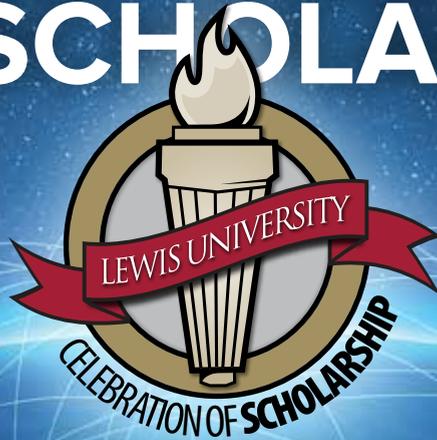


Lasallians in Action:
**CONNECTING
THROUGH RESEARCH
AND SCHOLARSHIP**



Thursday, April 10, 2014

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Lasallians Connecting Seas:
Scholarship, Ethics, and
Collaboration *(11 AM-12 PM)*

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General Information

Lewis University is proud to sponsor the Third Annual Lewis University Celebration of Scholarship. Providing an opportunity for the University to showcase the scholarly and artistic work of its graduate students, undergraduate students, and faculty, this scholarly event is being co-sponsored by the **Culture of Inquiry Advisory Committee; the University Office of Graduate Studies; the Colonel Stephen W. and Lyla Doherty Center for Aviation and Health Research; the Lowell Stahl Center for Entrepreneurship and Real Estate Studies; the History Center: Urban, Cultural and Catholic History of the Upper Midwest; the Center for Ministry and Spirituality; the University Faculty Development Committee; and the Scholars Academy.**

Brother James Gaffney, FSC, President of Lewis University, will open the Third Annual Celebration of Scholarship at the Plenary Session scheduled to begin in Sancta Alberta Chapel at 11 AM. This will be followed by the Keynote Address provided by Dr. Arnulfo P. Azcarraga, Professor of Computer Science at De La Salle University in Manila, Philippines.

The Lewis University Celebration of Scholarship will present scholarly work in three different formats throughout the afternoon and evening.

Concurrent Sessions – Students and faculty are encouraged to give a 15-minute presentation on a research topic or paper they have written. Concurrent sessions will be scheduled in rooms in the Academic Building from 1-6:00 PM. Registration for presenters and information regarding the various Celebration of Scholarship events will be available throughout the day in hall between the Academic and Science Building.

Creative Works – These can include any piece that has been written, published or produced in a fine arts field, including music, art, theatre, literary reading, poetry, etc. The newly renovated Oremus Fine Arts Center will provide a backdrop for creative works from 1-6:00 PM.

Poster Sessions – Research posters will feature the results of research projects, internships and class presentations. Registration for this event will take place in the hall between the Academic and Science Building. Posters will be displayed in the Mathematics and Computer Wing of the Academic Building from 12-6:30 PM with the authors present at times as designated in this program.

LEWIS UNIVERSITY



Dear Members of the Lewis University Community:

Welcome to the Third Annual Celebration of Scholarship here at Lewis University. This year, an international aspect has been incorporated into this important academic initiative that recognizes the scholarly pursuits of undergraduate and graduate

students, as well as on the part of our distinguished faculty. This year's theme is Lasallians in Action: Connecting through Research and Scholarship. Presentations will include posters, paper and various creative works, as well as performances and exhibits. Many academic fields are represented, including from the sciences, arts, business, humanities, education and nursing. Their activities and displays are located in recently constructed or improved academic facilities, including the Science Center, the renovated wing of the Academic Building, the expanded facilities for Mathematics and Computer Science Center, and the new Brent and Jean Wadsworth Family Art Gallery in the Oremus Fine Arts Center.

This very interactive, engaging and intellectually stimulating Celebration of Scholarship features our first international Lasallian keynote speaker: Dr. Arnulfo Azcarraga, a Computer Science professor from De La Salle University Manila in the Philippines. Dr. Azcarraga is a Board member of the International Association of Lasallian Universities. He is a guest on campus throughout the week and will be involved in numerous discussions on the topic of Lasallian research. Another facet of this Mission-oriented Celebration, which appropriately is being held during Founders Week, is a display in the Library of publications by our faculty.

Much gratitude for the considerable effort required to put together another excellent Celebration of Scholarship, including leadership by Dr. Nan Yancey, Chair of the event, and collaboration by the members of the Planning Committee. Finally, abundant gratitude to all who are responsible for generating exceptional scholarly works, which are meant to stimulate new insights that lead to a better understanding of our world, its challenges and its unexplored potential. I trust that Lasallians Connecting Seas: Scholarship, Ethics, and Collaborations will be enjoyable, informative and highly engaging, as well as result in many scholarly, relevant and interesting outcomes.

Sincerely,

A handwritten signature in black ink that reads "Br. James Gaffney, FSC". The signature is written in a cursive, flowing style.

Brother James Gaffney, FSC
President



Dear Colleagues:

As we continue to build on the successes of our inaugural and Second Annual Celebration of Scholarship in 2012 and 2013, we will again recognize and honor the excellent scholarly and creative endeavors of our undergraduate and graduate students that emerge from

their work with faculty both in and outside the classroom. We also will recognize the research, scholarship, and creative works of our gifted faculty, who contribute so significantly to our Mission, which is centered on our students.

Planning for this annual event is the result of the dedicated, collaborative effort of many individuals and groups across the University. The success of this event could not be realized without the enthusiastic contributions of the many faculty and staff, who have served on the oversight committee, one of the several other subcommittees, as mentors for student projects, and/or as volunteers for the day.

The theme for this year's Celebration of Scholarship is Lasallians in Action: Connecting through Research and Scholarship. The title reflects the value our faculty place on facilitating student learning through research and scholarly work that makes connections across oceans, institutions, disciplines, and departments to better prepare our students for meaningful careers.

Long recognizing the importance of sharing their own scholarship and research with students and of encouraging them to participate in these projects, Lewis faculty continue to seek opportunities to extend student learning beyond the

classroom. Lewis University is committed to supporting faculty and students in their research and scholarship endeavors. In addition to the existing opportunities available through various University Centers and the Faculty Scholar's Program, this year funding has been made available to support selected students in promoting their scholarly projects at professional meetings and conferences. In the coming months the University will also announce a new funding opportunity to support international Lasallian research projects. Our keynote speaker, Dr. Arnulfo Azcarraga, will participate in various meetings and events this week to further discuss the international research opportunities available throughout the 70 universities that comprise the Lasallian network of higher education.

Thank you to all who continue to contribute in so many ways to the success of the Celebration of Scholarship as we host our third annual event this Founder's Week. Again, congratulations to the many students, faculty and staff participants whose work is being showcased.

The spirit of Association was clearly evident throughout the many months of preparation. Your excitement and enthusiasm was contagious as ideas were shared between disciplines and across campus. We are all grateful for your collaboration, creativity and intense dedication to learning. Congratulations to all on this significant contribution to advancing our Mission and student learning.

Sincerely,

A handwritten signature in cursive script that reads "Stephany Schlachter".

Dr. Stephany Schlachter
Provost

Plenary Session

Welcome

Dr. Nan Yancey

*Dean, Office of Graduate Studies
Chair, Celebration of Scholarship
Coordinating Committee*

Remarks

Brother James Gaffney, FSC

President of Lewis University

Introduction of Speaker

Dr. Frank Rose

Professor of Finance

Keynote Address

Dr. Arnulfo Azcarraga

*Professor of Computer Science
De La Salle University,
Manila Philippines*

Audience Questions and Comments

Closing Remarks

Dr. Stephany Schlachter

Provost of Lewis University



Lasallians Connecting Seas: Scholarship, Ethics, and Collaboration

Arnulfo P. Azcarraga, Ph.D.

An internationally recognized scholar, Dr. Arnulfo Azcarraga is a Professor of Computer Science at De La Salle University in Manila, Philippines and served as Vice Chancellor for Research until May of 2013. Prior to his current appointment, he served in other administrative posts at De La Salle University, including Associate Vice Chancellor for External Relations, Executive Vice President, Dean of the Graduate School, and Vice Dean of the College of Computer Studies. He currently serves as a member-at-large on the International Association of Lasallian Universities.

Dr. Azcarraga earned his doctorate in Computer Science from the Grenoble Institute of Technology in France; his master's degree in Computer Science from the Asian Institute of Technology in Bangkok; and a bachelor's degree in Applied Mathematics from the University of the Philippines. In addition, he has participated in a variety of specialized, advanced training and development programs related to his technical areas of expertise, as well as those focused on his scholarship interests. Additionally, he has participated in the International Lasallian University Leadership Program for faculty and administrators.

He has published extensively in a variety of journals related to his discipline, including the *Institute of Electrical and Electronics Engineers' (IEEE) Transactions on Knowledge and Data Engineering*, the *Journal of the Operational Research Society*, and the *Journal of Advanced Computational Intelligence and Intelligent Informatics*. He is also the author of a chapter in the book *Soft Computing for Knowledge Discovery and Data Mining*, published by Springer. Dr. Azcarraga has presented numerous papers at national and international conferences mainly in the area of the theory and applications of self-organizing maps and neural networks. In addition, he has been recognized with numerous awards, including the Most Outstanding Alumnus of University of the Philippines at Los Baños, and Most Outstanding Employee at the National Computer Center in Manila.

CONCURRENT

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Session I (1:15-2:15 PM) **7**

Session II (2:30-3:30 PM) **14**

Session III (3:45-4:45 PM) **21**

Session IV (5:00-6:00 PM) **26**



Session I 1:15-2:15 PM

AS-132A

Moderator: Ann O'Brien

Emergence of Modern Joliet

Undergraduate Student Project in Humanities

**Mary Moran, Anthony Larocca,
Tyson Polack, Zeferino Martinez,
Mike Hines and Nick Czerwinski**

Dr. Dennis Cremin

Lewis University faculty and students worked with the Joliet Area Historical Museum to develop and create a history exhibit. The exhibit features original images by Adele Fay Williams, artist and journalist, who sketched drawings for the *Joliet Herald News*. The Emergence of Modern Joliet opened on January 30, 2014 at the Joliet Area Historical Museum.

Content Literacy in History

Undergraduate Student Project in Social Science

Samantha Toomey

Richard Clish

All students learn and comprehend history differently. Because of this, history teachers should include higher level thinking in their classrooms, rather than strictly relying on memorization. Interviews have been conducted to see how literacy is used in history classrooms.

The Leveson Inquiry: Press Regulation and the Future of British Journalism

Undergraduate Student Project in Humanities

Alex Veeneman

Dr. David Anderson

A look at the Leveson Inquiry in the UK and the affects of British journalism, and what the future is for journalism in a nation still working to retain trust in media after the phone hacking scandal.

AS-134A

Moderator: Linda Elsik

Ras Protein Mutation in Pancreatic Cancer and Forms of Treatment

Undergraduate Student Project in Math/Science

Julienne Gerio

Dr. Erin Zimmer

Pancreatic cancer is often caused due to a mutation in the Ras protein. Treatments that target the Ras protein pathway can inhibit cellular proliferation. Although the survival rates of patients with pancreatic cancer are low, Sorafenib and Erlotinib have shown to decrease cellular growth.

Cystic Fibrosis Patients and the Benefit of Vitamin D

Undergraduate Student Project in Math/Science

Jenny Vargas

Dr. Erin Zimmer

Vitamin D has a particularly important effect on Cystic Fibrosis patients. If Cystic Fibrosis patients increase the dosage of vitamin D daily, their life expectancy will be greater due to its benefits. This research explores why.

Selective Serotonin Reuptake Inhibitors and their Complications

Undergraduate Student Project in Math/Science

Jennifer Kopca

Dr. Erin Zimmer

This paper will describe the mechanism of action for selective serotonin reuptake inhibitors as well as their complications.



AS-150A

Moderator: Lisa Kozak

Silver Incorporated Hydrogels as Wound Management Materials

Undergraduate Student Project in Math/Science

Samantha Rinehart

Dr. James Rago

Wound healing poses formidable challenges especially in cases of severe burn injuries. This research explores the development of non-toxic wound management systems incorporated with antimicrobial agents for effective engineered material design that absorbs extracellular fluid from the body's natural healing process and satisfies the highly sensitive environment necessary for tissue healing. The research included in this presentation has drastically strengthened the fields of both wound management and medicine as a whole.

HIV Targeting of GPCR Chemokine Receptors

Undergraduate Student Project in Math/Science

CarriAnn Grando

Dr. James V. Rago

This research will examine the mechanism by which HIV targets and infects immune cells. The molecular understanding of HIV's entry into host cells is critical for the development of both vaccines and post-infection therapeutic techniques.

Hematopoietic Stem Cell Therapy in HIV Patients

Undergraduate Student Project in Math/Science

George Oduro and James Rago

Dr. James Rago

Alternative therapeutic interventions such as Hematopoietic Stem Cell Therapy (HST) have shown tremendous promise in the search for a curative medication for HIV patients. This study details how hematopoietic stem cells can be modified to combat HIV and the progression observed in HIV patients that have undergone HST.

AS-155A

Moderator: Lesley Page

Following the Signs: Understanding and Experiencing Deaf Culture

Undergraduate Student Project in Humanities

Thomas Beckmann

Dr. Val Rendel

When was the last time you saw “Deaf Culture” alive in your world? Do you believe it exists as more than just a language and a collection of people? Some of the challenges, traditions, and lifestyles of the deaf are explained in this presentation, as well as contrasted with the mainstream “Hearing Culture.”

Thank You

Undergraduate Student Project

Emily Burgbacher

Dr. Valerie Rendel

The memories of writing those special notes to parents at a young age holds true for many. Being a second grader and saying “Thank you” to her mom, the author’s moment showcases the growth taken to get to today’s level.



AS-156A

Moderator: John Parker

Simulation of Planetary Orbits in Curved Space-Times

Undergraduate Student Project in Math/Science

Alec Pickett and Alessandro Mazza

Dr. Ely Leon

What would happen if the Sun turned into a black hole? More specifically, how would the planetary orbits of our solar system be affected?

Interferometric Measurements of Indices of Refraction of Sugar Solutions

Undergraduate Student Project in Math/Science

Michael Munar

Dr. Charles Crowder

A method to determine indices of refraction experimentally was created and verified with known values. Indices of refraction were determined from sugar solutions of various concentration using a Michelson interferometer. These results were used to create a calibration curve of index of refraction vs. concentration.

Baby Steps: Using Lagrangian Mechanics to Study How Humans Walk

Undergraduate Student Project in Math/Science

Alessandro Mazza

Dr. Charles Crowder

Using Lagrangian mechanics, the “stiff stance” human gait was modeled. This model was implemented to both optimize the walking strategy and determine energy cost for various stride parameters.

AS-157A

Moderator: Holly Losurdo

Da Vinci

Undergraduate Student Project in Math/Science

Marco Munoz

Dr. Jennifer Roberts

This presentation will focus on the Da Vinci surgical robot. It will compare and contrast the use of the Da Vinci with open surgery and laparoscopy surgery.

Nutritional Supplements and Diets of Omega-3 Fatty Acids for the Symptoms of Postpartum Depression

Undergraduate Student Project in Math/Science

Rebecca Conneen

Dr. Jennifer Roberts

This presentation will focus on how Omega-3 fatty acids benefit a mother suffering from postpartum depression. This is because postpartum depression has a significant impact on the mother's ability or motivation to synchronize with the infant's emotional state. Therefore, being able to link postpartum depression with diet and lifestyle can enhance the knowledge of mental health professionals.

Importance of Newborn Screening in Hyperargininaemia Patients and Possible Treatment Options

Undergraduate Student Project in Math/Science

Mary Paterno

Dr. Jennifer Roberts

This presentation will focus on diagnosing newborns with hyperargininaemia and the treatments available today as well as new treatment studies.



AS-158A

Moderator: Elizabeth Pearce

Modulation of Dietary Acrylamide Exposure

Undergraduate Student Project in Math/Science

Amanda Milazzo

Dr. Sarah Powers

The Western world is frequently exposed to acrylamide, a chemical compound prominent in consumed dietary items, which poses a potential risk for cancer. Acrylamide is naturally produced in certain starchy foods in a temperature-dependent manner, which makes it inevitably present during the cooking process. By investigating how acrylamide adversely affects human health, it may be possible to develop therapeutic strategies to prevent the occurrence of cancer due to diet.

Toxoplasmosis Infection and Potential Role in Self-induced Violence

Undergraduate Student Project in Math/Science

Chad Hietschold

Dr. William Chura

This study will bring attention to *Toxoplasma gondii* infections increasing an individual's risk for self-induced violence and suicide. The correlation will be examined in both rodents and humans, although emphasis will be placed on humans.

Toxoplasma Gondii's Role as a Possible Link to Schizophrenia

Undergraduate Student Project in Math/Science

Victoria Colclasure

Dr. William Chura

Toxoplasma gondii is an intracellular protozoan that has a reputation altering its host's behavior, and these alterations have been questioned as the cause for some cognitive disorders. Researchers have examined mouse models, genetics, and population studies in order to determine if a correlation exists between *Toxoplasma gondii* infections and schizophrenia in humans.

Session II 2:30-3:30 PM

AS-132A

Moderator: Yann Kerevel

Colorism: Exploring the Multi-faceted Discrimination

Undergraduate Student Project in Social Science

Amanda Jones

Dr. Tennille Allen

This research explores different dimensions of colorism within the African American community: the privileges and disadvantages associated with specific skin colors, the desire for lighter skin within the African American community, and the effects of colonization on colorism.

Gang Membership in Chicago's Southern Suburbs

Undergraduate Student Project in Social Science

Craig Garibay

Dr. Tennille Allen

This research project is an attempt at examining societal issues that surround gang membership within the local community.

African American Music and Social Movements

Undergraduate Student Project in Social Science

Danielle Cobb

Dr. Tennille Allen

Hip-Hop has influenced various social movements both in the United States and throughout the world. This research analyzes music lyrics to explore just how Hip-Hop music has influenced various social movements.



AS-134A

Moderator: Jim Houlihan

Eucharistic Sharing: The Debate Among Christians

Undergraduate Student Project in Humanities

Alexis Brown

Dr. James Burke

This presentation discusses Eucharistic sharing among various branches of Christianity. Presenting both the benefits and the problems with intercommunion, there is a strong debate at hand. The study proposes there should be more Eucharistic sharing, allowing for Christians to deliberate and gradually increase intercommunion, creating a deeper sense of unity.

Reaching Out to Students

Undergraduate Student Project in Social Science

**Maddie Mikrut, Brandi Berggren,
Anna Baker and Anas Anees**

Dr. Neena Gopalan

The SHRM - Lewis chapter, a student organization on campus, is dedicated to promote itself among students at Lewis. Its' student officers have been collecting data from students on how to tailor events to students' interests and increase student participation.

AS-150A

Moderator: Ibrahim Mescioglu

Changing Patterns in Attachment as *Dreissena* Populations Mix*

Undergraduate Student Project in Math/Science

Kaitlyn Curtis and Erin Cox

Dr. Jerry Kavouras

This study investigates the patterns in attachment of mixed *Dreissena* populations in Lake Michigan. Field studies demonstrated that biofilms enhance the attachment of *Dreissena polymorpha* to surfaces. The goal is to determine whether biofilms facilitate the attachment of mixed populations of *D. polymorpha* and *D. bugensis*.

**This project is partially supported by Dr. Kavoras' Lewis University Caterpillar Scholar Award*

Methane in Drinking Wells near Hydraulic Fracturing Sites

Undergraduate Student Project in Math/Science

Rebecca Preisler

Dr. James V. Rago

This presentation will cover issues related to hydraulic fracturing ("fracking") near drinking wells. The potential for anthropogenic methane contamination of shallow drinking aquifers will be highlighted, and the occurrence of microbial methane in drinking wells will also be discussed.

GSTP1 and its Promising Outcomes for Prostate Cancer

Undergraduate Student Project in Math/Science

David Gonzalez

Dr. James Rago

GSTP1 is a specific gene found in prostate cancer cells that may lead to a potential biomarker and new prostate cancer treatments. With new detection and treatment techniques, men can avoid invasive procedures and increase the rate of early detection of prostate cancer.



AS-155A

Moderator: Jamil Mustafa

Believing and Doubting: The Miracle on Ice

Undergraduate Student Project in Humanities

Rian Neuzil and Brett Ernst

Dr. Val Rendel

This project was done in Scholars College Writing I, which asked students to pick an argument and discuss the topic from both viewpoints. The project was a debate on whether the “Miracle on Ice” was the most significant event in sports history.

Let the Panic Attacks Begin!

Undergraduate Student Project in Humanities

Lindsay Henry

Dr. Valerie Rendel

Is getting a good grade really worth your health? Sometimes, as motivated students, it's very easy to get all caught up with grades; however, Lewis University students would benefit from hearing a real life story from someone who became so grade-minded it caused her health to suffer.

AS-156A

Moderator: Lee Harsey

Secure Exchange of Intrusion Detection Data among Coordinating Groups

Undergraduate Student Project in Math/Science

Ian Ziarko

Dr. Ray Klump

The computer infrastructures that support vital resources and services world-wide are under constant cyber attack. The focus of this research is to examine how sharing Intrusion Detection System (IDS) data through a distributed system can aid with cyber defense of the electric power grid. By distributing intrusion detection data, the grid can derive great benefit from moving away from manually alerting third-party entities of cyber threats to employing a fully autonomous, 24x7 cyber watchdog that alerts the entire region when and where danger lurks.

Measuring the Effectiveness of Photoselective Coatings on Aircraft Windshields to Mitigate Laser Intensity

Graduate Student Project in Math/Science

Joseph Burlas, Matthew Moy and Steven Emmert

Dr. Charles Crowder

This study focuses on testing the application of various photo-resistant materials to coat aircraft windshields in order to reduce the effects of laser exposure to crew members.



AS-157A

Moderator: Christy Roberts

The Connection Between Type II Diabetics and Cancer

Undergraduate Student Project in Math/Science

Michelle Simadis

Dr. Jennifer Roberts

This presentation will focus on the link between hyperinsulinemia and the incidence of specific cancers. Metabolic pathways, insulin mechanisms along with other physiological incidences will be discussed.

Omphaloceles and Gastroschisis

Undergraduate Student Project in Math/Science

Kathryn Fry

Dr. Jennifer Roberts

The presentation will focus on the similarities and differences of two abdominal wall defects, omphaloceles and gastroschisis. While there is still much to be discovered about the etiology and prevention of these birth defects, prenatal detection has greatly improved the outcome for infants born with these disorders.

AS-158A

Moderator: Bill Chura

Hypofractionated Radiation Therapy for the Treatment of Breast Cancer

Undergraduate Student Project in Math/Science

Rebecca Yu

Dr. Erin Zimmer

This research project is a literature review that looks at the effects of hypofractionated radiation therapy on patients treated for breast cancer. There have been concerns as to whether a hypofractionated radiation therapy treatment regime is as effective as the conventional radiation therapy treatment regime without major late effects.

Fecal Microbiota Transplantation

Undergraduate Student Project in Math/Science

Yocelinda Aguilar

Dr. Erin Zimmer

The important role of “good microbes” in humans has been a perfect tool to develop new treatments for various diseases. A current developing treatment option is fecal microbiota transplantation, where a healthy individual’s fecal matter is transplanted to a person with a disease in order to restore a balanced normal flora. With 90% effectiveness, this procedure is quite promising for the healthcare field.

Rifampicin’s Effect on CYP3A4-sensitive HIV Treatment

Undergraduate Student Project in Math/Science

Travis Buckley

Dr. Sarah Powers

The drug Rifampicin, prescribed for tuberculosis treatment, is a potent inducer of CYP3A4, the most common enzyme for drug metabolism. This can have an antagonistic effect on medications, such as Maraviroc, commonly used in HIV treatment. Thus, for HIV patients with opportunistic tuberculosis infections, different drug therapies are required in order to allow proper treatment.



Session III

3:45-4:45 PM

AS-134A

Moderator: Kim Duris

Trust Me? The Role of Oxytocin on Social Behavior

Undergraduate Student Project in Math/Science

Katy Newberg

Dr. William Chura

Oxytocin is a paramount social hormone that is implicated in a range of normal and pathological human behaviors. Recent evidence using intranasal oxytocin administration suggests that it can function as a social hormone by facilitating trust. Therefore, oxytocin may be a viable pharmacological treatment for associated neuropsychiatric disorders.

Treatment Variations and Outcomes to Alleviate Lumbar Herniated Discs

Undergraduate Student Project in Math/Science

Catherine Reczek

Dr. William Chura

This presentation covers a wide range of treatments for lumbar herniated discs. These treatments include noninvasive, conservative methods and surgical procedures to alleviate pain and correct herniated lumbar discs. Alternative treatments are dependent upon various factors associated with age, onset of herniation and lifestyle of the patient.

Effects of Standardized Testing on Science Curriculum

Graduate Student Project in Education

Allison Hinton

Richard Clish

This research examines the viewpoint science teachers have of standardized science testing and the effects these tests have on the teaching of the science curriculum.

AS-150A

Moderator: Jeannette Pifer

Pazopanib: A Multi-Target Tyrosine Receptor Kinase Inhibitor and its Role in Improving Visual Activity Of Patients with Ocular Neovascular Diseases

Undergraduate Student Project in Math/Science

Vakishan Nadarajah

Dr. Sarah Powers

Pazopanib, an FDA-approved drug to treat renal cell carcinoma, has the potential to treat patients with ocular neovascular diseases and improve their visual activity through noninvasive delivery. Also, this drug can actually regress the condition without frequent administrations unlike the other anti-VEGF drugs currently available.

The Use of Stem Cell Therapy in Meniscal Tissue Regeneration

Undergraduate Student Project in Math/Science

Janet Morioka

Dr. Sarah Powers

The meniscus plays an important role in the stability and function of the knee, and damage to the meniscus is one of the most common knee injuries. The current surgical treatment of choice is a meniscectomy; however, there have been advances with an alternative treatment utilizing stem cells to repair and regenerate meniscal tissue. This presentation will explore the effectiveness of this alternative therapy and whether it can become the new treatment of choice in meniscal repair.

Inhibition of Type 1 Diabetes Mellitus Development by Vitamin D3 intake

Undergraduate Student Project in Math/Science

Daniel Flores

Dr. Sarah E. Powers

Vitamin D3 intake contributes to a substantial drop in risk of type 1 diabetes development. Vitamin D3 induces dendritic cells which in turn modulate CD4+CD25+ regulatory T cell activation. The enhancement of CD4+CD25+ regulatory T cells with short-term treatments of Vitamin D3 can arrest Type 1 Diabetes development.



AS-155A

Moderator: Marvin Bates

Speculation or No Speculation in the Crude Oil Derivatives Market?

Undergraduate Student Project in Business

Anna Kaszewski and Michael Trizna

Dr. Frank Rose

In 2008, the price of crude oil reached an all-time high of \$147 per barrel. From a consumer standpoint, this volatility was evident at the gas pump and triggered a lively debate among congressional leaders, regulators, market practitioners, and economists. The aim of our research is to determine whether the surge in oil prices was caused by economic forces or if financial speculation was the main factor behind the sharp price rise of the most actively-traded commodity in the derivatives market.

An Analysis of the Amero Proposal

Undergraduate Student Project in Business

Marzell Richardson

Dr. Frank Rose

In this research, the Amero proposal is examined to establish a common currency in North America and how implementation of the proposal would affect the United States.

Weather Derivatives: Risk Management, Value to Economy, and Valuation

Undergraduate Student Project in Business

Andrew Knapik and Adam Baccega

Dr. Frank Rose

Weather derivatives are an innovative type of financial product offered on the Chicago Mercantile Exchange. The study reviews the benefits and costs of weather derivatives, and examines the magnitude and costs of weather risks in the U.S. economy. It also investigates the different methods of pricing weather derivatives.

AS-156A

Moderator: Erica Kwiat-Egizio

The Experience of the Multilingual Reader

Undergraduate Student Project in Education

Brandy Bailey

Dr. Christopher Palmi

The author strives to provide insight to those who struggle to appreciate or even to comprehend the significance of diversity as the author deems necessary. People should be aware of the diversity that exists around them; when diverse cultures are recognized, it is a profound sign of communication – a sense of communication that exudes respect and empathy. After all, respect and communication are the elements of life that all people tend to appreciate; once the connection is made between those elements and diverse cultures, it is then that all will be satisfied.

The Censoring of Young Adult Literature

Undergraduate Student Project in Education

Delia Ercoli and Bianca Apato

Dr. Jackie White

The authors propose to research the effectiveness of young adult literature as part of the middle school and high school curriculum and how censorship of young adult literature denies students the opportunity to become lifelong readers.

The Power of the Games

Undergraduate Student Project in Social Science

Brittani Alston

Dr. Tennille Allen

In this work, the author provides a sociological analysis of the fictional Young Adult literary series, *The Hunger Games* by Suzanne Collins. This research provides a textual analysis of various characters and events from the book. This analysis is used to demonstrate and illustrate sociological concepts and theories relating to power, authority, gender, and inequality while also analyzing how this fictional series illuminates current social realities of the real world.



AS-157A

Moderator: Patricia Sidler

Same-Sex Marriage

Undergraduate Student Project in Humanities

Donna Thompson

Dr. Dominic Colonna

This project highlights a persuasive essay on the topic of same-sex marriage through the lens of the Catholic perspective. If we do not and cannot agree on the definition of marriage, then how are we able to dialogue? We dialogue by finding common ground and the goal of finding common ground is to have love.

Surviving a Toxic Work Environment using Emotional Intelligence Skills and Tools

Graduate Project in Social Science

Jennifer Manderscheid

Mary Woods

Surviving a toxic work environment can be a challenge in any organization. Emotional Intelligence skills or tools can be employed to maintain a positive attitude despite a toxic work environment.

Post-Materialism for the Masses: The Effect of Income, Social Policy, and Redistribution on Vote Choice

Faculty Project in Social Science

Chris Kypriotis and Steven Nawara

Dr. Steven Nawara

This study analyzes the competing influences of social policy concerns and personal income on vote choice in American elections by presenting and testing a theory that accounts for an individual's place in the redistributive tax system. Results show that social concerns are most important to voters who are not affected by redistribution and less important to those greatly affected, either positively or negatively.

Session IV 5-6 PM

AS-132A

Moderator: Christie Billups

Haunting “The Harlot’s House”

Faculty Project in Humanities

Dr. Jamil Mustafa*

This presentation demonstrates that Oscar Wilde’s 1885 poem “The Harlot’s House” is haunted—by the ghosts of Edgar Allan Poe and Charles Baudelaire, by the “queer uncanny,” and by spectral late-Victorian technologies—the praxinoscope (also known as the “Phantasmascope”), the automaton, the marionette, and the shadow-puppet theater.”

**Recipient of Lewis University Faculty Scholar Award*

Women’s Time: *The Book of Margery Kempe*

Faculty Project in Humanities

Dr. Dawn Walts*

This presentation is an overview of the work Dr. Walts completed as part of the Faculty Scholars Award in Fall 2013. In this presentation, Dr. Walts explains the use of time in the 14th Century text, *The Book of Margery Kempe*. The talk will also include a brief context about the life of Margery Kempe, the history of her book, and medieval calendric practices.

**Recipient of Lewis University Faculty Scholar Award*



AS-134A

Moderator: Chris Palmi

Negotiated Justice: Plea Bargaining

Graduate Student Project in Social Science

Marcia Thomas

Dr. Lynn A. Tovar

Plea bargaining is widely used but not understood by the average person who is unfamiliar with the court process. The purpose of this research is to examine the impact of negotiated justice on the criminal justice system. The qualitative method of study will be used to analyze the complexity of plea bargaining and demonstrate the benefit to both the defendant and the criminal justice system.

Police Supervision and Officer Morale

Graduate Project in Social Science

Philip Kwasinski

Dr. Lynn Tovar

This research study examines the relationship between effective/assertive police supervision and officer morale.

AS-150A

Moderator: Vicky Weilding

Education and Development of the Self

Graduate Project in Education

Amy Kelly

Dr. Kip Kline

This paper is a theoretical examination of education and the development of the self, using insights from John Dewey, Michel Foucault, and Paul Willis. Curricular, political, economic and cultural factors that undergird the day-to-day happenings in schools have a significant and often detrimental impact on the development of self-identity in students.

Hats Off to Policy?

Graduate Student Project in Education

Erica Vuilleumier

Dr. Lauren Hoffman

This historiography questions a standard policy in schools – students wearing hats. Although the focus is narrow, this research uncovers the gray world of educational policy. The methodology of policy historiography was employed for this inquiry.

Implementing a Flipped Classroom Model to Teach a Health Assessment Course

Faculty Project in Nursing

Dr. Suling Li and Maureen McCormick

In the flipped classroom model, what is traditionally conducted in the classroom is switched with what is traditionally done outside the class. This model shifted 1) the time and space in which teaching and learning occur; 2) the ownership of learning from the instructor to the students; and 3) the passive learning into active learning.



AS-155A

Moderator: Bob Bergman

The Effect of Foreign Direct Investment on Uganda, with Comparison to Kenya and Tanzania

Graduate Project in Business

Patricia Kaira

Dr. Frank Rose

This study addresses academic research on foreign direct investment in East Africa and the effect it has on the Ugandan economy.

Predictive Data Mining Algorithms for Cancer Treatment

Faculty Project in Business

Dr. Ibrahim Mescioglu

Information systems practitioners have successfully used several data mining techniques to solve business problems in fields such as marketing, finance, operations and healthcare. This study explains how such a novel and well-proven predictive data mining algorithm is developed to help with treatments of cancer patients by identifying those that are more likely to benefit from certain treatment strategies.

Volatility and FIFO Accounting

Faculty Project in Business

Dr. Yuntaek Pae and Dr. Robert Atra

This study presents the effect of market volatility on the tax benefit of FIFO accounting.

AS-156A

Moderator: Bob Bergman

Existential Therapy and Dealing with Trauma and Death

Graduate Project in Humanities

Elizabeth Villalobos, Katherine Olson, Julie Banholzer, Jessica Jennings and Karissa Habel

Martha Jarmuz

This project explores existential therapy and dealing with trauma and death.

Existential Therapy for Grieving Parents

Graduate Project in Humanities

Heather Dorton, Renee Carlson and Roger Miskell

Martha Jarmuz

We utilized previously conducted research to determine the effectiveness of Existential Therapy for a family dealing with a trauma. Our hypothesis is that Existential Therapy is an effective adjunctive therapy for family traumas, specifically looking at parents who have lost a child. Through our research, we concluded that Existential Therapy is a beneficial therapy to begin with grieving parents, not as the primary therapy, but to be used in conjunction with other therapies, in order to provide the most effective treatment.

Happiness, Engagement, and Adult Learning

Graduate Project in Social Science

Megan Wozniak

Mary Woods

Happiness and well-being can increase employee engagement, which has numerous benefits for the organization and for employees.



AS-157A

Moderator: Bob Bergman

Praxis Meets Meditation: The Intersectionality Between Freirean Critical Pedagogy and Mindfulness Practices to Reduce Anxiety and Violence in Schools

Graduate Student Project in Education

Ivan Soto

Dr. Lauren Hoffman

Incorporating meditative and yogic practices in schools as a way to deal with anxiety, stress and violence is critical for providing the space for students to discover their own agency that can result in both individual and community transformation. Based on youth participatory action research, this presentation will review a school program that serves as a model to provide students with coping mindfulness practices that can translate into reflective, contemplative and critical consciousness skills that are aligned with a Freirean liberatory pedagogy. The presenter will discuss the purpose of meditation, share the lived experiences of the participants, as well as suggestions for future inquiry and practice.

Channel One and its Effect on Youth

Graduate Student Project in Education

Danielle Ligocki

Dr. Lauren Hoffman

This paper challenges the belief that the use of Channel One in schools is a viable option for exposing youth to worldly views, politics and culture. It also questions the acceptance of trading students' attention for free technical equipment.

Educating the Educators: Preparing Future Teachers to Confront Systemic Dysfunction in American Educational Institutions

Graduate Student Project in Education

Michael Bulfin

Dr. Lauren Hoffman

This essay questions whether Education majors and graduate students are prepared through coursework to understand and challenge the systemic dysfunction they may face in their professional teaching careers.

CREATIVE WORKS

(See Presenters Index on Page 62)

Art Exhibits (1-6:00 PM) **33**

Performances/Reading (2-4:00 PM) **35**



Art Exhibits

1-6:00 PM

The Extention Agenda Series

Graduate Student Project in Visual Arts

Milton Harmon

Dr. Lauren Hoffman

This project is a visual display of the black male and the violence that dictates his placement in society.

Skater Life

Undergraduate Student Project in Visual Arts

Brianna Richards

Mark Swain

This photograph depicts a pair of shoes under the artist's longboard with purple LED lights under it. The image was captured and this photograph documents the act of noticing something that is aesthetically pleasing, then using my camera to capture it. Often this process, though simple, can create dynamic and interesting images.

Hidden Gem

Undergraduate Student Project in Visual Arts

Alfredo Melendez

Mark Swain

This photograph shows how we sometimes spot a hidden gem among the distracting things in our everyday lives. The photograph represents the moment the artist noticed a particular car as something he simply had to capture. The orientation of the cars gave me the perfect opportunity to capture the moment. Additionally, the color was perfect allowing me to show the contrast between the car and its environment.

Look

Undergraduate Student Project in Visual Arts

Alfredo Melendez

Mark Swain

This photograph attempts to capture the aggressive nature and look of a Subaru BRZ. By shooting the front of the car the artist was able to capture the most aggressive styling on the vehicle; almost like staring into the eyes of a tiger who is getting ready to strike its next victim. By adjusting the contrast and color, the artist overemphasized the headlights and the other features to stand out. In addition, the composition helps to personify the car creating the unsettling feeling that it is looking right at you.

Petals

Undergraduate Student Project in Visual Arts

Lauren Trzeciak

Mark Swain

This piece is the artist's reflection on the outside world, reflecting fascination with the patterns naturally occurring in all forms of life, found on the smallest insects and the largest animals. The patterns are rarely uniform, and often quite simple. The work "Petals" is an attempt to recreate the simplicity and beauty, often associated with natural forms.

North America

Undergraduate Student Project in Visual Arts

Cassandra Pruitt

Mark Swain

An assignment turned into a project of research and resulted in ideas to create new ways of looking at homes. Most of North America's residents live in urban, concrete dwellings. This project focuses on real issues we face concerning the industrial and natural harmony of man, fauna, and flora. The artwork focuses on the relationship between living fauna and their home environments. By layering the images and color gradients to design each work, the artist created designs that reflect the story of each animal with a humanistic view. The balance of nature and the modern, urban desire for beauty collide in creating the trio titled, North America.

Oriental Sky

Undergraduate Student Project in Visual Arts

Jayme Doyle

Mark Swain

This painting emulates the traditional style of an Oriental rug, but with a twist. The vivid color sets it apart from traditional. Coupled with the free painting style, the artwork takes on a newer, fresh interpretation of the Oriental rug. This painting's use of Oriental rug patterns and open form give the painting its unique distinction.

Thermal Solar Energy Sculpture

Undergraduate Student Project in Visual Arts

**Dalton Barrett, Ashley Castillo,
Kristina Frank, Helena Owusu,
Brianna Richards, Bethany Sadler,
Brian Stolinski, Cindy Tornero and
Daniel Tully**

Leslie Colonna

Under the guidance of art professor, Leslie Colonna and physics professor, Dr. John Parker, this ongoing project seeks to design a system of outdoor and indoor sculptures that function to efficiently capture the sun's thermal energy and to store and transmit the collected heat indoors. On display are some of the experiments, designs, and maquettes for those sculptures.



Second Cousin

Undergraduate Student Project in Visual Arts

Nikki Nellen

Mark Swain

A charcoal drawing, the little girl in the picture is the second cousin of the artist, who drew her because of the flower dress she wore. The artist tends to only use family members in her artwork.

Deuces Up

Undergraduate Student Project in Visual Arts

Nikki Nellen

Mark Swain

Deuces Up is a trippy drawing that has a lot of emotion in it. The artist's ideas for what objects or words to put in depended upon how the artist was feeling that day. The artwork depicts a lot of mixed emotions.

Even the Worst Can Be Good

Undergraduate Student Project in Humanities

Angelica Dabrowski

Dr. Valerie Rendel

Although many may not believe so, everyone develops higher writing skills with time. By sharing this story, the author hopes that students will realize they can face any writing obstacle.

Performances/ Readings **2-4 PM**

My Bloody Paper

Undergraduate Student Project in Education

Savannah Koszela

Dr. Valerie Rendel

This is the personal narrative of how the author came to develop her identities and skills as writer.

Passion n' Poetry from 'P' to Miss Z

Undergraduate Student Project in Education

Megan Zeugner

Dr. Nancy Kennedy

A collection of 10 original free-verse poems implementing the Common Core Standards in the classroom through a literacy project.

POSTERS

(See Presenters Index on Page 62)

Session A (2:30-3:30 PM) **37**

Session B (3:45-4:45 PM) **45**

Session C (5-6 PM) **53**



Session A

2:30-3:30 PM

1 Efficacy of Biomimetic Nanocomposite Wound Management Materials on Adult Human Dermal Fibroblast Growth

Undergraduate Student Project in Math/Science

Bianca Garcia

Dr. William Chura

Chitosan and Polyvinyl alcohol hydrogels were synthesized and evaluated as a wound dressing material. The hydrogels were characterized by swelling and fibroblast cell growth studies to determine efficacy.

4 Design of Photocatalytic Polymeric Nanocomposite for Enhancing Water Filtration Technologies

Undergraduate Student Project in Math/Science

Jeromy Rech, Samantha Rinehart and Tala Zubi

Dr. Jason Keleher

The specific aim of this work is to develop a photocatalytic biomimetic nanocomposite membrane that utilizes sunlight to degrade common pollutants and inhibit the growth of deadly bacteria. Initial synthesis of cellulose/TiO₂ nanocomposite films showed an enhanced degradation of Methylene Blue, an organic dye and pollutant, when exposed to light.

7 Exploring the Mechanism of Glass Chemical Mechanical Planarization

Undergraduate Student Project in Math/Science

Jordan Kaiser

Dr. Jason Keleher

The current research will explore the chemical tooth mechanism in glass chemical mechanical planarization (CMP) by isolating the different molecular components in the slurry as well as altering pH, concentration, and particle size of the additional additives. The different techniques used to analyze these interactions include material removal rate (MRR), particle size distribution (PSD), zeta potential, conductivity, as well as ATR spectroscopy. Determining how the different interactions within the system affect the substrate removal rate will allow for a deeper understanding of the accepted chemical tooth model.

10 Static Light Scattering and Particle Sizing

Undergraduate Student Project in Math/Science

Ernest Knight and Gregory Petty

Dr. Joseph Kozminski

This study examines the effectiveness of a low-cost static light scattering (SLS) apparatus for measuring size and dimensions of nanoparticles.

13 Electrochemical Analysis of Film Forming Mechanisms Relevant to Data Storage Chemical Mechanical Planarization

Undergraduate Student Project in Math/Science

Lisa Janes, Sarah Parker, Jordan Kaiser, and Meghan Nichol

Dr. Jason Keleher

Nickel-Phosphorous (NiP) substrates have been used as computer hard disk drive media. This research focuses on designing slurries that chemically remove the NiP in a non-corrosive pH range through additives. Electrochemical techniques were developed to probe the impact of organic additives on the surface redox and film-forming mechanisms.



16 Using Your Phone as an I-PASS Replacement

Undergraduate Student Project in Math/Science

Ryan Jessen

Dr. Cindy Howard

L-Pass is a study of the feasibility of using a mobile phone as a direct replacement to a toll collection receiver. The application was written in Java for the Android operating system and uses the phone's built-in GPS to check when a user has passed a toll collection point. Our study shows that L-Pass is a feasible alternative to the existing I-Pass equipment.

19 Empowering Patients by Targeting Health Literacy

Undergraduate Student Project in Nursing

Laila Vigants, Alyse Giesel, Maria Velez, Miranda Matysik and Ivette Manzo

Katherine McDannel

Nursing students developed a healthcare literacy tool for a local Chicago hospital. The focus of the tool is to support the hospital's development of health care literature and improve the analysis of selecting literature and information for hospitalized patients with a variety of diagnoses and literacy levels.

22 Colloidal Silica, Particle Stability, and Particle Concentration Effects

Undergraduate Student Project in Math/Science

Brandon Busch and Peter Holanda

Dr. John Parker

Colloidal silica, used in a variety of industrial applications, becomes unstable when particle-particle interactions become more frequent or when electrostatic or electrosteric barriers are removed. In this study, we will show the effects of concentration and pH on the vibrational mode signature of colloidal silica with increased particle-particle interactions. The lattice and surface vibrational modes will be probed using FTIR spectroscopy.

25 Diabetes Support Group

Undergraduate Student Project in Nursing

Elvia Ortiz

Dr. Gwen Svoboda

This study researches the development of a diabetes support group in the community by providing the format, tools, and education to empower the patients to lead healthier lives.

28 Simulation of Rotation of the Plane of Polarization in Curved Space-Times

Undergraduate Student Project in Math/Science
Alec Pickett and Alessandro Mazza

Dr. Ryan Hooper

A well-known effect within General Relativity is the deflection of light. A less investigated effect is the rotation of the plane of polarization of the light ray as it traverses curved space-time. To determine the effect on the polarization vector, fully covariant Maxwell's equations are employed to produce a set of partial differential equations.

31 The Mechanics of a Golf Swing

Undergraduate Student Project in Math/Science
Andrew Buist and Anthony Reavis

Dr. Chuck Crowder

The purpose of this project is to analyze pendulum characteristics in a real-life action: a golfer's swing.

34 The Development of Laser Attenuating Films for Use in Aviation

Undergraduate Student Project in Math/Science
**Hubert Bilan, Zachary Widel,
James O'Malley, Dylan Hudgins
and Matthew Moy**

Dr. Jason Keleher

The specific aim of this work is the development of laser-attenuating films to protect pilots from laser attacks. This is achieved by modifying aqueously synthesized quantum dots with aromatic molecules so they behave as organically capped attenuators. These films are capable of attenuating a 20 mW green laser by ~50%.



37 Understanding Relationships of Metal Oxide Particle Surface Chemistry to Dispersing Solvent Properties and its Effect on the Ultimate Particle Size

Undergraduate Student Project in Math/Science

Steven Craig

Dr. John Parker

In this work we will be quantifying different techniques used to disperse metal oxide nanoparticles in polar and nonpolar solvents. Through particle sizing, we will show the relationship between the particle surface chemistry and the physiochemical nature of the dispersing solution. This study will aid in identifying particle and solution compositions that produce optimal particle size for applications in nanotemplating.

40 Evaluation of New Silicon Photomultipliers in Fermilab's 120 GeV Proton Test Beam

Undergraduate Student Project in Math/Science

Brandon Schabell

Dr. Ryan Hooper

New silicon photomultipliers were analyzed at the test beam facility at Fermilab. Data were analyzed in an effort to determine the viability of the new photomultipliers for use in the Upstream Extinction Monitor portion of the Mu2e experiment at Fermilab.

43 Why the World Needs Social Studies to Come Back

Undergraduate Student Project in Education

Magdalena Jazowski

Elizabeth Pearce

The study of social sciences has been greatly diminished due to new curriculum and standards, as well as other reasons. This project will explain why this is happening and emphasize why social studies is important for our students through extensive research, interviews, and observation of classrooms.

46 Impacts of Interdisciplinary Activities on Student Engagement and Success

Undergraduate Student Project in Education

Brendan Casey Jr., Kimberly Herzog, Julie Muenz, Caitlin O'Halloran, Jaleen Rodriguez and Particia Salvitti

Dr. Lauren Rentfro

Students in a middle school setting participated in a series of interdisciplinary activities designed to reinforce themes in science, math, history, and language arts. Data collected through a variety of assessments, including pre/post surveys, interviews, and grades are analyzed for impacts on student engagement and success.

49 Design and Testing of an Apparatus to Measure Scintillator Properties

Undergraduate Student Project in Math/Science

Richard Wiencek, Mark Sivak and Megan Szubert

Dr. Joseph Kozminski

An apparatus consisting of an LED pulser, photomultiplier tube, dark box, and data acquisition system was built to measure light yield and lifetime measurements for liquid scintillators.

52 Gas Law Principle Applied to the Manufacturing of a Propulsion System in Water

Undergraduate Student Project in Math/Science

Michelle Zaleski, Raul Ibarra and Lucas Parker

Dr. Jason Keleher

This project is an exploration of Ideal Gas Law in regard to a propulsion system. An optimization process was used to propel an object 3 feet in 0.84 seconds.

55 Synthesis of Nanoparticles for Enhanced Latent Fingerprint Quality

Undergraduate Student Project in Math/Science

Samantha Brain and Alyssa Szponder

Dr. Jason Keleher

Fingerprinting is one of the most crucial components of forensic investigation. This work set out to design a functionalized, multi-surface spray containing TiO_2 and quantum dots that adheres to the residues of the latent fingerprint without interacting with the surface on which it resides.



58 The “Dark Box Project”

Undergraduate Student Project in Math/Science

Christopher Boril and Daniel Rodriguez

Dr. Ryan Hooper

This project explores designing and building an apparatus to house and calibrate Lewis University’s current photomultiplier tubes.

61 Where General Chemistry Meets Forensic Science: Concentration of Iron in Simulated Blood Samples

Undergraduate Student Project in Math/Science

Thomas Beckmann and Sam Rickert

Dr. Jason Keleher

Simulated blood samples of unknown concentration were collected from a crime scene. Using a precipitate forming reaction, vacuum filtration, and the created calibration curve, the concentration of the samples found from the crime scene can prove the suspect guilty or innocent.

64 Strategies for Teaching Literacy in the Mathematics Classroom

Undergraduate Student Project in Education

Sarah Massoglia and Robyn Markowicz

Dr. Christopher Palmi

When one thinks of mathematics, literacy is not often the next word that comes to mind. However, after extensive research this study finds the two are more intertwined than one might think. Come discover what literacy in mathematics looks like, and learn about effective strategies of teaching literacy that can be implemented in your classroom.

67 MRSA Monitoring Project

Undergraduate Student Project in Math/Science

CarriAnn Grando, Marco Munoz and Deirdre McCormick

Dr. James Rago

Methicillin Resistant Staphylococcus Aureus (MRSA) is a strain of *S. aureus* that is difficult to treat with standard types of antibiotics. This project was conducted over the course of three years at the Will-Grundy Medical Clinic in Joliet, Ill. to monitor the prevalence of MRSA in a clinical setting.

70 Harry Potter Controversy

Undergraduate Student Project in Humanities

Alexandra Fortes

Dr. Valerie Rendel

This study examines whether some parents and administrators are justified in wanting the Harry Potter series banned from schools and libraries.

73 Photocatalytic Nanocomposites for Alternative Clean Fuel Production

Undergraduate Student Project in Math/Science

Danielle Volk, Andrea Portillo and Kevin Kuchler

Dr. Jason Keleher

It has been reported that nearly 37 million children live in areas with unhealthy, polluted air, and many pollution-associated illnesses have been on the rise. This research studies a new way to create hydrogen gas more economically to potentially lower that alarming statistic. By exploring the photocatalytic properties of CdS Quantum Dots (QDs) and Ag-TiO₂ nanoparticles separately, as well as combining them, the initial results have indicated that ITO/TiO₂ deposited with QDs and Ag-TiO₂ have demonstrated the ability to aid in the photochemical splitting of water.



Session B

3:45-4:45 PM

2 BRICS: The Building Blocks to the Global Economy

Undergraduate Student Project in Business

Alex Hallahan

Dr. Frank S. Rose

This project regards the analysis of the trade and investment flows among the United States and the BRICS countries, leading to greater understanding of economic and financial interdependencies.

5 Online Patient Surgical Instructions

Undergraduate Student Project in Nursing

Shannon Driscoll

Linda Steffens

This research regards patient surgical instructions available on the hospital's website, a source that is easily accessible to patients and families and source to increase knowledge prior to surgery and decrease anxiety for the day of surgery.

8 Getting to the Core of Mathematics

Undergraduate Student Project in Education

Christopher Troxell

Dr. Christopher Palmi

Mathematics is getting a face lift by the Common Core state standards. This presentation will focus on curriculum design, class instruction, and the PARCC assessment.

11 Analysis of Water Hardness on Lewis University Main Campus

Undergraduate Student Project in Math/Science

Courtney Dial and Taylor Foytik

Dr. Jason Keleher

Residential and commuter students, faculty and staff at Lewis University all use the municipal water supply for a variety of reasons. This project set out to explore the overall range of water hardness across the Romeoville campus of Lewis University.

14 LGBTQ: The History of Oppression

Undergraduate Student Project in Humanities

Cedelle Kupfer-Escobedo

Dr. Tracey Nicholls

This poster presentation will graph landmark moments in the history of the LGBTQ struggle for marriage equality, and pose philosophical questions about how rights movements emerge and evolve. It is based on information gathered in writing a research paper to satisfy Philosophy of Law capstone requirements.

17 School Climate and its Effect on Positive Classroom Environment

Undergraduate Student Project in Education

Smith Patrick

Dr. Christopher Palmi

School Climate is a phrase that describes the physical, social, and academic dimensions of a classroom. It is the role of teachers to create an environment that enhances the learning process for students while allowing them to reach their full potential.

20 Biomimetic Polyaniline Nanofilms for Conducting Film Applications

Undergraduate Student Project in Math/Science

Julianne Truffa, Brandon Schabell and Logan Johnson

Dr. Jason Keleher

The goal of this research is to provide an alternative approach which incorporates nanoparticle/polyaniline composites into biomimetic/biodegradable cellulose cross-linked matrices to simulate a responsive film for electronic display applications.



23 The Use of Electrospinning in the Formation of Novel Nanofibers

Undergraduate Student Project in Math/Science

Brandon Schabell

Dr. Joseph Kozminski

The construction and testing of a cost-efficient electrospinning device is discussed. The device is now being used for the formation of novel nanofibers for other ongoing research projects.

26 Synthesis and Characterization of CdS-Doped Scintillators and Waveshifters

Undergraduate Student Project in Math/Science

**Oscar Guzman, Jorell Ferraren,
Zachary Arcara, Hubert Bilan and
Zachary Widel**

Dr. Joseph Kozminski

The purpose of this research is to synthesize organic quantum dot-doped scintillators using green synthesis methods and to characterize them optically. The particle size, absorption spectrum, emission spectrum, and wave-shifting ability of these materials are studied as a function of the concentration ratio of CdS quantum dots to PVA.

29 Factors of Importance to the Work Role of Adjunct Faculty

Faculty Project in Nursing

Dr. Stacie Elder and Dr. Gwen Svoboda

Research studies reveal that 40% of all faculty hired are adjuncts (neither full-nor part-time contracted faculty). Nationwide, the problem is documented that adjunct faculty are not being oriented, evaluated, or given the same resources as regular faculty members. In order to address this problem, mid-sized, Midwestern university/college BSN nursing school faculty, from a potential 95 targeted schools, are being surveyed to determine the perceived needs and satisfaction of adjunct faculty from the adjunct, as well as regular contracted faculty, perspective. The purpose is to ascertain how the needs of adjunct faculty members can be met to provide and maintain a consistent, quality education of BSN/MSN nursing students.

32 The Mechanics of a Golf Ball

Undergraduate Student Project in Math/Science

Andrew Buist

Dr. Ely Leon

This project considers the aerodynamics of dimple design on a sphere, specifically in the context of golf balls. Distance, velocity, and club head dynamics will be studied from this mechanism to determine the best possible ball for the situation.

35 Characterization and Hydrolysis of Sol-Gel from TEOS

Undergraduate Student Project in Math/Science

Alex Cerdas

Dr. John Parker

This experiment concerns hydrolyzing TEOS to produce Sol-Gel silica. The study will be examining the characteristics by how different variables such as heat and catalyst, affect the process and structure of the resultant material.

38 Reading Comprehension and Reading Gender Preferences

Undergraduate Student Project in Education

Sean Barber and Matthew Carlson

Richard Clish

This study presents the findings of research on gender preferences in reading materials and its impact on comprehension. The goal is to interpret the findings and conclude if reading comprehension is affected by the reading preferences of a student's gender and to what degree in specific content areas.



41 Incorporating QSEN Competencies and KSAS into Beginning Level Nursing Courses

Faculty Project in Nursing

Deborah Kornacker, Ellen Renna and Jane Trainor

The College of Nursing and Health Professions faculty joined forces with the College of Arts and Sciences faculty to interlace sophomore level concepts of pathophysiology, health assessment, fundamentals, beginning clinical competencies, and professional communication to provide safe, quality patient care. An emphasis was placed on incorporating the QSEN competencies of patient-centered care, teamwork and collaboration, informatics, and quality and safety into simulations and competency assessments for beginning nursing students.

44 Investigating the Role of Surface Film Formation on the CMP of Sapphire

Undergraduate Student Project in Math/Science

Amy Mlynarski

Dr. Jason Keleher

Chemical mechanical polishing (CMP) is a commonly used planarization technology that achieves high removal rates as well as superior surface quality. Initial experiments have shown that the chemical environment (pH and additive structure) coupled with the abrasive nanoparticle (type and particle size) plays a significant role in the formation of a passive film that can be removed during CMP.

47 Synthesis of Ag- and Cu-functionalized Nanocomposites and their Antimicrobial Effectiveness

Undergraduate Student Project in Math/Science

Kevin Burke and Jacob Murray

Dr. Jason Keleher

This research focuses on the synthesis and antimicrobial effectiveness of both silver and copper-functionalized nanocomposites.

50 Decoding the Molecular Level Binding Interactions of Commercial Pesticides/Herbicides

Undergraduate Student Project in Math/Science

Kelsey Schmitt and Kathleen Hallenbeck

Dr. Jason Keleher

A wide variety of organic pollutants, especially pesticides, are introduced into the water system from various sources such as industrial effluents, agricultural runoff, and chemical spills. Their toxicity, stability to natural decomposition, and persistence in the environment have been the cause of much concern to societies and regulatory authorities around the world. Using modified attenuated total reflectance (ATR) infrared and absorbance spectroscopy (UV-Vis) techniques, this work explored the binding interactions of a commercial pesticide/herbicide with simulated soil and plant materials (organic matter).

53 Student Mentoring: A Program Evaluation

Faculty Project in Nursing

Dr. Daisy Sherry, Dina Schreder, Stephanie Gedzyk-Nieman, Patricia Braida, and Melanie Obispo-Young

With the current and predicted worsening shortage in nursing, recruiting graduates with strong communication, leadership, and mentoring skills is crucial. Student peer mentoring programs can be a successful way to meet these needs, as well as effect student confidence and networking capabilities. The purpose of this cross-sectional study using mixed methods was to evaluate a peer mentoring program for Baccalaureate to BSN (BAC/BSN) nursing students. Results included positive program evaluation scores, and reported emotional support and increased confidence.



56 The Effectiveness of the Luminol Presumptive Test for Blood Under Arson-Like Conditions

Undergraduate Student Project in Math/Science

Samantha Brain, Nathan Hoffman and Caitlin Higgins

Dr. Jason Keleher

The luminol reagent is one of the most utilized presumptive tests for the detection of blood at crime scenes. However, use of this test to detect the presence of latent blood stains under arson-like conditions has proven to be ineffective. This work explored the effect of high temperatures and direct exposure to fire on the structure of heme.

59 China's Rise through Futures

Undergraduate Student Project in Business

Alyssa Hanc and Sarah Keib

Dr. Frank Rose

This research shows the necessity of the futures markets in China. It explores the history of the Chinese futures markets and analyzes the importance of these markets on the economy.

62 Photoelectrolysis Using Extracted Plant Pigments

High School Scholars Project in Math/Science

Jillian Crocker, Adam Irvine and Jessica Tabert

Dr. Jason Keleher

The light cycles of photosynthesis begins with the splitting of a water molecule into oxygen and a hydrogen ion in a process known as photoelectrolysis. This occurs because of some plant pigment's ability to absorb light at certain wavelengths and convert the energy into a usable form. Research was done to correlate the absorbency of those plant pigments at certain wavelengths and the ability of those pigments to split water with the intent of generating appreciable amounts of hydrogen gas for use as fuel.

65 Building an Interferometer and Finding Indices of Refraction

Undergraduate Student Project in Math/Science

Gregory Petty and James Hofmann

Dr. Charles Crowder

The purpose of this project is to build an interferometer using its separate parts and using different wavelength lasers in its construction and application. This interferometer will be used to measure the index of refraction of several different types of liquids.

68 Probing Surface Interactions of Copper Substrates with Respect to Activation Energy and Electrochemistry Properties

Undergraduate Student Project in Math/Science

Meghan Nichol

Dr. Jason Keleher

Copper chemical mechanical planarization (CMP) is becoming more prominent as the need for copper in integrated circuit (IC) interconnects is increasing with the scaling and performance changes necessary. This research utilizes electrochemistry (Tafel plots and open circuit potential) to study surface interactions. The activation energy will be measured and correlated with the structures of the additives within the system to aid in determination of the mechanism occurring at the surface during the CMP process.

71 Dye-Sensitized Photovoltaic Synthesis with Nanocrystalline Particles

Undergraduate Student Project in Math/Science

**Cole Brooker, Akachi Ajiere
and Will Caron**

Dr. Jason Keleher

The purpose of this project is to improve upon existing solar cell technology called gratzel cells using nanocrystalline particles.

74 3D Printing (Polymerization)

Undergraduate Student Project in Math/Science

Matthew Moy

Dr. Ely Leon

The design, construction, and evaluation of a 3D printer will be presented.



Session C

5-6 PM

3 Roots, Suffixes, and Prefixes to Enhance Science Literacy

Graduate Student Project in Education

Anthony Romeo and Kelly Rose

Dr. Christopher Palmi

The purpose of this study was to observe if it was possible to increase student's scientific vocabulary in written responses to questions. The second part was to determine if an understanding of how to break down scientific terms into their Latin roots would increase student's test scores.

6 Social Media and Professionalism: What Counselors Should Know...

Graduate Student Project in Social Science

**Yenny Sanchez, Sarah Barrera,
Sophie Follenweider and Dana Pauley**

Kimberly Duris

This research project will review the various social media platforms and explore the positive and negative aspects of using social media as a counselor. In addition, the ACA code of ethics and professional conduct regarding how a counselor represents him/herself will be examined.

9 Gestalt Therapy in Children and Adolescents: The Therapeutic Process and Techniques

Graduate Student Project in Social Science

Sarah Abbas and Candace Gaskin

Lisa Brown

This poster presentation examines the pioneering method of Dr. Violet Oaklander on Gestalt Therapy in children and adolescents. The therapeutic process and the different techniques used in this type of therapy will be identified.

12 Protecting the Company's Data in this BYOD Era

Graduate Student Project in Math/Science

Magnolia McShane

Joseph Tomsic

BYOD, "bring your own device", promotes many different benefits, such as better work-life balance and enhanced productivity. However, this new trend has increased pressure on IT to manage and secure these devices and their data. The challenges and security issues associated with the BYOD era will be discussed.

15 Understanding Boundaries and Multiple Relationships in Counseling

Graduate Student Project in Social Science

Sarah Lehmann, Rodney Williams and Nubia Guzman

Kimberly Duris

This research project will explore the understanding of issues related to client-therapist boundaries and multiple relationships. Focus on the ethical and legal considerations of this topic area will be explored in depth. In addition, common practices for counselors faced with an ethical issue involving multiple relationships/boundaries will be covered.

18 Existential Therapy: Benefits and Drawbacks

Graduate Student Project in Humanities

Christopher Brown, Kaitlyn Cobb, Sandra Bednarz and Sophie Follenweider

Martha Jarmuz

For this project, a literature review was performed to examine the positives and negatives of using existential therapy with a variety of populations and diagnoses.

21 End of Life Care in Counseling

Graduate Student Project in Social Science

Natalie Scheidt, Clea Doruelo, Kaitlyn Cobb and Michelle Wernberg

Kimberly Duris

This research project will explore the different options related to end of life care when working as mental health counselors. Legal and ethical considerations in the effective management of a client's right to autonomy and the standard of care afforded to such situations will be examined.



24 Literacy Strategies in the Math Classroom

Graduate Student Project in Education

Trace Capps

Richard Clish

The aim of my study is to show that implementing literacy strategies in the mathematics classroom can and will raise a student's comprehension of mathematical content.

27 Confidentiality in Mental Health

Graduate Student Project in Social Science

**Dipa Patel, Samantha Machniak-Cedano,
Alexsandrea Pahlman and
Gabriela Sanchez**

Lisa Brown

This presentation examines the multiple methods of addressing client privacy, ethics codes, and guidelines involving confidentiality in the mental health field.

30 Inclusive Literature and Reading Interest in a Diverse Classroom

Graduate Student Project in Education

**Christopher Hueg, Saule Grybauskas
and Caitlin Slattery**

Dr. Christopher Palmi

This study will include reviews of scholarly articles and on-site clinical research in order to ascertain different ways of increasing reader comprehension and enjoyment both in and outside of the classroom. The three main focuses of our research include multiculturalism, bilingualism, and gender-based studies.

33 Educator and Student Attitudes Toward the Use of Science Fiction in Science Classrooms

Graduate Student Project in Education

Brooke Bernardoni

Dr. Christopher Palmi

Many articles discuss an increase in student engagement from using science fiction novels in science classrooms, but almost no research has been done to support this claim. High school students and teachers were surveyed about their attitudes of using science fiction novels in science classrooms.

36 Applying Critical Pedagogy Skills in the Science Classroom and Beyond

Graduate Student Project in Education

Brooke Bernardoni, Patrick Smith, Samuel Stunkel, Allison Hinton and Kelly Reimer

Dr. Lauren Rentfro

People encounter media reports involving scientific findings or claims daily. Critical pedagogy skills can be applied to become more savvy media consumers of these reports.

39 The Treatment of Anxiety & Depression in Clients with Existential Therapy

Graduate Student Project in Social Science

Yaa Afriyie, Natalie Scheidt, Leah Stewart and Andrew Jones

Dr. Katherine Helm

This study explores Existential Theory and treatment interventions in clients with anxiety and depression.



42 Using Narrative Therapy in Trauma Counseling

Graduate Student Project in Humanities

Kristen Beneshunas, Timothy Hower, Bridget Powell, Egon Menker and Shannon Murphy

Martha Jarmuz

This is an exploration of narrative therapy techniques and their effectiveness of use with clients who have experienced trauma.

45 Coping with Flashbacks: Treatment and Skills for Those Suffering from PTSD

Graduate Student Project in Social Science

Tanya Binfa and Bonnie Hansen

Lisa Brown

The purpose of this project is to define flashbacks, or intrusive memories, and to highlight successful treatment and coping skills for victims of trauma and individuals suffering from Post Traumatic Stress Disorder.

48 Exploring Gender Bias in the Mathematics Classroom

Graduate Student Project in Education

Scott Stuhlman, Sarah Massoglia, Robyn Markowiz, Trace Capps and David Robare

Sara Claahsen

Discover why there still exists a perceived gender bias in the world of math through topics such as math in the media, anxiety toward mathematics education, and perceived self-efficacy of mathematical ability. This study used a meta-cognitive approach in conducting research in the field as well as in the classrooms. Gender impacts the way we learn, identify with, and enjoy math.

51 The Evolution of the Diagnostic Process According to the DSM

Graduate Student Project in Social Science

Marissa Wendlandt and Julie Wegrzyn

Lisa Brown

Through the evolution of the *Diagnostic and Statistical Manual of Mental Disorders* from 1952 to the present day, the specific diagnostic process for mental health disorders has made significant advances. This study highlights the evolution of this process throughout each of the five DSM editions over the past 61 years.

54 The Use of Narrative Therapy with Adolescents Experiencing Post Traumatic Stress Disorder

Graduate Student Project in Social Science

Margaret Dunne, Tiffany Isom, LaVetta Mitchell and Andrea Williams

Dr. Katherine Helm

This research will explore specific Narrative Therapy techniques in the treatment of PTSD in adolescents.

57 Cycle of Abuse of Domestic Violence

Graduate Student Project in Social Science

Jill Marshall and Becky Liebermann

Lisa Brown

This poster presentation will examine the cycle of abuse as it relates to domestic violence. Some common facts and misconceptions about domestic violence will be identified as a means to educate the public.

60 Differences in Deaf Education

Graduate Student Project in Education

Brian Dunne

Richard Clish

As a deaf student who was mainstreamed into “normal” classes, the author studied how this education differed from students who may also have severe hearing losses and were not fully mainstreamed.



63 Understanding Self-Harm in Adolescents

Graduate Student Project in Social Science

**Katie Cornyn, Jessica Johnson
and Angelina Rotar**

Lisa Brown

This presentation will focus on the adolescent age group and non-fatal self-harm. This study will explore self-harm with the intent to cause physical harm and or body alterations such as; cutting, burning, branding and skin picking.

66 Breaching Confidentiality with Self-Injurious Adolescents

Graduate Student Project in Social Science

**Mary Sosalla, Sandra Bednarz
and Leah Stewart**

Kimberly Duris

This research project will address when it is most critical to break confidentiality with adolescents ages 12 to 17. Focus will be on specific instances when self-harm is not life threatening and is disclosed by the adolescent to the counselor. Ethical issues regarding client confidentiality afforded to minor clients and standards of care will be explored.

69 The Use of Attachment Theory with Trauma Victims

Graduate Student Project in Social Science

**Pamela Marks, Azra Husain
and Wendy Spikings**

Dr. Katherine Helm

This study examines the relationship between attachment theory and the effects of trauma. This poster gives an overview of the current conceptualizations of attachment and the measurement of attachment for clinical research purposes and the application of attachment theory to different psychopathologies.

72 Changing the World One Person at a Time: Psychodynamic Therapy and Social Justice

Graduate Student Project in Social Science

**Donna Lordi, Vincent McAuliffe,
Cloie McPhail, Rebecca Liebermann,
Brandy Garland and Michelle Purr**

Dr. Katherine Helm

Sigmund Freud was a proponent of social justice in his time, founding several free clinics to bring mental health services to those who needed it. In contemporary society, the need for this has not been reduced and modern insight-based psychodynamic therapy can effect necessary change. It is by improving the life and dignity of people, one at a time, that society itself can be healed, especially when subconscious motivations and drives for maladaptive circumstances—a task that psychodynamic therapy is well suited for, in and of itself.

75 Agency and Devotion: Love in Psychotherapy

Graduate Student Project in Social Science

Donna Lordi

Dr. Matthew Domico

The art of counseling is reparative via the bonds created in the alliance between therapist and client, which is especially important in modern society when there are many misperceptions of what love truly is. Rollo May's exploration of the many kinds of devotion and its close relationship to individual agency and choice provides insight as to why such spiritual connections may be needed to affect true interpersonal transformation and change.



Notes

Chair

Dr. Nan Yancey

Oversight Committee

Dr. Tennille Allen

Dr. Marne Bailey

Dr. James Burke

Dr. Dennis Cremin

Dr. Joyce Hayward

Dr. Jung Kim

Dr. Ray Klump

Dr. Joe Kozminski

Dr. Julie Krahl

Dr. Tracey Nicholls

Dr. James Rago

Dr. Lauren Rentfro

Jeff Ritchie

Dr. Frank Rose

Lisa Salazar

Mark Swain

Sal Ursino

Betsy Wilber

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