-4:00

Samantha Goeben, Sophomore Elementary Education
Major and Mathematics Minor
Yoko Mogi-Hein, Adjunct Assistant Professor of
Education and Human Relations Coordinator of
Teacher Education Discipline

TEACHING MATH WITH POKÉMON

Teaching Math with Pokémon is a two-year qualitative study on an alternative instructional strategy for teaching elementary math. The project, supported by the St. Norbert Research Fellows Program, reports on data analysis to evaluate the idea of incorporating Pokémon and a mix of animated adventure characters in teaching math for students in 3rd through 6th grade. Using Pokémon Learning League, a web-based educational multimedia, we studied the effectiveness of this alternative educational method of instruction with 1) one-on-one guided study/tutorial and 2) large-group lessons with multiple-grade students. We will present some results that will help parents, teachers, and administrators find the unique, alternative instructional strategies in using Pokémon as a math tool.