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# Undergraduate Research Forum 2014

St. Norbert College

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# **UNDERGRADUATE RESEARCH FORUM**



**TUESDAY, APRIL 1, 2014**  
1:00-4:00 PM, MULVA LIBRARY

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## **RECEPTION FOLLOWING**



**HENDRICKSON DINING ROOM**  
4:00-5:30 PM



SPONSORED BY  
THE COLLABORATIVE: CENTER FOR  
UNDERGRADUATE RESEARCH

**The Undergraduate Research Forum highlights the valued tradition at St. Norbert College of collaboration taking place in laboratories, studios, and other scholarly or creative settings between our students and our faculty and staff, resulting in a rich array of scholarly research and creative work.**

**This celebration features collaborative projects that evolved out of independent studies, class assignments, and casual interactions as well as formal collaborations supported by internal grant funding.**

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**The Afferent Connectivity of the Substance P Reactive Nucleus (SPf) in the Zebra Finch is Sexually Monomorphic**

*Hannah Andrekus, Senior Biology Major*

*Kevin Beine, Senior Biology Major*

*David Bailey, Associate Professor of Biology*

The lateral boundary of the hippocampus in birds, a band of cells named SPf (due to high levels of the neuropeptide substance P), may be a homolog of the mammalian entorhinal cortex, the primary hippocampal input. Little is known about the regions that communicate with SPf. Prior studies in our lab revealed that, in male zebra finches, SPf receives input from cells within a number of visual, auditory, and spatial memory-forming regions. We have extended this work to female birds using the retrograde tracer Dil and fluorescence microscopy, which have revealed the connections of this region to be sexually monomorphic.

**Women and Leadership: Leadership Study Year 3**

*Mara Aparnieks, Junior Elementary/Middle Childhood Education Major*

*Corday Goddard, Associate Dean of Student Development*

The project focuses on the factors that lead to women having a lower perception of their own individual leadership and confidence, relating to a previous study done by CIRCLE: The Center for Information and Research on Civic Learning and Engagement. In an article entitled, "Civic Engagement and Political Leadership among Women," CIRCLE discusses trends, in which as women gain more leadership, they often perceive themselves with less ability than men of the same genre. Through interviews and surveys, we asked women on the St. Norbert Campus their views on these findings, searching for possible solutions we can implement on campus.

**The Afferent Connectivity of the Substance P Reactive Nucleus (SPf) in the Zebra Finch is Sexually Monomorphic**

*Kevin Beine, Senior Biology Major*

See entry under *Hannah Andrekus* above

## **Flavobacterium columnare infections in yellow perch (*Perca flavescens*)**

*Nicole Beine, Sophomore Biology Major*

*Connor Gulstrand, Freshman Biochemistry Major*

*Jon Powers, Senior Biology Major*

*David Hunnicutt, Associate Professor of Biology*

Flavobacterium columnare is a gram negative bacterium that causes columnaris disease in fish. Columnaris disease is an infection of the epithelium, gills and other tissues that causes morbidity and mortality in many species of fish. Our current work looks at the effects of *F. columnare* on yellow perch (*Perca flavescens*), an ecologically and economically important species in Wisconsin. Our data show that *F. columnare* causes infection in perch; experimentally infected fish show higher mortality than uninfected controls. Current work seeks to expand these findings and to develop a fluorescent strain of *F. columnare* to facilitate immunohistochemistry studies of infected fish.

## **The Relationship Between 150-credit hours, accounting credit hours, and CPA Pass Rates**

*Ariel Bloniarz, Senior Accounting Major*

*Amy Diestler, Senior Accounting Major*

*Jason Haen, Instructor of Accounting*

*Amy Vandenberg, Assistant Professor of Business Administration*

One of the most significant changes to the accounting profession in the last 20 years has been legislation requiring 150 college credits to become a Certified Public Accountant (CPA). The law has not been adopted uniformly across all jurisdictions. Some jurisdictions require the additional credits beyond a bachelor's degree prior to sitting for the exam, while other jurisdictions require the additional credits only for licensure. The number and type of required accounting credits is also inconsistent between jurisdictions. For example, required accounting credits vary from a minimum of 12 accounting credits in New Hampshire to a minimum of 38 accounting credits in Puerto Rico. While previous research has studied the 150-hour requirement's effect on CPA Exam pass rates, this study expands on this literature by controlling for the

amount of accounting credits required by a jurisdiction. Specifically this study seeks to discover if there is a relationship between CPA Exam pass rates and the number of required accounting credits and if this relationship (if one is found) is consistent between jurisdictions that require 150 credits to sit for the exam and those that require the 150 credits only for licensure.

### **The Passage of Art**

*Jesse Borlen, Senior History and Art History Major*

*Shan Bryan-Hanson, Curator of Art Galleries and Collections*

The importance of movement throughout art history is crucial to understanding its complexities. In this curatorial project, the theme of movement is examined in two capacities, the movement of time and the movement of people, objects, and ideas, using three works of art from the St. Norbert College Art Collection. The style and technique of the works were analyzed, as well as thorough research of the provenance and artists. An exhibition was designed around this information and was installed in the Permanent Collection Gallery in the Bush Art Center from December 3, 2013 to March 14, 2014. A catalogue, which includes the extent of the research, was also produced.

### **Temporal changes in cannibalism of largemouth bass in a north temperate lake.**

*Collin Dassow, Sophomore Biology Major*

*James Hodgson, Professor Emeritus of Biology*

Much has been published on the diet and foraging behavior of largemouth bass (LMB), *Micropterus salmoides*. Here we report on cannibalism of 5098 adult (total length >150mm) LMB over three decades from a small, north temperate lake in Michigan's Upper Peninsula. LMB dominated the fish community comprising >95% of the fish biomass. To assess interannual fluctuations in cannibalism we used an annual composite Index of Relative Importance, IRI, (based on  $\Sigma$  of % number, % mass and frequency of occurrence of each diet category). Because of high conspecific LMB density relative to prey abundance, LMB in Paul Lake are foraging generalists including cannibalistic

foraging behavior. In order to more fully understand why cannibalism persists in this population we analyzed temporal fluctuations in the behavior over 30 years. We report that the intensity of cannibalism was greatest during the period just after mid-May spawning and extends into mid-June in respective years.

### **The Relationship Between 150-credit hours, accounting credit hours, and CPA Pass Rates**

*Amy Diestler, Senior Accounting Major*

See entry under *Ariel Bloniarz* above

### **Misattribution of Attraction and Arousal: The Role of Gender**

*Josephine Dobson Mann, Senior Psychology Major*

*Elizabeth Ziemer, Junior Psychology Major*

*Sarah Jones, Visiting Assistant Professor of Psychology*

This study investigates the misattribution of arousal. We predicted that high anxiety would increase attraction, and that males would differ from females. We used two videos to induce anxiety. Images and a Thematic Apperception Test were used to measure attraction. Although the high anxiety condition was effective in inducing self-reported arousal, we found no significant effect of gender or anxiety condition on attraction. Future research is needed to determine if nonsignificant results were due to the use of projected images rather than real experiences, or if these results are due to a predominantly female sample, indicating a gender difference.

### **How social media is influencing the job search process**

*Nathan Felhofer, Senior Accounting Major*

*Matthew Stollak, Associate Professor of Business Administration*

Over the past eight years, social networking has grown into a major aspect of everyday life, especially among college students and recent graduates. This online interaction has led to disciplinary action, lost jobs, and an ever-thinning line between work and private life. Two years ago, a study was done to examine the impact that social networking has on the workforce and employers. With the rapid advancement of technology



and its capabilities, two years has brought forth a lot of change in social media. We performed a follow up study to test this change.

### **Genuine 'Manic' Depression? A Content Analysis of Depression Stigma in the New York Times between 1991 and 2012**

*Emily Gear, Senior Sociology Major*

*Hyang-Sook Kim, Assistant Professor of Communication and Media Studies*

A content analysis of the New York Times published between January 1991 and December 2012 (N = 300) revealed that references to depression in news stories have steadily increased over time. The sections that focused on crime and opinion pieces, mainly in art, culture, and weekly-desk sections resulted in more stigma than those that presented health expertise and scientific objectiveness concerning the disease. The findings suggest that news media has not only reflected public health interest but has also intensified emotional arousal through negative depiction of depression in order to serve commodity nature of news as a media product.

### **Who, When, and How Many? A Demographic Analysis of Student Evaluations**

*Leon Gilman, Junior Sociology Major*

*Jamie Lynch, Assistant Professor of Sociology*

Student evaluations of teaching are one of many tools used by administrators and personnel committees to evaluate teaching; however, student evaluations may be biased by low response rates and social differences between students who complete or do not complete evaluations. Using a one-semester sample of courses, this study describes and analyzes the evaluation of non-responses across a variety of social factors. Results suggest only 56% of all student evaluations are completed, and females complete two-thirds of student evaluations. Overall, student evaluations capture the opinions of a select group of students and are unlikely to reflect average student opinion.

**Flavobacterium columnare infections in yellow perch (*Perca flavescens*)**

*Connor Gulstrand, Freshman Biochemistry Major*

See entry under *Nicole Beine* above

**Description of a new *Hysterothylacium* species, *H. arcticum*, from 3-spined Stickleback, *Gasterosteus aculeatus* (Linnaeus) (*Gasterosteidae*), in Benka Lake, Alaska**

*Timothy Hartwick, Senior Organismal Biology Major*

*Anindo Choudhury, Professor of Biology*

A new anisakid nematode, *Hysterothylacium arcticum* n. sp., is described from the intestine of the 3-spined stickleback *Gasterosteus aculeatus* from Benka Lake, Alaska. It differs from congeneric species found from both freshwater and marine fish species of North America in possessing lateral alae 1/3-1/4 the diameter of the body width. The novel species also is characterized by unique interlabia and spicule length, which distinguishes it from the species it is most similar to, *H. brachyurum*.

**Optimizing Parametric Four-Wave Mixing in Rubidium**

*Emily Herman, Sophomore Physics and Voice Performance Major*

*Erik Brekke, Assistant Professor of Physics*

A simple system for parametric four-wave mixing uses a high power cw 778 nm laser beam focused through a heated rubidium cell. This gives a novel means of creating coherent emission at 420 nm and 5.4  $\mu\text{m}$ . The efficiency is limited by absorption of the 420 nm beam, which has been observed as a function of cell position and temperature. Optical pumping was investigated as a possibility for increased output powers, but radiation trapping limits the effectiveness at high atomic densities. Several methods for increasing the effectiveness of the process are currently underway.

**Jungian Shadows, the Animus, and Personas: Repressed Desires in Kate Chopin's "The Story of an Hour."**

*Collin Herzog, English and Communications Major*

*Laurie MacDiarmid, Professor of English*

Most people assume that Kate Chopin's short story "Story of an Hour" is a feminist text and it is, just not in the way most think. The reason that Mrs. Mallard dies, I have discovered through research and analysis of the story, is that society would not allow her to adequately develop both the masculine and feminine sides of her personality and it was her husband's death that allowed her to become whole.

### **Git-R-Done: Larry The Cable Guy's Attitudes Toward Women's Bodies**

*Willow Hombsch, Senior Communication and Media Studies Major*

*Mark Glantz, Assistant Professor of Communication and Media Studies*

Larry The Cable Guy's stand up comedy performances frequently reference women in a negative way, specifically their bodies. This project critically analyzes his depiction and disparagement of women's bodies in his multiple media appearances. Ultimately, this presentation will detail how Larry The Cable Guy's discourse objectifies women and portrays their bodies as grotesque.

### **Novel secondary metabolites are being discovered from Endophytes to be used as an antibiotic**

*Amber Kelley, Junior Biochemistry Major*

*Katie Garber, Assistant Professor of Chemistry*

A major problem in 21st century medicine is that bacteria are becoming resistant to antibiotic drugs, prompting a need for the development of new antibiotics. We are testing endophytes, bacteria and fungi that share a relationship with plants, because they are known to produce bioactive secondary metabolites. Natural products that are produced by the endophytes can be extracted from a large-scale culture to be tested for bactericidal activity against an E.coli strain. The significance of these results is that these organisms could produce compounds that could be used to develop new antibiotic drugs that bacteria are not yet resistant to.

## **Difference in Diet Contents Among Sunfish Species Reveals Habitat Partitioning Within Dream Lake, Hobart, WI**

*Kristin Kniech, Senior Biology Major*

*Carrie Kissman, Assistant Professor of Biology*

Niche partitioning between sunfish species occurs in Dream Lake. It was hypothesized that macroinvertebrate samples collected near the shoreline would be similar to diets of pumpkinseed/hybrid sunfish, while macroinvertebrates sampled from the deep area would be similar to bluegill sunfish diets. Fish species were collected biweekly and macroinvertebrate samples weekly. Samples were identified to a genus level, and a diet electivity index was performed to observe diet preferences. Macroinvertebrates species diversity was largest within the weeds. Diet electivity index revealed pumpkinseeds/hybrids selected for macroinvertebrates in the deep, while bluegill sunfish predated upon macroinvertebrates within both weeds and sand.

## **Tropical Ecology Research: Panama 2014**

*Katie LaPlante, Junior Biology and Environmental Science Major*

*Carrie Kissman, Assistant Professor of Biology*

During J-term, students from UW-Green and Bay St. Norbert College traveled to Panama for a Tropical Ecology research course. We examined and collected arachnid samples using a Rapid Assessment Protocol (RAP). Sample sites were established in various regions within the Bocas Del Toro, El Cope, and Gamboa regions of Panama. Samples were collected in order to measure and compare diversity among various regions. The Rapid Assessment Protocol provides consistent sampling methods in which samples can be accurately compared.

## **On the Atomisticity of Supercharacter Theory Lattices of Cyclic Groups**

*Alex Leitheiser, Senior Mathematics Major*

*Anders Hendrickson, Assistant Professor of Mathematics*

The set  $\text{Sup}(\text{C}_n)$  of supercharacter theories of a finite cyclic group  $\text{C}_n$  forms a lattice, whose properties depend on  $n$ . Necessary and sufficient conditions on  $n$  are already known for upper semimodularity, lower

semimodularity, and coatomisticity of  $\text{Sup}(\text{Cn})$ , but not yet for atomisticity. We present results leading towards the complete characterization of atomistic supercharacter theory lattices of cyclic groups.

### **The Effect of Auditory Condition on Word Recognition and False Memory Occurrence**

*Meghan Lockery, Junior Psychology Major*

*Alexandra Martin, Senior Psychology Major*

*Paul Ngo, Associate Professor of Psychology*

Recognition rate of previously studied terms is thought to decrease with the presence of a distracter variable. In this study we examined the effects of preferred music, non-preferred music, and quiet on the rate of recognition. We also studied the rate of false memory occurrence, that is, how auditory conditions affected the rate at which words not previously studied were indicated as being present during the recognition task. The results reveal that gender appears to play a role in the difference in recognition rate by auditory conditions, and frequency of false memories is enhanced by consistent exposure to preferred music.

### **VGLUT2 and caspase mRNA in the hippocampus of corticosterone-treated adult female zebra finches**

*Yekaterina Makeyeva, Senior Biology Major*

*Natasha Thern, Senior Biology Major*

*David Bailey, Associate Professor of Biology*

Stress hormones, like the glucocorticoid corticosterone, have detrimental effects on memory in the long-term but are beneficial in the short-term; both phenomena are due to modifications in glutamatergic neurotransmission. Glutamate, an excitatory neurotransmitter in the vertebrate central nervous system, is shuttled into synaptic vesicles prior to release by vesicular glutamate transporter (VGLUT) proteins. Overactivity of the glutamatergic system results in increases in calcium levels that precede cell death. We examined the effects of short-term (72 hr) glucocorticoid treatment in female zebra finches on levels of VGLUT2

and caspase mRNA to examine induced changes in neuronal activity and/or signs of apoptosis.

**Are student evaluations of teaching a measure of non-cognitive skills? The link between student opinion of teaching and academic achievement.**

*Alexandra Martin, Senior Psychology Major*

*Jamie Lynch, Assistant Professor of Sociology*

Do non-cognitive skills affect educational success? Non-cognitive skills refer to characteristics unique to an individual that are not cognitive in nature but are instead social qualities such as persistence, determination, and engagement. In this study, we test the role of non-cognitive skills in explaining the education–achievement gradient using a variety of measures derived from student evaluations of teaching (SOOTs). Results suggest that students who fail to complete SOOTs have significantly lower term GPAs relative to completers, male students are half as likely to be completers, and 15% of the GPA gap can be attributed to gender differences in completion.

**The Effect of Auditory Condition on Word Recognition and False Memory Occurrence**

*Alexandra Martin, Senior Psychology Major*

See entry under *Meghan Lockery* above

**Early Modern Manipulation: The Artifice of Language and Sexuality in *La Celestina* and *La dama boba***

*Amanda Miles, Senior Spanish and Communications Major*

*Brad Ellis, Assistant Professor of Modern Languages and Literatures*

As a continuation of a special topics Spanish course “Sex, Sorcery, and Subversion: Challenging Authority in Early Modern Spain,” taken with Dr. Ellis, this extension of research focuses on how the female protagonists of Fernando de Rojas’s *La Celestina* (1499) and Lope de Vega’s *La dama boba* (1613) discretely manipulate men and find power amidst the male dominated society and social code that historically controlled women’s behavior. This research provides an original and unique

approach to the analysis of women and patriarchy in early modern Spain because it combines the two works and focuses on female subversion.

## **SNC Faculty and Staff Commuting Carbon Footprint Analysis using GIS**

*Philip Ohlinger, Senior Environmental Science Major*

*Nelson Ham, Professor of Geology and Environmental Science*

A carbon footprint analysis is a useful method to measure the ecological impact of an institution. Part of this calculation includes all of the energy that is used to transport individuals to and from the campus. St. Norbert College employs more than 500 full time faculty and staff who make a regular daily commute. Using Geographic Information Systems (GIS) techniques, it is possible to calculate the total miles driven by these commuters each day, and in turn calculate the carbon emissions produced by these driving miles.

## **St. Norbert Campus Basemap: An Application of GIS**

*Philip Ohlinger, Senior Environmental Science Major*

*Nelson Ham, Professor of Geology and Environmental Science*

Spatial analysis and Geographic Information Systems (GIS) concepts can be applied to a variety of fields and problems. Often when working with spatial data, it is important to have a "backdrop" or "reference layer" upon which to build other data layers, making this data more accessible and more effective. This is termed a basemap. Using ESRI's campus basemap template in ArcMap, and a combination of existing data and new digitization, I have created a basemap of the St. Norbert College campus. This detailed and accurate representation of the campus could serve as a reference layer for future applications.

## **The Dreyfus Affair and its Impact on French Society**

*Roberta Parent, Senior International Business and Language Area Studies and French Major*

*Thomas Conner, Professor of Modern Languages and Literature*

This project began two years ago when I served as Dr. Conner's research assistant and helped him with his latest book studying the

Dreyfus Affair. I became interested in the subject and pursued a senior class independent study with Dr. Conner in which I researched the larger subject of committed literature, gave presentations, and wrote two ten-page research papers on topics including: The Dreyfus Affair, its impact on French society, the impact of the press, and present thoughts/feelings in France on the Affair and the "Pantheonization" of Alfred Dreyfus. In my poster presentation I will cover the complex history of the Affair and its impact on the evolution of French society.

### **Flavobacterium columnare infections in yellow perch (*Perca flavescens*)**

*Jon Powers, Senior Biology Major*

See entry under *Nicole Beine* above

### **Examination of astrocytic activity-regulated cytoskeletal-associated protein in regions of the zebra finch brain central to song memory formation**

*Katelyn Richards, Senior Biology Major*

*David Bailey, Associate Professor of Biology*

The activity-regulated cytoskeletal-associated (ARC) protein is produced in neurons as a result of increases in synaptic activity. We have found that ARC expression in nervous tissue (neurons and glial cells) in a particular region of the zebra finch brain varies depending on exposure or re-exposure to auditory and/or non-auditory stimuli. Recent studies have indicated that a particular glial cell, the astrocyte, plays a critical role in synaptic maintenance, and itself expresses ARC in parallel with neurons. We are quantifying ARC-expressing astrocytes in regions central to song memory formation to further determine the roles of these cells in synaptic remodeling.

### **The Horror of the Inexpressible: Misophonia in Poe**

*Emma Riehl, Senior English Major*

*Laurie MacDiarmid, Professor of English*

I use Jacques Lacan and Julia Kristeva's theories to illuminate the unspeakable horror in Poe's "The Fall of the House of Usher;" the



psychological case-study of Usher argues that he suffers from Misophonia, a sensory disorder recently identified by psychiatrists. Building on my argument in an article-length essay, I use evidence from Poe's personal letters, biographies, and critical accounts to suggest that he himself suffered from Misophonia, and return to the use of critical theory to suggest that, even now, a name for the disorder does not alleviate an individual's suffering. My reading provides insight into Usher's mind, our understanding of mental illness, and, most importantly, the workings of the psyche--particularly its flaws, and their devastating symptoms.

### **Effects of Affordable Housing on Homelessness Across America**

*Rachael Schubarth, Sophomore Business Administration Major*

*Marc Schaffer, Assistant Professor of Economics*

The purpose of this paper is to investigate the impact of affordable housing on homelessness in the U.S. Given the recent turmoil in the housing market related to subprime mortgages and low-income borrowers, we examine how changes in the availability of affordable housing can affect the homeless population. The U.S. Department of Housing and Urban Development (HUD) defines affordable housing as the situation when the owners of the household do not pay more than thirty percent of their annual income for housing. Using regression analysis and HUD data, we examine how changes in the availability of affordable housing impact the size of the homeless population, following HUD's definition (including being literally homeless, imminent risk of homelessness, homeless under other Federal statutes, and fleeing/attempting to flee domestic violence). From a theoretical standpoint, we believe that increases in the availability of affordable housing should lead to a decrease in the amount of homelessness. In the final analysis, we intend to quantify the relationship between availability of affordable housing and homelessness across various cities.

## **A Short Story about Gender Disparities at St. Norbert College's Commencement Ceremony**

*Anne Schuessler, Senior History Major*

*Jamie Lynch, Assistant Professor of Sociology*

Since 2010, 72 men have spoken/presented at St. Norbert College's Annual Commencement Ceremony. In the past 18 years, only 71 women have represented our faculty and staff on the stage during Commencement. Using Commencement from 1995-2013, this study examines gender disparities at our Commencement ceremony in two ways. First, we use archival data to reveal large and persistent disparities in the percentages of female and male faculty members who have a role in the Commencement. Second, we strive to tell the story of the first female faculty member to present at Commencement.

## **Observation of Laser Feedback using a Grating Spectrometer**

*Matthew Schulz, Junior Physics and Math Major*

*Erik Brekke, Assistant Professor of Physics*

The common, inexpensive diode laser has an endless number of uses, but, despite their relative ease to make, they have a few drawbacks such as emitting a spectrum of wavelengths rather than a single wavelength. The experiment presented here provides the opportunity to witness the phenomenon of laser feedback and allows the study of not only the mode spacing of a diode laser but also the frequency control provided by feedback. This can be done by using a grating spectrometer to separate the wavelengths. Depending on the diode used, either the mode spacing or the feedback is more readily observed.

## **New Fish from the Cretaceous Tropic Shale in Utah: *Pachyrhizodus leptopsis***

*Allison Shackelton, Senior Geology Major*

*Rebecca McKean, Assistant Professor of Geology*

*Pachyrhizodus leptopsis* was a fish that lived in the Western Interior Seaway during the late Cretaceous Period (about 90 million years ago). The specimen described here was found in the Tropic Shale in Utah, on the western side of the seaway. Before this, members of the genus had

only been found on the eastern side. This specimen includes part of the back of the skull, the right maxilla, the left and right dentaries, teeth, a vertebra and assorted fragments. Among its diagnostic features, the most noticeable are carinae on the teeth and the pleurodont dentition.

### **CHAMPS: Analyzing Corrective Data**

*Katherine Spude, Senior Early Childhood Education Major*

*Christopher Meidl, Assistant Professor of Education*

Contemporary approaches to classroom management in the past 20 years have seen classroom management emphasize systems of managing the multiple facets of classroom dynamics. This qualitative research uses a case study format to look at how teachers at a local K-8 school apply CHAMPS as a classroom management system.

Participants included 25 teachers from kindergarten through 8th grade. Data collected as part of peer and administrative led observations and self-reports of the teachers led to several conceptual categories: types of targeted behavior, language of behavior, impact of time, and perceptions of improvement.

### **VGLUT2 and caspase mRNA in the hippocampus of corticosterone-treated adult female zebra finches**

*Natasha Thern, Senior Biology Major*

See entry under *Yekaterina Makeyeva* above

### **Stimulatory Allelopathy of *Aulacosiera Granulata* by *Gloeocystis planctonica* at pH's of 7 and 9**

*Mike Van Blarcom, Senior Environmental Science Major*

*David Poister, Associate Professor of Chemistry and Environmental Science*

The purpose of this project is to further understand the allelopathic relationship between *Aulacosiera Granulata* and *Gloeocystis planctonica*. Specifically, the project was designed to display the allelopathic stimulation of dormant diatom cells by the algae at a pH of 7 and a pH of 9. The purpose of the varying pH is to convey this relationship in differing aquatic conditions, as the pH of a river varies throughout seasons.

Allelopathic stimulation of phytoplankton has been rarely observed in freshwater environments, so further research on this relationship will aid in describing and understanding phytoplankton succession in the Fox River.

### **Theatre Workshop - 10 minute scenes**

*Erich Wegenke, Sophomore English and Creative Writing Major*

*Clara Wendland, Junior Theatre Studies Major*

*April Beiswenger, Assistant Professor of Theatre Studies*

Theatre Workshop - 10 minute scenes is a staged reading of two scenes written by Clara Wendland and Erich Wegenke. They will be performed by their fellow students.

### **Theatre Workshop - 10 minute scenes**

*Clara Wendland, Junior Theatre Studies Major*

See entry under *Erich Wegenke* above

### **One For the Road/Far Away Design**

*Clara Wendland, Junior Theatre Studies Major*

*April Beiswenger, Assistant Professor of Theatre Studies*

This project explains the creation of the visual design elements of Theatre Studies' upcoming productions of *One for the Road* and *Far Away*. Clara Wendland has designed the lights for these two shows. Displayed will be the paperwork from her lighting design, as well as the scenic model created by April Beiswenger, and a series of hats created by production student members.

### **Misattribution of Attraction and Arousal: The Role of Gender**

*Elizabeth Ziemer, Junior Psychology Major*

See entry under *Josephine Dobson Mann* above

Following the Undergraduate Research Forum, the Collaborative, Center for Undergraduate Research and the Office of Advancement in conjunction with the Cassandra Voss Center and the Killeen Chair of Theology and Philosophy will host a reception with a talk by Dr. George Yancy.



George Yancy is Professor of Philosophy at Duquesne University. His work is located primarily in the areas of critical philosophy of race, critical whiteness studies, and philosophy and the Black experience. He has authored, edited or co-edited seventeen books, and has published numerous academic articles, and book chapters. His first authored book, *Black Bodies, White Gazes: The Continuing Significance of Race*, received an Honorable Mention from the Gustavus Myers Center for the Study of Bigotry and Human Rights and three of his edited books have received *CHOICE* Outstanding Academic Book Awards. He is Philosophy of Race Book Series Editor at Lexington Books. He is co-Editor of the *American Philosophical Association Newsletter on Philosophy and the Black Experience*, and is an ex officio member of the American Philosophical Association Committee on Blacks in Philosophy. He has twice won the Duquesne University McNulty College and Graduate School of Liberal Arts Faculty Award for Excellence in Scholarship. He is currently working on three edited books and a new authored book.

## **Acknowledgments**

**The Undergraduate Research Forum relied on the support of a number of people across campus in planning and executing this event:**

**Office of Advancement**

**Copy Center, especially Lacey Scheunemann**

**Haley Vraney (14') who designed all signs and this program**

**Conference and Event Services**

**The Mulva Library, particularly Kristin Vogel, Candy Klos, and Kim Boldt who truly went above and beyond to make the event successful**

**Information Technology Services, especially Scott Crevier and Amy Roffers**

**Editorial Interns Nora Eckert ('17) and Dani Perszyk ('17)**

**All participating students, staff, and faculty**

**Thank you from the Collaborative, Center for Undergraduate Research**

**Chair: John Pennington**

**Members**

**Anders Hendrickson**

**Blake Henson**

**Terry Jo Leiterman**

**Laurie MacDiarmid**

**Tynisha Meidl**

**Sarah Ryan**



## Posters\*

### 1:00-1:30

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*Nathan Felhofer*- How social media is influencing the job search process (12)

*Matthew Schulz*- Observation of Laser Feedback using a Grating Spectrometer (18)

### 1:30-2:00

*Tim Hartwick*- Description of a new Hysterothylacium species, *H. arcticum*, from 3-spined Stickleback, *Gasterosteus aculeatus* (Linnaeus) (Gasterosteidae), in Benka Lake, Alaska (20)

*Anne Schuessler*- A Short Story about Gender Disparities at St. Norbert College's Commencement Ceremony (13)

*Allison Shackelton*- New Fish from the Cretaceous Tropic Shale in Utah: *Pachyrhizodus leptopsis* (19)

### 2:00-2:30

*Colin Dassow*- Temporal changes in cannibalism of largemouth bass in a north temperate lake. (8)

*Philip Ohlinger*- SNC Faculty and Staff Commuting Carbon Footprint Analysis using GIS (21)

*Bobbie Parent*- The Dreyfus Affair and its Impact on French Society (7)

*Katelyn Richards*- Examination of astrocytic activity-regulated cytoskeletal-associated protein in regions of the zebra finch brain central to song memory formation (24)

### 2:30-3:00

*Kevin Beine*- The Afferent Connectivity of the Substance P Reactive Nucleus (SPf) in the Zebra Finch is Sexually Monomorphic (9)

*Jesse Borlen*- The Passage of Art (15)

*Emily Gear*- Genuine 'Manic' Depression? A Content Analysis of Depression Stigma in the New York Times between 1991 and 2012 (14)

*Alexandra Martin*- Are student evaluations of teaching a measure of non-cognitive skills? The link between student opinion of teaching and academic achievement. (25)

### 3:00-3:30

*Emily Herman*- Optimizing Parametric Four-Wave Mixing in Rubidium (10)

*Meghan Lockery/Alexandra Martin*- The Effect of Auditory Condition on Word Recognition and False Memory Occurrence (16)

*Katherine Spude*- CHAMPS: Analyzing Corrective Data (22)

### 3:30-4:00

*Mara Aparnieks*- Women and Leadership: Leadership Study Year 3 (11)

*Nicole Beine/Connor Gulstrand/ Jon Powers*- Flavobacterium columnare infections in yellow perch (*Perca flavescens*) (17)

*Josephine Dobson-Mann/ Elizabeth Ziemer*- Misattribution of Attraction and Arousal: The Role of Gender (15)

*Mike Van Blarcom*- Stimulatory Allelopathy of *Aulacosiera Granulata* by *Gloeocystis planctonica* at pH's of 7 and 9 (26)



## Oral Presentations

**1:00-2:00: moderator Dr. Marc Schaffer**

*Leon Gilman*- Who, When, and How Many? A Demographic Analysis of Student Evaluations (1)

*Rachael Schubarth*- Effects of Affordable Housing on Homelessness Across America (1)

**2:00-3:00: moderator Dr. Anders Hendrickson**

*Alex Leitheister*- On the Atomisticity of Supercharacter Theory Lattices of Cyclic Groups (1)

**3:00-4:00: moderator Dr. Laurie MacDiarmid**

*Colin Herzog*- Jungian Shadows, the Animus, and Personas: Repressed Desires in Kate Chopin's "The Story of an Hour." (1)

*Kristin Kniech*- Difference in Diet Contents Among Sunfish Species Reveals Habitat Partitioning Within Dream Lake, Hobart, WI (1)

*Emma Riehl*- The Horror of the Inexpressible: Misophonia in Poe (1)

## Performances/Exhibits

**3:00-3:30: Erich Wegenke/Clara Wendland**- 10 minute scenes (4)

**3:30-4:00: Clara Wendland**- One For the Road/Far Away Design (4)

## Presentations Utilizing Technology

### Digital Coffee Table

**1:00-4:00: Philip Ohlinger**- St. Norbert Campus Basemap: An Application of GIS (5)

### Media:Scape 2

**1:00-2:00: Willow Hombsch**- Git-R-Done: Larry The Cable Guy's Attitudes Toward Women's Bodies (2)

**2:00-3:00: Katie LaPlante**- Tropical Ecology Research: Panama 2014 (2)

**3:00-4:00: Amber Kelley**- Novel secondary metabolites are being discovered from Endophytes to be used as an antibiotic (2)

### Media: Scape 3

**1:00-2:00: Amanda Miles**- Early Modern Manipulation: The Artifice of Language and Sexuality in La Celestina and La dama boba (3)

**2:00-4:00: Katya Makeyeva/Tasha Thern**- VGLUT2 and caspase mRNA in the hippocampus of corticosterone-treated adult female zebra finches (3)

\*Please note posters will be on display throughout the event but presenters may only be present during the time listed.

Numbers in parentheses after presentation titles indicate the location of the presentation on the map of Mulva Studio located on the back cover of your program.

