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fishladder

*A Student Journal of
Art and Writing*

LOH Red Wall Exhibition // April - June 2010

Please join us for the unveiling reception:
Friday, April 16th // 6:00 p.m. // 164 LOH

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Cara Stoddard
Brianna Thiel

Poetry

Jessica DeWent
Rachel Gleason
Jacob Griswold
Madeleine Hart
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Shelley Sickrey | Integrative Learning

Patricia Videtich | Geology

Janet Vigna | Biology

WELCOME TO STUDENT SCHOLARS DAY 2010

It is with great pleasure that we welcome you to celebrate the diversity and excellence of faculty-student collaboration at GVSU. In its 15th year, Student Scholars Day continues to grow in scope, including six hundred students and mentors in over three hundred presentations. We are excited to support the achievements of these students representing seventy diverse majors across the university. We encourage you to visit presentations of interest in a variety of disciplines and presentation formats, and to engage these students in meaningful discussions of their work. This event is a true celebration of creative thought and practice.

Many have contributed to make this growing event a success. We are especially grateful for the hard work and patience of Shelley Sickrey, Ashlee Swider, and Mischelay Roberts who made this process manageable and enjoyable. We thank the members of the 2010 SSD committee, Bopaiah Biddanda, Robert Deaner, Karen Gipson, Lindsey Kloeckner, Christina Moord, Melissa Morison, Debbie Morrow, Felix Ngassa, Ross Reynolds, Mark Schwartz, Suganthi Sridhar, Patricia Videtich, Janet Vigna and Shelley Sickrey for their dedication and continuous flow of creative ideas. It takes an entire year to put together a program like this, and we appreciate the hours spent engaging with us in this process.

Once again our gratitude goes to Dan Slaughter for his support of the web registration for SSD. We would also like to thank the Kirkhof Center staff; Fred Mooney and Kellie Pnack-Carter for their assistance and patience. Our deepest thanks to Campus Dining for their assistance and support. We would also like to thank Jeff Woollet for assisting in the preparation of Henry Hall.

Thank you to Debra Weststrate in the University Promotions Office for her outstanding work on the abstract book and SSD 2010 promotional material. This year Debra had the task of utilizing the past five years cover designs into one piece. This abstract book is one the largest challenges for any designer and Debra did a wonderful job of balancing function with design.

Thanks to our student, faculty, and staff volunteers for their commitment to the university's mission and values, as evidenced by their involvement in this important activity. We value the time and effort given to this event.

A very special thank you goes to the faculty mentors who work collaboratively with undergraduate and graduate students in their scholarly and creative pursuits. We know it takes a great deal of time and dedication, but these experiences make a formidable impression on the education of GVSU students. We applaud your commitment and passion for teaching and learning.

And finally, a day like this does not happen without outstanding students like this year's SSD presenters. These students have sought ways to connect their classroom experiences with scholarly and creative practice. They have engaged in a process of discovery that is often difficult and demanding. We thank these students for taking full advantage of their liberal education at GVSU. We are proud of their achievements and excited to share their success.

Please enjoy this day of celebration. Attend the many presentations available throughout the day. We extend a special invitation to attend the presentation given by this year's Keynote Speaker, Dr. George Spilich from Washington College. Today is sure to be a day of sharing and celebration.

Susan Mendoza
Director, Integrative Learning
College of Interdisciplinary Studies

Matthew Hart
Assistant Professor, Chemistry
College of Liberal Arts & Sciences

TRiO RONALD E. MCNAIR

Post-Baccalaureate Achievement Program

The McNair Scholars Program is designed to prepare highly talented undergraduates to pursue doctoral degrees and to increase the number of individuals (from target groups) on college and university faculties.

The McNair Scholars are highly talented undergraduate students whose parents have no 4-year college degree and are low-income, or groups underrepresented at the graduate level for doctoral studies. The program accepts students from all disciplines.

The McNair Scholars receive academic counseling, advising, and GRE preparation. In addition, they're matched with a Ph.D. faculty mentor to conduct research and attend a McNair research conference to present their findings. In the first semester of their senior year, the scholars receive assistance with the graduate school application process.

McNair Scholars is a TRiO program funded through the United States Department of Education and Grand Valley State University.

The 2009 McNair Scholars presenting at this year's SSD include:

Marcus Bell, Neil Biegelle, Mary Brown, Ebony Cross, Heather Danhof, Wendi-Jo Ervin, Alfredo Hernandez Corsen, Anne McNeely, Kurt O'Hearn, Tammy Stambaugh, Delia Fernandez, Mallory Morell, Kraig Lischke, Lisa Wilkinson.

More information about the program can be found on the website at www.gvsu.edu/mcnair

STUDENT SUMMER SCHOLARS (S3)

The Student Summer Scholars Program (S3) provides funds for a student and faculty mentor to devote twelve weeks to a research and/or creative project during the spring/summer semester. Through these grants and the mentorship of a faculty member, the S3 program offers a unique opportunity for undergraduate students to do hands-on, professional research and creative practice in their chosen field. Combining academics, field work, and a reflection component provides students with a meaningful learning experience that helps to prepare them for graduate school and future careers.

For each S3 participant, the project begins with an innovative and thoroughly researched proposal. With guidance from faculty mentors, students identify a research question or an area of creative practice and shape the structure of their project. The value of mentorship is an important part of S3. Experienced faculty mentors act as support and sounding board for their students.

By building on a foundation of academic and critical thinking skills provided by undergraduate courses, self-motivated students can use S3 to further their knowledge in a specific area while learning to incorporate academics with professional work. S3 provides students with a new lens through which to view their long-term educational, work, and life plans.

The 2009 Student Summer Scholars presenting at this year's SSD include:

James Bozung, Rebecca Brittain, Lisa Burson, Sarah Clark, Corey Davis, Kaitlin Downey, Ryan Enck, Steven Gauthier, Adrienne Gibson, Anel Guel, Bradley Houdek, Samantha Howard, Embriette Hyde, Karen Ickes, Lee Jackson, Corey Kapolka, Nicholas Krzywonos, Elizabeth LaRue, Patrick Loudon, Todd Major, Shane McGrath, David Merryman, Amanda Mitchell, Ryan Nelson, Nikki Powers, Juan Rango, Kaitlyn Ratkowiak, Sarala Sarah, Donna St. Louis, and Jarrett Zeman.

More information about the program can be found on the website at www.gvsu.edu/s3

ACADEMIC CONFERENCE FUND

The Student Senate, the Provost's Office, and the Center for Scholarly and Creative Excellence have established a fund to support student travel to academic conferences. The Academic Conference Fund (ACF) is available to all students, including non-traditional and graduate students, who may be looking for one time funding to present at an academic conference that is related to their major, minor, and/or professional goals regardless of their affiliation with student organizations.

Undergraduate and graduate students are able to apply for travel grants that range up to \$500 for conference presenters. The purpose of these grants is to encourage student presentations at academic conferences by offsetting the cost of attendance.

Since January through December of 2009, the Academic Conference Fund aided the following presentations:

Jessica Bacon, "(e)Racing Cervical Cancer: Analyzing Visual Representations of Gardasil", Feminism(s) and Rhetoric(s) 2009

Lucas Bender, David Herrema and Eric Horsford, "Recommendation to better Wynn Resorts, Inc", 25th Annual Society for the Advancement of Management Case Competition: Sustainability

Neil Biegalle, "The Extremality of Bernstein Polynomials", MathFest 2009

Renee Bouley and Derek Loutzenhiser, "Bioelectrochemical Catalysis on Mars", Great Lakes Regional Meeting of the American Chemical Society

Wyatt Brege, "Symmetry Analysis of the Lane-Emden Equation", MathFest 2009

Sarah Brown and Stephanie Smith, "The Importance of Culturing All Negative Specimens from the Rapid Strep A Antigen Screen", Michigan Society for Clinical Laboratory Science 2009

J.P. Cohan, Timothy Kelch, Jennifer Lechy, and Nick Stockero, "Change in Economic System Leads to a New Hope", Globalization and the Challenge of the Humanities and Social Sciences

Nathan Craft, "Cyclohexene Derivatives in Transfer Hydrogenation", The 237th American Chemistry Society National Meeting

Adam Cuthbert, Tyler Smith, Jake Isaacson, Ashlee Busch, Karel Lill, Devin Starr, Blair Hotz, and William Willits, "In C- Remixed", Le Poisson Rouge

Samantha Dahlberg, "On Proofs of Summation Identities", MathFest 2009

MaryBeth Deiters, "Paradoxes and Pitfalls of the International Criminal Court: Africa in the Circuit of ICC Justice", Celebrating Change, Defining the Future: Social Justice, Democracy and Cultural Renewal

Michael DeLaMarre, "Capillary Electrophoresis: Affinity and Chiral", Pittsburg Conference 2009

Andrew DeWitt, "Seasonal Substrate Temperature Anomalies at Sand Creek, Aman Park, Ottawa County, Michigan", Geological Society of America Annual Meeting

Amy Disselkoen and Alyssa Jewell, "English Proficiency for Immigrant Women – At What Cost?", Michigan Teachers of English to Speakers of Other Languages (MITESOL) Conference Transforming Learning: Teaching and Advocacy

Molly Dobb, "Automation of Sample Preparation for the Comparison of Hologic Invader Technology Human Papillomavirus (HPV) DNA Testing to Digene Hybrid Capture 2 High-Risk HPV DNA Testing", Michigan Society for Clinical Laboratory Sciences 2009 Spring Meeting

Benjamin Eggelston, "Widespread Chemical Warfare Agent Sensors", 38th Great Lakes Regional Meeting of the American Chemical Society

Nicholas Ettema, "Metabolism as an indicator of river ecosystem health: a case study on the Little Susitna River, Alaska", Midwest Fish and Wildlife Conference

Matt Ferre, "Mediating in the Streets: Exploring the Intersections of Common Policing and Common Mediation Practices", Midwestern Criminal Justice Association

Sharon Gardner, "Student Conference Attendance: Bridging the Gap between School and the Professional World", Lilly Conference on Teaching and Learning

Dean Foster, Meghan Kelly, Rebecca Hagler, Nora Jane Hipshear, and MacKenzie Whims, "GVSU and SNUT (Seoul National University of Technology) Ceramics Collaborative Project", World Ceramics Biennale 2009 Korea Conference and International Society for Ceramic Art Education and Exchange Symposium

Alain Giraud, "Trelleborg Automotive: A Growth Initiative Decision", North American Case Research Association

Kyle Golenbiewski, "Modeling Nonseparable Preferences in Referendum Elections", MathFest 2009

Brandon Haines, "Novel Copper and Amine Free Sonogashira Coupling in the Alkynylation of 2'-deoxyadenosine", The 237th American Chemistry Society National Meeting

Sonya Heerema and Candice Workman, "Can EDTA tubes be used to perform a LAP stain?", Michigan Society for Clinical Laboratory Sciences 2009 Spring Meeting

Lindsey Heldt, "The Effect of Intracellular and Extracellular Density on Gravitropic Curvature of Rice Roots", Michigan Academy of Science, Arts, and Letters Annual Meeting

Casey Huegel, "An Analysis of Historic Ceramics at Indian Landing Site 20BA02 in Hastings, MI", Midwest Conference on Historical Archaeology

Tarah Jensen, "Extreme Curvature of Polynomials", MathFest 2009

Darcy Kaufman, "Nato3 is Sufficient to Promote Ectopic Floor Plate Marker Expression in the Rostral Neural Tube of the Gallus Gallus Embryo", American Society for Cell Biology Annual Conference

Zoe Kilbourne, "Panel on College Sports Regarding Athletics as a Tool to Boost Enrollment", College Sport Research Institute Scholarly Conference

Katy Leedy, "Resisting Colonization: The Priest, the Pole, and the Peacock in Flannery O'Connor's The Displaced Person", The Louisville Conference on Literature and Culture Since 1900

John Lelli, "Multiple possible protective mechanisms associated with the $\alpha 7$ nAChR in pig retina: Agonist, modulator & feedback mechanisms", Neuroscience 2009

Jesse Lincoln, "Ailanthus altissima increases nodulation in Trifolium pretense: A novel weapon for an invasive species", Botany & Mycology 2009 (Botanical Society of America)

Sheila Miara, Rebecca Norris, and Angela Larsen, "Impacts of Savannah Restoration on Small Mammal Density and Diversity in West Michigan", The Annual Wildlife Society Conference

Amanda Mitchell, "Predicting Cosmetic Surgery Attitudes among College Women", Midwestern Psychological Association Conference

Negin Nadvar, "Compared to In Vivo, Isolated Hearts Respond Differently to Acetylcholine after Reperfusion Injury", Biomedical Engineering Society 2009 (BMES)

Luan Nguyen, "Energy distribution in the triplet channels of ozone photodissociation", 2009 Symposium on Chemical Physics

Kristina Persenaire, "The Wisdom of Bumper Stickers: 'Celebrate Diversity' vs. 'One World, One Love'; The Ramifications of an Ideological Paradigm Shift from the Universal to the Specific", Midwest Popular Culture Association

Esther Posner and James Barr, "Determination of Paleolatitude of the Mississippian Michigan Formation: Jackson, Michigan", Geological Society of America Annual Meeting

Patrick Prominski, "Tradition and Technology: New Media Connections in the "Aeolus" Episode of James Joyce's Ulysses", The Louisville Conference on Literature and Culture Since 1900
"The Problem with Faith: Autism in Hope Leslie", Midwest Popular Culture Conference

Samantha Seaberg, "Characterizing the Cellular Regulation of the Diaphanous-related Formin, mDia3, by Expression of the Constitutively Active Full-length Protein", American Society for Cell Biology (ASCB) 49th Annual Meeting

Katee Stahl, "The Use of Developmentally Appropriate Services in Juvenile Drug Treatment Court", American Criminal Justice Society Annual Meeting

Jenna Tomlinson, "Effects of Asn152 mutation on substrate selectivity of P99 cephalosporinase", American Society of Biochemistry and Molecular Biology (ASBMB)

Sean Townshend and Meghan Gallaway, "Societal and Personal Views of Criteria for Adulthood: A Cross-National Comparison", The 14th European Conference on Developmental Psychology

Melissa Vegter, "Capital Vehicle Systems: An Exploration in Lean Manufacturing", 2009 Annual Meeting of the North American Case Research Assoc.

Charla Waeiss, "Transitional Justice: The Russian Problem and German Solutions", ISA-Midwest (Central Slavic Conference)

Sandi Xhumari, "Generating Functions and their applications", MathFest

More information about the program can be found on the website at www.gvsu.edu/integrativelearning

HISTORY OF STUDENT SCHOLARS DAY

BY NEAL ROGNESS AND SHELLEY SICKREY

In the summer of 1995, a small group of faculty members in the Science and Mathematics Division met to explore the feasibility of creating an event where students could present their findings from faculty-mentored research to a university-wide audience. P. Douglas Kindschi, Dean of Science and Mathematics, was enthusiastically supportive, thus Student Research Day (SRD) was born.

It was decided to hold the event on April 12, 1996, in conjunction with the dedication and celebration of the new Seymour and Esther Padnos Hall of Science. The first-time event was expected to draw about thirty student participants. All expectations were exceeded when the registration period ended with over 150 presenters committed to present almost 100 presentations. The first event was a tremendous success; however, it was unknown whether SRD could be a successful "stand alone" event. These fears were quickly allayed when the second annual Student Research Day was held in April of 1997 and proved to be a great success with a similar level of participation.

The event became popular enough to get requests from students outside of science and mathematics majors who wanted to present their work. An effort began to make the event truly university-wide, which then Provost Glenn Niemeyer whole-heartedly supported. Students from all majors were encouraged to present and/or exhibit their faculty-mentored scholarly work at the event. To help make the event more inclusive, its name was changed from Student Research Day to Student Scholarship Day. The first university-wide event doubled in size with nearly 300 students giving almost 200 presentations in 1998. The first SSD keynote speaker was Dr. Robert Powell, Professor of Biology at Avila College, who talked about "Student/Faculty Collaboration: Teaching and Scholarship." Another name change occurred in the Fall of 2009, this time to Student Scholars Day. The name change was instituted to combat occasional confusion over the nature of the event. "It's still very focused on student work, but the new name takes away any ambiguity about what the purpose of the day is," said Susan Mendoza, Director of Integrative Learning.

What began as an event primarily composed of science and mathematics majors has grown to include student presentations representing majors from across the university. The GVSU community has truly embraced this annual event as a day in which to take pause and proudly celebrate the scholarly achievements of students from the past year. Student Scholars Day continues to grow, both in size and scope. The event continues to encompass interdisciplinary relationships among the presentations. Individually, the presentation is clear and focused. Taken as a whole, a larger, more inclusive picture of collaboration and learning emerges.

KEYNOTE LECTURE

2204 KIRKHOF CENTER AT 4:00 P.M.

Does Smoking Improve Cognitive Performance? A Tale of Science and Corporate Influence

ABSTRACT

It is generally believed that nicotine is a cognitive enhancer and that smoking calms the nerves, but is this 'common knowledge' actually correct? A review of over a century of research on this topic suggests that the relationship between nicotine use and cognitive performance is more complex than most experts would lead us to believe. In addition, the tobacco industry has not been a disinterested observer but rather an active participant in steering the discussion. In this talk, we will talk about the relevant research on nicotine and cognition as well as the role of the tobacco industry has played in shaping this discussion.



GEORGE SPILICH

Professor, Department of Psychology,
Washington College

George Spilich was born in Brooklyn NY and selected the University of Wisconsin for his undergraduate work because Wisconsin was as different from Brooklyn as any two places could be. He then earned an MA from Texas El Paso and a Ph.D. from the University of Pittsburgh. He is a cognitive neuroscientist and is the John Toll Professor of Psychology at Washington College, the first College founded after the American Revolution. He spent the 88-89 academic year as the Fulbright Research Fellow for Yugoslavia, where he proudly succeeded Linus Pauling. Throughout his career, he has been interested in how the biology of the human nervous system creates what you and I experience as consciousness. He has worked to develop drugs to improve the cognition of Alzheimer's' patients, has investigated sex differences in cognitive processes and currently is interested in the effects of concussions on the cognition of young adults.

SCHEDULE OF EVENTS

Poster Presentations

Henry Hall Atrium, Kirkhof Center

9:00 A.M.—4:00 P.M.

See page 15 for detailed schedule.

Oral Presentations

Kirkhof Center

8:00 A.M.—3:40 P.M.

See page 25 for detailed schedule.

Film Presentations

Kirkhof Center, Area 51

12:00 P.M.—4:00 P.M.

See page 135 for detailed schedule.

Performance

2204 Kirkhof Center

3:30 P.M.

Keynote Lecture

2204 Kirkhof Center

4:00 P.M.

STATEMENT FROM THE ARTIST

Debra Weststrate

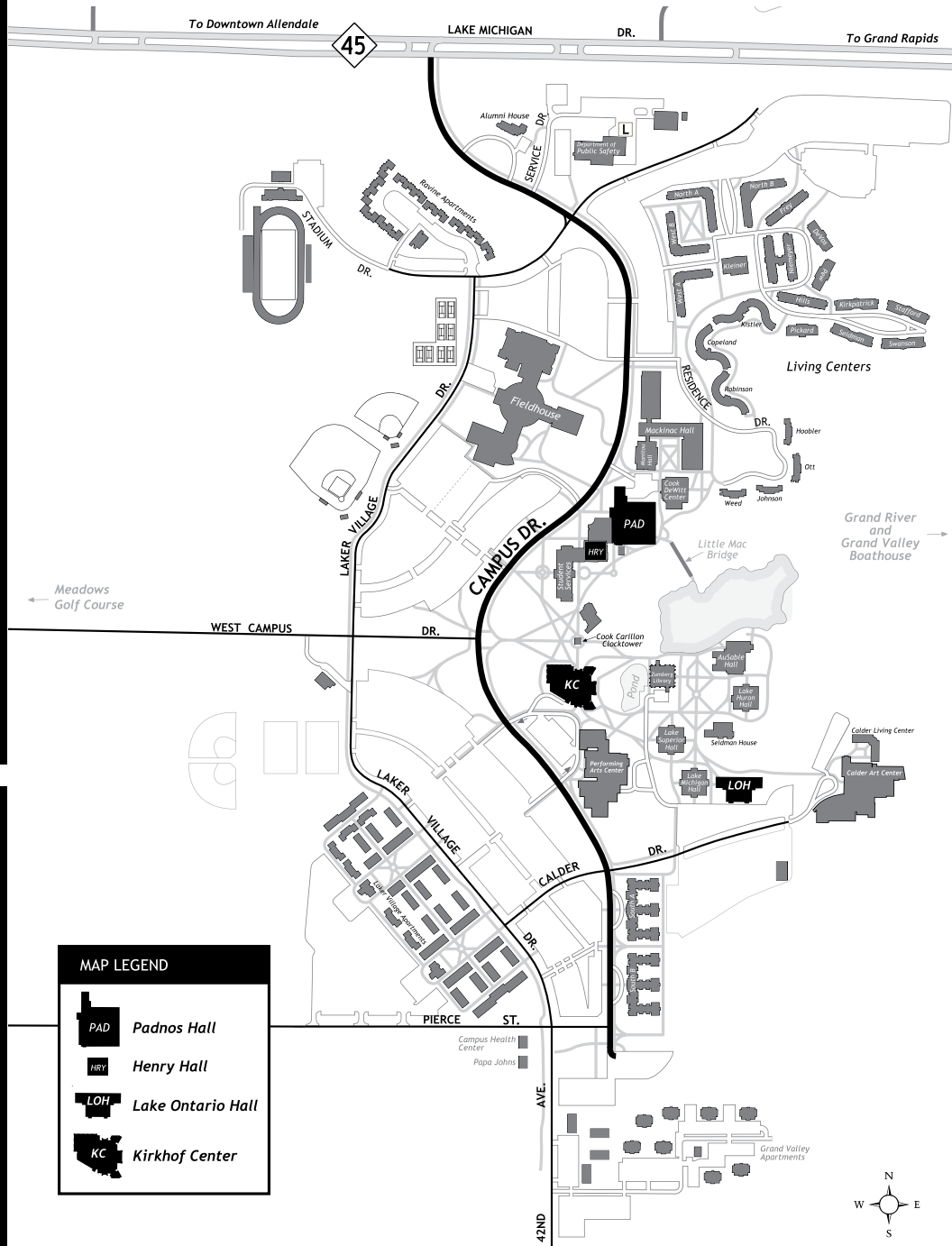
This year, Grand Valley celebrates the 15th anniversary of Student Scholars Day. To commemorate these many years of excellence, I have combined the designs from previous years for Student Scholars Day into one unified design.

The cover for this book is a collage of several Student Scholars Day designs. The rectangles and squares give structure to the overall design, and the curves within the shapes flow from one shape to the next. Some of the cover designs and colors are more dominant than others, however placing each design within the structure allows them to come together as a whole.

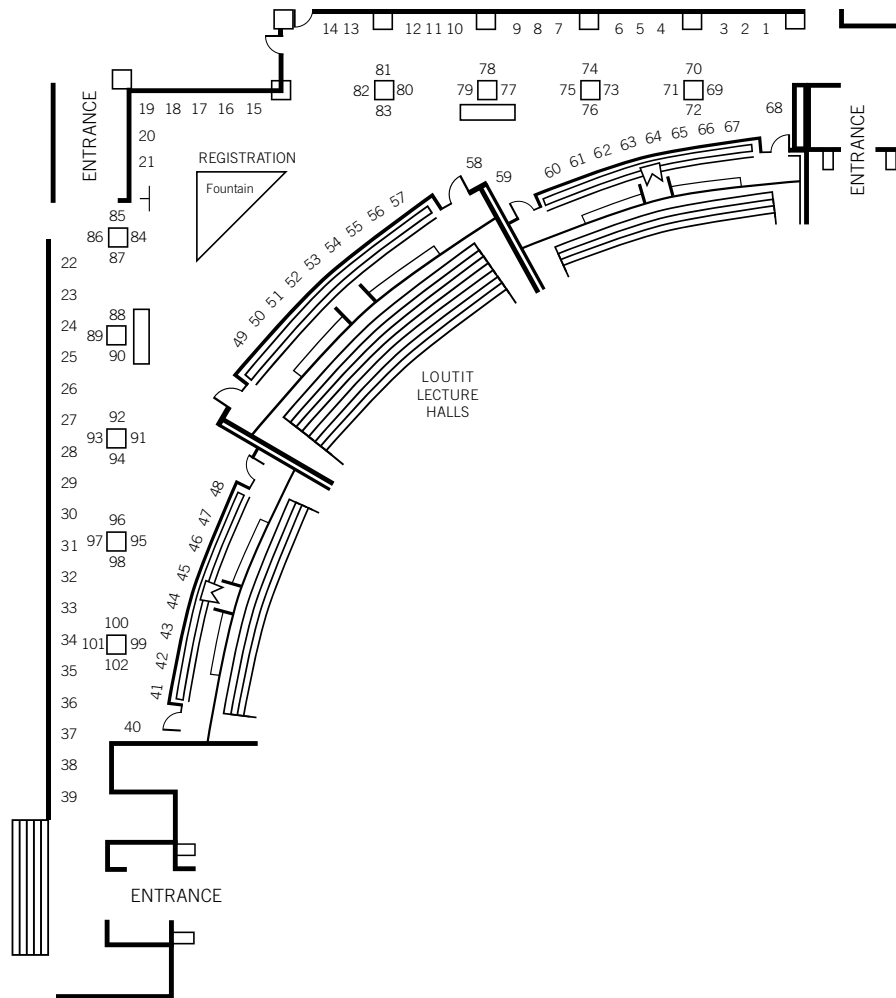
Each design has its own unique qualities, just as every area of academic study has its individual relevance to our local and global communities. These unique characteristics are joined together to create something even greater than each one can be independently.



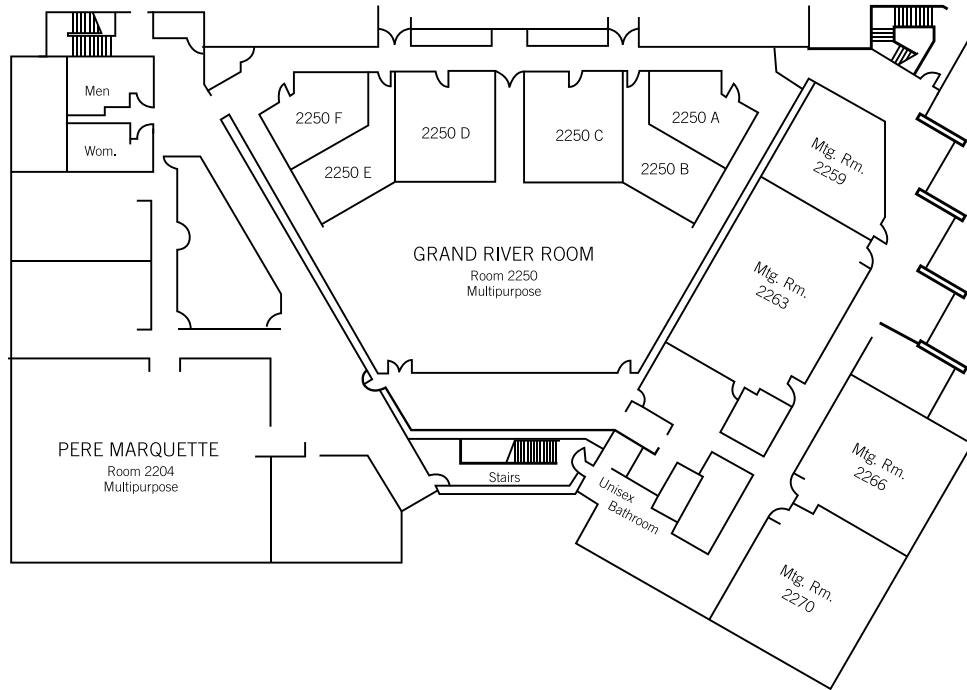
ALLENDALE CAMPUS MAP



HENRY AND PADNOS HALL POSTER LOCATION MAP



KIRKHOF CENTER SECOND FLOOR MAP



POSTER PRESENTATIONS

9:00—4:00 P.M.

Henry Hall Atrium 1	Effects on Substrate Selectivity due to Asn152 Mutation of P99 Cephalosporinase MEHRETEAB MENGSTEAB Participants attending from 12:00 p.m. until 1:00 p.m.
Henry Hall Atrium 2	Diode-Laser-Based Measurement of a Fundamental Molecular Parameter: The Pressure Broadening Coefficient TODD MAJOR, LUAN NGUYEN Participants attending from 9:00 p.m. until 10:00 a.m.
Henry Hall Atrium 3	Male Pattern Baldness and Prostate Cancer Risk: Testing for a Significant Relationship DAVID BOSS Participants attending from 3:00 p.m. until 4:00 p.m.
Henry Hall Atrium 4	Patient Non-disclosure of Alternative Medication Use to Healthcare Providers KRISTYN WHEATON, BRADLEY NETTLE, RYAN GENDRON, SETH ONDERSMA, STACY STONE, ANGELYN GOYETTE Participants attending from 1:00 p.m. until 2:00 p.m.
Henry Hall Atrium 5	The Antibacterial Activity of a Variety of Carboxylic Amides KATHLEEN BEDARD, ALEKS ARCHIYAN, JORDAN EVANS, MEGAN CHILDERS Participants attending from 3:00 p.m. until 4:00 p.m.
Henry Hall Atrium 6	X-Ray Crystallography PHILIP SHOEMAKER Participants attending from 12:00 p.m. until 1:00 p.m.
Henry Hall Atrium 7	Origin of a Diamicton at Grand Valley State University in Allendale, Michigan ROSS CUDNEY, ALEXANDER VILLHAUER, KATHLEEN LEE Participants attending from 2:00 p.m. until 3:00 p.m.
Henry Hall Atrium 8	Nurse Fatigue and Medication Errors CAITLIN CROSS, HEIDI VAN HOUTEN, CHRISTINE SPIEGOSKI, LAURA VANDER WAL, KARLENE WOOD, SARAH ZLOTNICKI Participants attending from 10:00 a.m. until 11:00 a.m.
Henry Hall Atrium 9	Geographic Information System (GIS) Mapping of a Kent County Gypsum Mine NEAL RINGERWOLE, KENT WALTERS Participants attending from 1:00 p.m. until 2:00 p.m.
Henry Hall Atrium 10	Grain-Size, Shape, and Mineralogical Analysis of Beach Sediments from Around the World ELIZABETH CARR, ANDREW HEYBOER, ALLISON STEPnitz Participants attending from 10:00 a.m. until 11:00 a.m.
Henry Hall Atrium 11	Bilateral Transfer in One-Handed Juggling CORIE AUGER, JOSHUA SUTTON Participants attending from 9:00 a.m. until 10:00 a.m.

POSTER PRESENTATIONS

9:00—4:00 P.M.

- | | |
|----------------------|---|
| Henry Hall Atrium 12 | Phylogenetic Relationships within the Neotropical Plant Genus <i>Lymania</i> (family Bromeliaceae) based on Several Chloroplast DNA Regions
CALEB JAMES
Participants attending from 9:00 a.m. until 10:00 a.m. |
| Henry Hall Atrium 13 | Positronium Annihilation Lifetime Spectroscopy Study of SBA-15
TRACY STEINBACH
Participants attending from 11:00 a.m. until 12:00 p.m. |
| Henry Hall Atrium 14 | Comparison of the Effects of Global Expansion and Gravitational Radiation on Orbiting Bodies
SCOTT BLEILER
Participants attending from 1:00 p.m. until 2:00 p.m. |
| Henry Hall Atrium 15 | The Effect of Pertussis Toxin on G-Protein Signaling in the Coronary Vasculature
KATHERINE LAZET
Participants attending from 10:00 a.m. until 11:00 a.m. |
| Henry Hall Atrium 16 | The Effects of Ascorbic Acid - Histamine Reactions on Coronary Arteries
JAMIE WOLF
Participants attending from 3:00 p.m. until 4:00 p.m. |
| Henry Hall Atrium 17 | Use of Complementary Therapies for Relief of Chemotherapy-Related Side Effects
COLLEEN BARTH
Participants attending from 9:00 a.m. until 10:00 a.m. |
| Henry Hall Atrium 18 | Factors that Affect Egg Mass in Tree Swallows
LISA BOL, ANGEL HAYDEN, MARCELLA BAIZ, MATTHEW ROMEYN, BRADLEY HOUDEK, LIBERTY HIGHTOWER
Participants attending from 10:00 a.m. until 11:00 a.m. |
| Henry Hall Atrium 19 | Where Have All the Physical Educators Gone? Hint: It is not Higher Education
JAMES BOZUNG
Participants attending from 2:00 p.m. until 3:00 p.m. |
| Henry Hall Atrium 20 | Characterizing the Regulation of the Diaphanous-Related Formin, DAAM1, by Expression of the Constitutively Active Full Length Protein in Cells
MICHAEL SCHILLACI-SCHOFIELD
Participants attending from 3:00 p.m. until 4:00 p.m. |
| Henry Hall Atrium 21 | Low Resolution, High Spatial Resolution Spectroscopy with a Digital Camera
LISA GENOVESE
Participants attending from 9:00 a.m. until 10:00 a.m. |
| Henry Hall Atrium 22 | Alternate Source of Serum for Mammalian Cell Culture
EKATERINI IORDANOU
Participants attending from 10:00 a.m. until 11:00 a.m. |

POSTER PRESENTATIONS

9:00—4:00 P.M.

Henry Hall Atrium 23	Mir-146b-5p Suppresses EGFR Expression and Reduces Migration and Invasion of Glioma <i>in vitro</i> THOMAS ROGERS Participants attending from 2:00 p.m. until 3:00 p.m.
Henry Hall Atrium 24	Coastal Terrace Tectonic Geomorphology, Trinidad, West Indies MALLORY MORELL Participants attending from 12:00 p.m. until 1:00 p.m.
Henry Hall Atrium 25	Symmetry Analysis of the Lane-Emden Equation WYATT BRÉGE Participants attending from 12:00 p.m. until 1:00 p.m.
Henry Hall Atrium 26	Avoidance Learning of Young Adult Zebrafish (<i>Danio rerio</i>) Exposed to Methylmercury RYAN COPPENS Participants attending from 12:00 p.m. until 1:00 p.m.
Henry Hall Atrium 27	A Statistical Consulting Experience: The Effects of Pedagogical Intervention on ESL Learners' Vocabulary Knowledge JOSHUE PADRON, GLEN GERWATOWSKI Participants attending from 3:00 p.m. until 4:00 p.m.
Henry Hall Atrium 28	Effects of Asn152 Mutation on Substrate Selectivity of P99 Cephalosporinase JAMES RUBLE Participants attending from 12:00 p.m. until 1:00 p.m.
Henry Hall Atrium 29	Nest Characteristics of Piping Plovers ANNA YOUNG Participants attending from 12:00 p.m. until 1:00 p.m.
Henry Hall Atrium 30	The Effects of Weathering on Pebble Sphericity and Roundness: An Experimental Study ERICA DALMAN, ADAM MULLING, ELIZABETH KOEMAN Participants attending from 2:00 p.m. until 3:00 p.m.
Henry Hall Atrium 31	An Evolutionary Approach to Loyalty KRAIG LISCHKGE Participants attending from 9:00 a.m. until 10:00 a.m.
Henry Hall Atrium 32	Functional Fatigue and Lower Extremity Latency JOSHUA BENNINGTON Participants attending from 12:00 p.m. until 1:00 p.m.
Henry Hall Atrium 33	Compared to <i>in vivo</i>, Isolated Hearts Respond Differently to Acetylcholine After Reperfusion Injury NEGIN NADVAR Participants attending from 3:00 p.m. until 4:00 p.m.
Henry Hall Atrium 34	Mutagenesis of OXA-40 CALEB ORTEGA Participants attending from 12:00 p.m. until 1:00 p.m.

POSTER PRESENTATIONS

9:00—4:00 P.M.

Henry Hall Atrium 35	CFI Michigan: An Internship Experience STEPHEN IVESON Participants attending from 2:00 p.m. until 3:00 p.m.
Henry Hall Atrium 36	The Effect of Caffeine on the Bacterial Populations of a Freshwater Aquarium System ADRIENNE GIBSON Participants attending from 1:00 p.m. until 2:00 p.m.
Henry Hall Atrium 37	The Effect of Breed Specific Legislation on Communities REBECCA TAKACS Participants attending from 10:00 a.m. until 11:00 a.m.
Henry Hall Atrium 38	Parental Anti-Predator Responses During the Nestling Period in Tree Swallows MARCELLA BAIZ, LISA BOL, LIBERTY HIGHTOWER, ANGEL HAYDEN, MATTHEW ROMEYN, BRADLEY HOUDEK Participants attending from 9:00 a.m. until 10:00 a.m.
Henry Hall Atrium 39	A Preliminary Phylogenetic Analysis of the Genus <i>Aneilema</i> (<i>Commelinaceae</i>) Based on Chloroplast DNA Sequences COREY DAVIS Participants attending from 11:00 a.m. until 12:00 p.m.
Henry Hall Atrium 40	Biological and Photochemical Transformation of Organic Matter in a Great Lakes Watershed KAITLYN DRIZA Participants attending from 10:00 a.m. until 11:00 a.m.
Henry Hall Atrium 41	Impact of Auditory Background on College Level Reading Speed and Comprehension KATE JOHNSON, LAUREN BERNOTT, ASHLEY GWINN Participants attending from 12:00 p.m. until 1:00 p.m.
Henry Hall Atrium 42	Mg/Ca: Is it a True Paleothermometer? SARAH CLARK Participants attending from 10:00 a.m. until 11:00 a.m.
Henry Hall Atrium 43	Dynamics of a Spacecraft in Multi-Center Systems WYATT BREGE Participants attending from 12:00 p.m. until 1:00 p.m.
Henry Hall Atrium 44	Analysis of a Cyclic Peptide Library to Identify Proteins That Effect <i>hilA</i> Expression and <i>Salmonella</i> Invasion TYLER RICHARDSON, PHILIP KASESKA, HANS HILL Participants attending from 12:00 p.m. until 1:00 p.m.
Henry Hall Atrium 45	Bringing Research into a Teaching Lab: The Development of Novel Antibiotics SHELBY BEAUBIEN, WILLIAM COUTURE, ERIC HANSEN, PATRICK LOUDEN, OLIVIA WHITE, MICHELLE DEFOUW, ERIC FIRESTONE, CHRISTIE OFFRINGA, ERIK WOLF, GREG PATTEN, KYLE ARMSTRONG, TRAVIS BISSON, PETER MINNICH, CODY HAGER Participants attending from 9:00 a.m. until 10:00 a.m.

POSTER PRESENTATIONS

9:00—4:00 P.M.

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| Henry Hall Atrium 46 | Options and Stock Pricing Model
ALEX PERRY
Participants attending from 8:00 a.m. until 9:00 a.m. |
| Henry Hall Atrium 47 | A Comparison of Group and Individual Creativity under Conditions of Experimentally Induced Fixation
CATHERINE IDEMA, OUEEN HUNTER
Participants attending from 1:00 p.m. until 2:00 p.m. |
| Henry Hall Atrium 48 | Ecology of Juvenile Salmon in Upland vs. Lowland Alaskan Streams: An Assessment of Food Webs Using Stable Isotope Analysis
MEGAN COOKINGHAM
Participants attending from 11:00 a.m. until 12:00 p.m. |
| Henry Hall Atrium 49 | Investigating Efficient Catalytic Systems for Coupling 2'-Deoxyguanosine Mesitylene Sulfonate with Terminal Alkynes
JAMIE GOMEZ
Participants attending from 10:00 a.m. until 11:00 a.m. |
| Henry Hall Atrium 50 | The Effectiveness of a Cooking Program on Increasing the Nutrition Knowledge of School-Age Children and their Parents at an Elementary School
KAYLEIGH HIGGINS, MELISSA CANNAN, KRISTINE OSTBY
Participants attending from 11:00 a.m. until 12:00 p.m. |
| Henry Hall Atrium 51 | A Periodization Program for the Female Figure Athlete
BRENT VOGEL, ANDREW MULBRECHT
Participants attending from 9:00 a.m. until 10:00 a.m. |
| Henry Hall Atrium 52 | Where Writers Write: Writing Environments and Writing Centers
SAMANTHA HOWARD
Participants attending from 3:00 p.m. until 4:00 p.m. |
| Henry Hall Atrium 53 | Energy Distribution in the Triplet Channels of Ozone Photodissociation
LUAN NGUYEN
Participants attending from 1:00 p.m. until 2:00 p.m. |
| Henry Hall Atrium 54 | Aroma as a Memory Cue Device
HALEY OTMAN, MICHELE BOOMS
Participants attending from 11:00 a.m. until 12:00 p.m. |
| Henry Hall Atrium 55 | Development of Innate Immunity in Nestling Tree Swallows
TAMMY STAMBAUGH
Participants attending from 11:00 a.m. until 12:00 p.m. |
| Henry Hall Atrium 56 | The Impact of a Nutrition Education Program on the Nutrition Knowledge of Parents of Preschool Children
JOSHUA PICKETT, LYNDSEY FLANIGAN
Participants attending from 12:00 p.m. until 1:00 p.m. |
| Henry Hall Atrium 57 | The Implications of Child Abuse/Neglect on Later Delinquency
CHRISTINE HANSEN
Participants attending from 11:00 a.m. until 12:00 p.m. |

POSTER PRESENTATIONS

9:00—4:00 P.M.

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| Henry Hall Atrium 58 | The Uncanny Valley and Implicit Expectation of Facial Structure
BRANDT SMITH
Participants attending from 10:00 a.m. until 11:00 a.m. |
| Henry Hall Atrium 59 | Gender Difference in Walleye PBDE Congener Concentrations from Saginaw Bay
AUTUMN TROMBKA
Participants attending from 2:00 p.m. until 3:00 p.m. |
| Henry Hall Atrium 60 | Possible Effects of Climate Change on Australia's Coast
STACEY KNAPP
Participants attending from 3:00 p.m. until 4:00 p.m. |
| Henry Hall Atrium 61 | Analysis of the Patterns of Suture Closure and the Inner and Outer Cortical Bone Density in Humans Using Computerized Tomography
LISA BURSON
Participants attending from 3:00 p.m. until 4:00 p.m. |
| Henry Hall Atrium 62 | Computational Pharmacophore Discovery to Aid in the Synthesis of New MRSA Antibiotics
JACOB LUKER
Participants attending from 1:00 p.m. until 2:00 p.m. |
| Henry Hall Atrium 63 | Using GIS to Evaluate the Effective Use of Parking Spaces for Residents and Commuting Students on GVSU's Allendale Campus: Mapping the Vacant Spaces
ZACHARY DARROW, RYAN HINKLEY, MIKE PAPRANEC, JOSH STAUBER
Participants attending from 10:00 a.m. until 11:00 a.m. |
| Henry Hall Atrium 64 | Importance of Macrophytes for Macroinvertebrate Secondary Production and Implications for Juvenile Salmon Feeding Ecology
EDWARD KRYNAK
Participants attending from 3:00 p.m. until 4:00 p.m. |
| Henry Hall Atrium 65 | Targeted Nonpolar Deletions in SPI-6 and their Role in Salmonella Enterica Serovar Typhimurium Invasion and Survival
PHILIP KASESKA, HANS HILL, TYLER RICHARDSON
Participants attending from 12:00 p.m. until 1:00 p.m. |
| Henry Hall Atrium 66 | Adult vs Peer Modeling for Children with Autism
LISA WILKINSON
Participants attending from 9:00 a.m. until 10:00 a.m. |
| Henry Hall Atrium 67 | The Effectiveness of Individual Identification of Bobcats (<i>Lynx rufus</i>) Using Automatically Triggered Cameras in Michigan
KAREN ICKES
Participants attending from 10:00 a.m. until 11:00 a.m. |
| Henry Hall Atrium 68 | A Periodized Speed & Agility Program for a College Football Running Back
MIKE ZIMMER, NATE BEST
Participants attending from 3:00 p.m. until 4:00 p.m. |

POSTER PRESENTATIONS

9:00—4:00 P.M.

Henry Hall Atrium 69	GIS Analysis of Earthquake Damage by Building Type in Port-au-Prince, Haiti RAYMOND POWELL, ALEXANDER VILLHAUER, MALLORY MORELL Participants attending from 12:00 p.m. until 1:00 p.m.
Henry Hall Atrium 70	Investigation of the Silaallyl Anion RANDALL BRECKON Participants attending from 1:00 p.m. until 2:00 p.m.
Henry Hall Atrium 71	Paleomagnetism of an Inflated Lava Flow: Kilauea, Hawaii CATHERINE CARLISLE Participants attending from 12:00 p.m. until 1:00 p.m.
Henry Hall Atrium 72	Communication is Key: A Study of Interpersonal Communication in Women's Volleyball KERRY HARRISON Participants attending from 1:00 p.m. until 2:00 p.m.
Henry Hall Atrium 73	Bringing Research into a Teaching Lab: The Synthesis of TAAR Regulators SHELBY BEAUBIEN, BETH VALLIER, KIELY RICH, ROWANNA HUMPHREYS, MARLISA HAWLEY, ANDY STARR, ANNA FALCON, JONATHAN LEHMANN, SCHUYLER BOS, ROBERT GRAFF, JASON HARPER, PATRICK FEUERSTEIN, GREG KORTMAN, AARON YUSTEN Participants attending from 9:00 a.m. until 10:00 a.m.
Henry Hall Atrium 74	Nato3 is Sufficient to Promote Ectopic Floor Plate Marker Expression in the Rostral Neural Tube of the Gallus Gallus Embryo DARCY KAUFMAN Participants attending from 11:00 a.m. until 12:00 p.m.
Henry Hall Atrium 75	Synthesis of Novel Cyclic Polyamides as Potential DNA-Interactive Agents ALYSSA LOPEZ Participants attending from 9:00 a.m. until 10:00 a.m.
Henry Hall Atrium 76	Geographic Information System Analysis of Damage Resulting from the 2010 Haiti Earthquake CHRISTI KROSKIE, AMBERJANE SCHNEIDER, PATRICIA HELDT Participants attending from 2:00 p.m. until 3:00 p.m.
Henry Hall Atrium 77	Music Therapy and Chronic Pain Management DENISE STEPANOVICH, GERALD TENBRINK, ASHLEY BYARS, KELLEY VELTMAN, KATHERINE SPRING, JEROD SINCLAIR Participants attending from 9:00 a.m. until 10:00 a.m.
Henry Hall Atrium 78	Implementation Status of Recycling Policy at GVSU: An Applied Archaeology DAVID BABCOCK Participants attending from 2:00 p.m. until 3:00 p.m.

POSTER PRESENTATIONS

9:00—4:00 P.M.

Henry Hall Atrium 79	Geographic Information System (GIS) Analysis of a River Flume Experiment BENJAMIN MATZKE Participants attending from 10:00 a.m. until 11:00 a.m.
Henry Hall Atrium 80	Facial Masculinity Does Not Predict Aggression in Criminals or Hockey Players STEFAN GOETZ, KRAIG LISCHKGE, TONY SCHNOTALA, BOB ERICKSON, AMANDA TAYLOR Participants attending from 10:00 a.m. until 11:00 a.m.
Henry Hall Atrium 81	Characteristics of EJ-200 Plastic Scintillator BRADLY WYN Participants attending from 9:00 a.m. until 10:00 a.m.
Henry Hall Atrium 82	Conversion of Cellulose to Value-Added Chemicals SHANE MCGRATH Participants attending from 2:00 p.m. until 3:00 p.m.
Henry Hall Atrium 83	Investigation of Phosphorus - Nitrogen Polymers BEN THOME, ANTHONY MONTOYA Participants attending from 10:00 a.m. until 11:00 a.m.
Henry Hall Atrium 84	The Acute Effect of Histamine and Vitamin C on Coronary Arteries BRENT HAZLEWOOD Participants attending from 9:00 a.m. until 10:00 a.m.
Henry Hall Atrium 85	Modeling Problem Solving: Creating and Evaluating Student-Generated Screencasts KAITLIN DOWNEY Participants attending from 1:00 p.m. until 2:00 p.m.
Henry Hall Atrium 86	Analysis of Ravine Sediments at Grand Valley State University, Ottawa County, Michigan ANDREW DEWITT, PHILIP KENROY, KENT WALTERS Participants attending from 2:00 p.m. until 3:00 p.m.
Henry Hall Atrium 87	Water Evaporation From Tropospheric Aerosols PATRICK LOUDEN Participants attending from 3:00 p.m. until 4:00 p.m.
Henry Hall Atrium 88	Construction of a Transgene to Analyze the Function of the 3' UTR in Hdc Gene Expression: EMBRIETTE HYDE Participants attending from 10:00 a.m. until 11:00 a.m.
Henry Hall Atrium 89	GIS Analysis of Offshore Wind Turbine Locations in Lake Michigan JAMES BENNETT II, ELIZABETH CARR Participants attending from 2:00 p.m. until 3:00 p.m.
Henry Hall Atrium 90	Quantification of Antibiotics in Water JODY WYCECH Participants attending from 11:00 a.m. until 12:00 p.m.

POSTER PRESENTATIONS

9:00—4:00 P.M.

Henry Hall Atrium 91	Microarray Analysis of CD82 Expression in Normal Prostate Cell Lines (+/- CD82) PUSHPAJA DODLA Participants attending from 11:00 a.m. until 12:00 p.m.
Henry Hall Atrium 92	Spatial Distribution of Damage Resulting from the 2010 Haiti Earthquake ANDREW DEWITT, JASON ARNOLD, ERICA DALMAN Participants attending from 3:00 p.m. until 4:00 p.m.
Henry Hall Atrium 93	Why the Top of the World is on the Top of Our Minds ROBERT SLIDER Participants attending from 9:00 a.m. until 10:00 a.m.
Henry Hall Atrium 94	Cyclic Polyamides as Telomerase Inhibitors NATHANIEL STRONG Participants attending from 11:00 a.m. until 12:00 p.m.
Henry Hall Atrium 95	The Application of Communication Accommodation Theory When Working With At-Risk Youth DEREK DUZAN Participants attending from 9:00 a.m. until 10:00 a.m.
Henry Hall Atrium 96	The Carbonate Record and Glacial-Interglacial Cycles MICHAEL WICKER Participants attending from 12:00 p.m. until 1:00 p.m.
Henry Hall Atrium 97	Bilingual Board Books in Early Childhood Education: A Contribution to Developing Intercultural Competency NIKKI WHITEFORD Participants attending from 2:00 p.m. until 3:00 p.m.
Henry Hall Atrium 98	Drosophila Genomics: An Active Approach to Genomics in the Classroom ANNA WYLIE, AMANDA MERCER, CHAD GIER, SHADIE EMIAH, SPENCER LOFQUIST, ALICIA BARAN, LINDSAY HOOGENBOOM, JEFFREY PASHNICK Participants attending from 1:00 p.m. until 2:00 p.m.
Henry Hall Atrium 99	Forging the Missing Link Between Sustainability and Green Chemistry KAITLYN DRIZA Participants attending from 9:00 a.m. until 10:00 a.m.
Henry Hall Atrium 100	Own-Face Fixation in the Formation of First Grader's Face Prototypes ANDREW TAYLOR Participants attending from 10:00 a.m. until 11:00 a.m.
Henry Hall Atrium 101	Cultural Beliefs Regarding Misfortune: A Cross-Cultural Test of the Just World Belief BRIANNA MIDDLEWOOD, RACHEL WALKER Participants attending from 9:00 a.m. until 10:00 a.m.

POSTER PRESENTATIONS

9:00—4:00 P.M.

Henry Hall Atrium 102

Me in an Ideal Place: Exceptional Students

Recycled Environments Projects

JILL VYVERBERG, JENICA BOCK, RICHARD GIBSON, VANESSA BOUWKAMP

Participants attending from 9:00 a.m. until 10:00 a.m.

ALL KIRKHOF CENTER POSTER PRESENTATIONS
ARE LOCATED IN THE GRAND RIVER ROOM

Kirkhof Center KC1

The Importance of Play in Hospitalized Children

KALI PENFOLD

Participants attending from 3:00 p.m. until 4:00 p.m.

Kirkhof Center KC2

Love Means Nothing when Training for Tennis

ALLISON BERKAS, COURTNEY BARRY

Participants attending from 9:00 a.m. until 10:00 a.m.

Kirkhof Center KC3

A Statistical Consulting Experience: Studying the Effectiveness of ooVoo as a Video Conferencing Tool

EMILY EVANS, JAY JANDASEK

Participants attending from 11:00 a.m. until 12:00 p.m.

Kirkhof Center KC4

Uncovering the Tuskegee Syphilis Study

BRITNI KANIEWSKI

Participants attending from 3:00 p.m. until 4:00 p.m.

Kirkhof Center KC5

Using Ongoing Eruptions to Study the Basic Characteristics of Volcanoes

STACIA SCHIPPER

Participants attending from 1:00 p.m. until 2:00 p.m.

Kirkhof Center KC6

The Effect of Ascorbic Acid and Histidine on Coronary Artery Function

HANNAH HOLLANDSWORTH, TIM DYKGRAAF, PATRICK ROACH

Participants attending from 2:00 p.m. until 3:00 p.m.

Kirkhof Center KC7

Performance on Sit-and-Reach Flexibility Tests as a Function of Body Proportions

ANNA WORM, MOLLY BARNARD

Participants attending from 3:00 p.m. until 4:00 p.m.

Kirkhof Center KC8

The Phylogeography of Eastern Red Bats (*Lasiurus borealis*) and Effects of Wind Turbine-Related Mortality

MIN LEE

Participants attending from 11:00 a.m. until 12:00 p.m.

Kirkhof Center KC9

Efficient Catalytic Systems for the Cross Coupling of 2'-Deoxyguanosine Tosylates with Terminal Alkynes

MICHAEL OSTACH

Participants attending from 2:00 p.m. until 3:00 p.m.

Kirkhof Center KC10

The Acute Effect of a Low Concentration of Imidazole and Ascorbic Acid on the Vascular Reactivity of Coronary Arteries

DEVON BANDA, WILLIAM VAN DE CAR, KATE WEIR

Participants attending from 10:00 a.m. until 11:00 a.m.

POSTER PRESENTATIONS

9:00—4:00 P.M.

- Kirkhof Center KC11 **Silicon in Wonderland**
NICOLE GIBBONS
Participants attending from 2:00 p.m. until 3:00 p.m.
- Kirkhof Center KC12 **Cyanobacterial Mats of the Earth: Spotlight on Lake Huron's Sinkholes**
NICOLE HORNE
Participants attending from 10:00 a.m. until 11:00 a.m.
- Kirkhof Center KC13 **Paleolatitude of the Mississippian Marshall Sandstone Jackson, Michigan**
MARY RUSSO, KYLE CROSBY, AMBERJANE SCHNEIDER, MICHAEL WICKER
Participants attending from 3:00 p.m. until 4:00 p.m.
- Kirkhof Center KC14 **Error Analysis of Modeling Antarctic Climate**
JAMES COLLINS
Participants attending from 9:00 a.m. until 10:00 a.m.
- Kirkhof Center KC15 **Prevention of Methicilin Resistant Staphylococcus Aureus (MRSA) in Athletes**
ELLEN BRUNO, SARAH METIVA, SAMANTHA DUNAVANT, NICHOLE WOITYRA, RYAN MANN, MARILYN WARREN
Participants attending from 9:00 a.m. until 10:00 a.m.
- Kirkhof Center KC16 **GIS Analysis of the Impacts of Sea Level Rise Near Port-au-Prince, Haiti**
JAMES BUZZELL, KYLE SIEMER
Participants attending from 3:00 p.m. until 4:00 p.m.
- Kirkhof Center KC17 **Nato3, a bHLH Protein, is Expressed in the Floor Plate of the Developing Neural Tube at all Axial Levels in the Chicken and Mouse Embryos**
SARALA SARAH
Participants attending from 11:00 a.m. until 12:00 p.m.
- Kirkhof Center KC18 **Characterizing the Cellular Regulation of the Diaphanous-related Formin, mDia3, by Expression of the Constitutively Active Full-length Protein**
SAMANTHA SEABERG
Participants attending from 3:00 p.m. until 4:00 p.m.
- Kirkhof Center KC19 **Ergogenic Effects of Caffeine on Submaximal Cycle Ergometer Performance**
JONATHAN HAVENHILL, ELLYSE BIRCH
Participants attending from 9:00 a.m. until 10:00 a.m.
- Kirkhof Center KC20 **Synthesis of Novel Indane Derivatives as Regulators of TAAR Activity: An Updated Approach**
KEVIN MAUPIN
Participants attending from 10:00 a.m. until 11:00 a.m.
- Kirkhof Center KC21 **Embryonic Methylmercury Exposure Caused Hyperactivity and Impaired Learning in Zebrafish**
MELANIE SMITH, LILLIAN SCHAEFER
Participants attending from 2:00 p.m. until 3:00 p.m.

POSTER PRESENTATIONS

9:00—4:00 P.M.

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| Kirkhof Center KC22 | Terror Management Theory and the Just World Belief as a Cultural Worldview
LAURA SMITH, CHRISTINA KOUTOUZOS
Participants attending from 2:00 p.m. until 3:00 p.m. |
| Kirkhof Center KC23 | Dual Caregiving Roles
HAYLEY BAKER
Participants attending from 9:00 a.m. until 10:00 a.m. |
| Kirkhof Center KC24 | Effects of Kangaroo Care In the Management of Pain in Neonates
SANDRA SEPULVEDA, KATELYN GRASHORN, ASHLEY NECCI, MINDY NIEDZWIECKI, SARAH WOOD, KAITLYN FRENCH
Participants attending from 9:00 a.m. until 10:00 a.m. |
| Kirkhof Center KC25 | A Phylogenetic Analysis of the African Plant Genus <i>Palisota</i> (family <i>Commelinaceae</i>) Based on Chloroplast DNA Sequences
GRADY ZUIDERVEEN
Participants attending from 9:00 a.m. until 10:00 a.m. |
| Kirkhof Center KC26 | Starting and Maintaining a Real Estate Portfolio
TIMOTHY SHAMILOV
Participants attending from 11:00 a.m. until 12:00 p.m. |
| Kirkhof Center KC27 | A Statistical Consulting Experience: Studying the Effectiveness of the Structured Learning Assistance Program
BEN THULL, RACHEL MORRELL
Participants attending from 10:00 a.m. until 11:00 a.m. |
| Kirkhof Center KC28 | Wii Active: Examining Cardiorespiratory, Body Composition and Body Esteem Changes in Female College Students
LAUREN RAMER, COURTNEY ATHY, TRACEY ALLERS, AMY KOLIN
Participants attending from 11:00 a.m. until 12:00 p.m. |
| Kirkhof Center KC29 | Synthesis of Calix[4]Furan Derivatives
ALVINA QURESHI
Participants attending from 9:00 a.m. until 10:00 a.m. |
| Kirkhof Center KC30 | Histamine and eGFP co-Localization in Flies Bearing an Hdc Promotor-eGFP Gene Fusion
WENDI-JO ERVIN
Participants attending from 9:00 a.m. until 10:00 a.m. |
| Kirkhof Center KC31 | Educating School-Aged Children and their Parents on the Importance of Breakfast to Increase Breakfast Program Attendance in Kelloggsville Public Schools
ZOE KILBOURNE, JOSH WOODHULL, DARLISA MEADERS, ERICA FEDEWA
Participants attending from 3:00 p.m. until 4:00 p.m. |
| Kirkhof Center KC32 | Bilingual Board Books in Early Childhood Education: A Contribution to Developing Intercultural Competency
MICHELLE TUCKER
Participants attending from 10:00 a.m. until 11:00 a.m. |

POSTER PRESENTATIONS

9:00—4:00 P.M.

- Kirkhof Center KC33 **A Filtering Approach to Computer-Aided Student Study Group Formation**
KURT O'HEARN
Participants attending from 12:00 p.m. until 1:00 p.m.
- Kirkhof Center KC34 **Materialism, Intrinsic Aspirations, and Meaning in Life Predict Students' Meanings of Education**
AMANDA MITCHELL
Participants attending from 1:00 p.m. until 2:00 p.m.
- Kirkhof Center KC35 **Beliefs and Comprehension: Importance of the Reason for Holding Beliefs**
ANDREW TAYLOR, SHAWNA TANNER, GABRIELLE AUSTIN
Participants attending from 3:00 p.m. until 4:00 p.m.
- Kirkhof Center KC36 **Clogging of the Southern Kent County Landfill Drainage System**
KYLE SIEMER
Participants attending from 2:00 p.m. until 3:00 p.m.
- Kirkhof Center KC37 **Strength and Conditioning Programming Specific to Rock Climbing Athletes**
LEONARD LAGARDE III, MATTHEW FLUTUR
Participants attending from 12:00 p.m. until 1:00 p.m.
- Kirkhof Center KC38 **A New Aragonite Preservation Proxy to Measure $[\text{CO}_3^{2-}]$ in Shallow Pelagic Seas**
CALVIN VANDER BOON
Participants attending from 3:00 p.m. until 4:00 p.m.
- Kirkhof Center KC39 **Capillary Isoelectric Focusing of Bacteria Using Cellulose Coated Capillaries**
RYAN NELSON
Participants attending from 11:00 a.m. until 12:00 p.m.
- Kirkhof Center KC40 **Progress Towards an Efficient Synthesis of a Truncated Ergoline: The Development of TAAR Regulators**
RYAN ENCK
Participants attending from 1:00 p.m. until 2:00 p.m.
- Kirkhof Center KC41 **Personality in the Jumping Spider, *Phidippus audax***
BETH BAUMGARTNER
Participants attending from 1:00 p.m. until 2:00 p.m.
- Kirkhof Center KC42 **The Role of Anxiety on Perfectionist Individuals Predisposed to Disordered Eating**
AMANDA WILLIS
Participants attending from 12:00 p.m. until 1:00 p.m.
- Kirkhof Center KC43 **The Effect of Music on Perceived and Actual Running Pace**
MICHELE VERELLEN, KELSEY DAVIES, MELANIE GROSS
Participants attending from 3:00 p.m. until 4:00 p.m.

POSTER PRESENTATIONS

9:00—4:00 P.M.

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| Kirkhof Center KC44 | Vector Construction of shRNA to Suppress Nato3 Expression in the Embryonic Gallus Gallus Central Nervous System: Design and Advances
JAKE CARPENTER-THOMPSON
Participants attending from 10:00 a.m. until 11:00 a.m. |
| Kirkhof Center KC45 | Climate Change Destroying Polar Bear Habitat
KATELYNN CARNESK
Participants attending from 10:00 a.m. until 11:00 a.m. |
| Kirkhof Center KC46 | The Combination of a Selective Nicotinic Agonist and Modulator Protects Against Cellular Damage in 2 Models of Glaucoma
JUAN RANGO
Participants attending from 12:00 p.m. until 1:00 p.m. |
| Kirkhof Center KC47 | Determining Personality in Sanctuary Chimpanzees (<i>Pan troglodytes</i>)
REBECCA BRITTAIN
Participants attending from 2:00 p.m. until 3:00 p.m. |
| Kirkhof Center KC48 | Age of the Apishpa Dikes Near Spanish Peaks, Colorado
AUSTIN WESTHUIS
Participants attending from 3:00 p.m. until 4:00 p.m. |
| Kirkhof Center KC49 | A Periodization Program for an Elite Collegiate Long Jumper
CHRISTOPHER WOLBERT, EMILY WHITE
Participants attending from 12:00 p.m. until 1:00 p.m. |
| Kirkhof Center KC50 | International Development and Sustainability: Cleaner Burning Stoves and Their Impact on Rural Peruvian Communities
BETHANY SHEFFER
Participants attending from 9:00 a.m. until 10:00 a.m. |
| Kirkhof Center KC51 | Electronic Health Care Records: Their Impact on Medication Errors
DAVID HASPER, KRISTEN DIB, KATIE SWIDERSKI, AMANDA STUCKEY, BETSY BAKER, MEAGHANN STAWASZ
Participants attending from 9:00 a.m. until 10:00 a.m. |
| Kirkhof Center KC52 | A Literature Review on the Importance of the Relationship between Nurse Preceptors and Newly Licensed RNs
KELLI BERNOTT, CALLAN POHLER
Participants attending from 3:00 p.m. until 4:00 p.m. |
| Kirkhof Center KC53 | Development of Novel Chelating Agents Used in MRI's
FELIX BOUCHER
Participants attending from 11:00 a.m. until 12:00 p.m. |
| Kirkhof Center KC54 | Testosterone-Induced Vasodilation in Large and Small Coronary Arteries
SAMPATH MADANU
Participants attending from 12:00 p.m. until 1:00 p.m. |

POSTER PRESENTATIONS

9:00—4:00 P.M.

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| Kirkhof Center KC55 | Effectiveness of Structured Learning Assistance Instruction in Rotational Kinematics
ELLIOT MICHEL
Participants attending from 9:00 a.m. until 10:00 a.m. |
| Kirkhof Center KC56 | Factors Influencing Weight Gain in Grand Valley State University Students
JENNIFER NISENBAUM
Participants attending from 11:00 a.m. until 12:00 p.m. |
| Kirkhof Center KC57 | BRCA1/BRCA2 and Genetic Counseling
ERICA MEE
Participants attending from 1:00 p.m. until 2:00 p.m. |
| Kirkhof Center KC58 | Sex Differences in Innate Immunity in Tree Swallows
BRADLEY HOUDEK
Participants attending from 12:00 p.m. until 1:00 p.m. |
| Kirkhof Center KC59 | A Statistical Consulting Experience: Analysis of Visitor Use Patterns at Nordhouse Dunes Wilderness
BRETT KLAMER, BRIAN TAFF
Participants attending from 10:00 a.m. until 11:00 a.m. |
| Kirkhof Center KC60 | Evaluation of Non-Radioactive Luminescence Assays for Protein Kinase Activity
KIRK WYATT
Participants attending from 10:00 a.m. until 11:00 a.m. |
| Kirkhof Center KC61 | Motivations for Self-Defensive Aggression in Dating Relationships
CHRISTINE MELTZER
Participants attending from 10:00 a.m. until 11:00 a.m. |
| Kirkhof Center KC62 | Intraperitoneal Immunization and Obesity in Mice
NESANTHENY KANAGALINGAM, SARAH GETTER, ALEX GILDE, HILARY FALES, PATRICK KILCOIN
Participants attending from 10:00 a.m. until 11:00 a.m. |
| Kirkhof Center KC63 | Relationship Based Care: An Evidence Based Framework and Application
STACY HEGGEN
Participants attending from 2:00 p.m. until 3:00 p.m. |
| Kirkhof Center KC64 | The Influence of Two Alkylphenols on Development, Growth, Reproductive Behavior, and Survival of Juvenile and Adult Crayfish
STEVEN GAUTHIER
Participants attending from 11:00 a.m. until 12:00 p.m. |
| Kirkhof Center KC65 | Children's Understanding of the Semantics of Negation
AMANDA HILTZ
Participants attending from 11:00 a.m. until 12:00 p.m. |

POSTER PRESENTATIONS

9:00—4:00 P.M.

- | | |
|----------------------|--|
| Kirkhof Center KC66 | Comparing the Psychological and Physiological Effects of Wii Active and a Normal Circuit Training Routine in College Students
MATTHEW WITTBRODT
Participants attending from 12:00 p.m. until 1:00 p.m. |
| Kirkhof Center KC67 | Microbial Colonization of Nestling Tree Swallows (<i>Tachycineta bicolor</i>)
HEATHER DANHOF
Participants attending from 9:00 a.m. until 10:00 a.m. |
| Kirkhof Center KC 68 | Monsoonal Variations Caused by Climate Change and their Impact on Water-Borne Diseases in South East Asia
CAROLYN ULSTAD
Participants attending from 9:00 a.m. until 10:00 a.m. |
| Kirkhof Center KC 69 | Analysis of GAP-43 in an Animal Model of Alzheimer's Disease Using Two Dimensional Gel Electrophoresis
CYNTHIA MITCHELL, ZACH BREEN, STEPHANEE SCHRADER
Participants attending from 10:00 a.m. until 11:00 a.m. |
| Kirkhof Center KC 70 | Soil Bacteriophage
ASHLEIGH MANGAS, CHARU SHARMA, MEGAN EMEOTT
Participants attending from 10:00 a.m. until 11:00 a.m. |
| Kirkhof Center KC 71 | A Twelve-Month Periodization Program for Developing Collegiate Male Sprinters
CHARLES BENTON, MATTHEW MOEDE
Participants attending from 11:00 a.m. until 12:00 p.m. |
| Kirkhof Center KC 72 | Use of the Chambira Palm (<i>Astrocaryum chambira</i>) in Rainforest Communities of the Peruvian Amazon
ANEL GUEL
Participants attending from 9:00 a.m. until 10:00 a.m. |
| Kirkhof Center KC 73 | A Periodized Approach to Strength and Conditioning for the United States Special Forces
THOMAS BARNETT, MIKE BOWERS
Participants attending from 9:00 a.m. until 10:00 a.m. |
| Kirkhof Center KC 75 | Laker Mobile - All Things GVSU Right on Your Mobile Phone!
MUHAMMAD QURESHI, GINA CARATELLI, ALEJANDRO MONTOYA, RAVI SINGAPATI, RICHARD ZHUANG, GREG ZAVITZ
Participants attending from 10:00 a.m. until 11:00 a.m. |
| Kirkhof Center KC 76 | Periodization Model for a Female Collegiate Sprinter
ANTHONY ROLLINS, MEGHAN HUBER
Participants attending from 12:00 p.m. until 1:00 p.m. |
| Kirkhof Center KC 77 | A Scientifically Reinforced Strength-Training Regimen for Male Golfers
JONATHAN POTVIN, KEVIN PROCTOR
Participants attending from 11:00 a.m. until 12:00 p.m. |

POSTER PRESENTATIONS

9:00—4:00 P.M.

- Kirkhof Center KC 78 **A Periodization Program for Professional Soccer**
BRAD VAN OOSTENBRUGGE, MEGHAN PETERS
Participants attending from 10:00 a.m. until 11:00 a.m.
- Kirkhof Center KC 79 **Affordable Housing in Grand Rapids, MI: Using GIS to Locate Areas in Need**
KENDRA SOCKS
Participants attending from 9:00 a.m. until 10:00 a.m.
- Kirkhof Center KC 80 **Conversion of a Class 1A Dihydroorotate Dehydrogenase to a Class 2 Enzyme**
SARAH GETTER
Participants attending from 10:00 a.m. until 11 a.m.
- Kirkhof Center KC 81 **3-Dimensional Interactive Art (3Dna)**
BRIEE DE GRAAF, LAUREN DE ARMAS, TEA VRANISH
Participants attending from 3:00 p.m. until 4:00 p.m.
- Kirkhof Center KC 82 **Effects of Arousal on Memory**
KRISTIN KUCZERA
Participants attending from 1:00 p.m. until 2:00 p.m.
- Kirkhof Center KC 83 **Periodized Strength and Conditioning Program for the Mixed Martial Artist**
ANDREW FERRIS, RYAN MOTT
Participants attending from 9:00 a.m. until 10:00 a.m.

ORAL PRESENTATIONS

9:00—4:00 P.M.

9:00 A.M.

- Kirkhof Center 1104 **An Adaptive Management Plan for Improving Spring Migrant Bird Species Habitat in Saugatuck Dunes State Park**
JILL CHAPMAN
- Kirkhof Center 2201 **A Statistical Consulting Experience: Mutations in Drosophila**
ANDREW RICHARDSON, JORDAN JAHNKE
- Kirkhof Center 2250C **Assessing Stream Health Near an Agricultural and Industrial Site with Indicator Species Chironomus dilutus and Hyallela azteca**
ERICA BOURDON

ORAL PRESENTATIONS

9:00—4:00 P.M.

9:00 A.M. CONTINUED

Kirkhof Center 2250D

Ovidian Views on Gender During the Early Roman Empire
MELANIE COUGHLIN

Kirkhof Center 2259

A Statistical Consulting Experience: Reaching Your Potential
MATTHEW MALLOURE, MARY LEONARD, BRITTANY SHAFFER

Kirkhof Center 2263

The Ramayana and Indian Society
UMA MISHRA

Kirkhof Center 2266

Heinrich Heine - the Formative Years
KALEY BECTEL

Kirkhof Center 2270

Knowledge Regarding Human Papillomavirus (HPV), its
Transmission, and its Complications in College Freshman
(Men and Women) at One Public University in the Midwest
KELLY ANTHONY, CHRISTINE SABIN

9:20 A.M.

Kirkhof Center 1104

An Adaptive Management Plan for the Improvement
of Mitigated Wetland Quality
NATALIE SUTHERLAND

Kirkhof Center 2201

How China is Affecting US Education
JENNIFER LECHY

Kirkhof Center 2250C

A Statistical Consulting Experience: Designing A Sampling Plan
for Nordhouse Dunes Wilderness
CASEY BARTON

Kirkhof Center 2259

Cost-Conscious Voters in Referendum Elections
KYLE GOLENBIEWSKI

Kirkhof Center 2266

The Origins of Adultery in Madame Bovary
ALLISON JENNINGS

9:40 A.M.

Kirkhof Center 1104

Hardwood Regeneration Since Red Pine (*Pinus resinosa*)
Removal In Ottawa, Co. MI
RYAN MELLEMA

Kirkhof Center 2201

La Femme Patiente: A Project in Translation
DONNA ST. LOUIS

Kirkhof Center 2250D

Churches, Congregations, Charitable Choice, and
the Struggles in Social Service Provision
DAVID MILLER

ORAL PRESENTATIONS

9:00—4:00 P.M.

9:40 A.M. CONTINUED

Kirkhof Center 2259

Investigations in the Geometry of Polynomials
NEIL BIEGALLE

Kirkhof Center 2266

**Beyond Language: Understanding Cultural Factors to
Better Service Hispanic Clients in Healthcare**
JENNIFER FRIESEMA

Kirkhof Center 2270

Flamenco: Its Origins and Creators
ERIN KUHN

10:00 A.M.

Kirkhof Center 1104

**Examining the Predicted Effects of Climate change across the
United States with Regards to Electrical Heating and Cooling**
TYLER PATTERSON

Kirkhof Center 2201

**Manipulating Site Selection of North American Beaver
(*Castor canadensis*) Using Predator Odors to Reduce
Impact on Anthropogenic Structures**
KYLE BEAVER

Kirkhof Center 2250C

Applying Classroom Concepts to a Magazine Publication
JERRY RADZIWIANYUK

Kirkhof Center 2263

**Carbon Cycling by Production and Respiration in a
Drowned River Mouth Lake**
ANGELA DEFORE

Kirkhof Center 2266

Rook Polynomials in Three and Higher Dimensions
NICHOLAS KRZYWONOS

Kirkhof Center 2270

Barack Obama: The Face of the Nation
PATRICIA GUOBADIA

10:20 A.M.

Kirkhof Center 1104

**A Geographic Information System Analysis of Land Use affects on the
Water Quality of the Plaster Creek Headwaters, Kent County, MI**
ANDREW SISSON

Kirkhof Center 2201

Under Our Feet: Archaeology, History, and Culture on the Grand River
KRISTINA VENLET

Kirkhof Center 2250C

Connectivity in the Off-Campus Community
REBECCA SEELBACH

ORAL PRESENTATIONS

9:00—4:00 P.M.

10:20 A.M. CONTINUED

Kirkhof Center 2250D **"He hates to have me write a word": Language and Female Oppression in "The Yellow Wallpaper"**
KRISTYN KONAL

Kirkhof Center 2259 **The Schwarz-Christoffel Transformation**
KYLE GOLENBIEWSKI

Kirkhof Center 2263 **A Statistical Consulting Experience: Evaluating the Performance of Charter Schools**
ERIC PRINCE, AUSTIN KIRT

Kirkhof Center 2266 **NSAC State Farm Campaign**
JESSICA MICKLES, JULIA ROESER , AMANDA KRIEGER ,
MARGARET PLASKEY, KATI DAMEROW

Kirkhof Center 2270 **Action**
SUSANNA SKOWRONEK, INGRID SCHEER,
CASEY KEY, EMILY LARSON, REBECCA NIXON

10:40 A.M.

Kirkhof Center 2263 **Modeling Residential Foreclosures in Kent County**
KAITLYN RATKOWIAK

Kirkhof Center 2266 **Population Genetic Structure of the Invasive Round Goby in Lake Michigan**
ELIZABETH LARUE

Kirkhof Center 2270 **Spatial Correlation Between Pesticide Exposure and the Occurrence of Alzheimer's Disease**
LUCAS SEITZ

11:00 A.M.

Kirkhof Center 1104 **Predator Conflict: Fragmentation Impacts on Bobcats(*Lynx rufus*) and Coyotes (*Canis latrans*) in Central Michigan**
KAREN ICKES

Kirkhof Center 2201 **Recognizing Rosemarie: Analysis of Mothers' Roles in Incest**
ASHLEY RUTH

Kirkhof Center 2250C **The Many Faces of Violence in Griselda Gambaro's Information for Foreigners**
SAMANTHA CRISSEY

ORAL PRESENTATIONS

9:00—4:00 P.M.

11:00 A.M. CONTINUED

- | | |
|----------------------|--|
| Kirkhof Center 2250D | A Statistical Consulting Experience: Success in CHM 116 based on CHM 115
LOREN JORDAN, DEREK BENT, JESSICA BUTLER |
| Kirkhof Center 2259 | Using LiDAR Data to Evaluate Road Runoff on Impermeable Surface Roadways and Identifying Locations to Install Methods for Reducing Runoff on Grand Valley State University's Allendale Campus
NICOLE GEERTS, VERNON RICHARDSON, KENDALL GILBERT, JOHN MARTINEZ |
| Kirkhof Center 2263 | Popular Opinion of Children in Classical Greece: A Holistic Archaeological Approach
KELSEY HANSON |
| Kirkhof Center 2266 | The Effects of a Throwing Fatigue Protocol on Muscle Latency in Response to Rotational Perturbation of the Glenohumeral Joint in Collegiate Baseball Players
BRENT VOGEL |
| Kirkhof Center 2270 | Obstetrics in the Bible and Talmud
AMANDA RODRIGUEZ |
| <p>11:20 A.M.</p> | |
| Kirkhof Center 1104 | The Effect of Climate Change on the Abundance of Winter Bird Species in Benzie County, Michigan
EMILY COOK |
| Kirkhof Center 2201 | The Effectiveness of High Fidelity Simulation in Health Professions Education
LESLIE CROWLEY, BRAD TROMPEN, STEVE LADD |
| Kirkhof Center 2250C | Anarchy and Revolution: The Marxist-Anarchist Debate, 1864-192
PATRICK ANDERSON |
| Kirkhof Center 2250D | Hip-Hop on Loan: A Renewed Purpose in the Islamic World
ASHLEY WISEMAN |
| Kirkhof Center 2259 | A Periodization Program for Female Competitive Gymnasts on Balance Beam
JAMIE MILLIRON, SARA BUDDE |
| Kirkhof Center 2263 | Interpreting Sums
SAMANTHA DAHLBERG |
| Kirkhof Center 2266 | Genetics in The Cloud
TAMMY WEEKS |

ORAL PRESENTATIONS

9:00—4:00 P.M.

11:20 A.M. CONTINUED

Kirkhof Center 2270

**Vegetation Community Response to Long Term
Experimental Warming in Northern Alaska**
JEREMY MAY

11:40 A.M.

Kirkhof Center 1104

**Assessment of Paper Waste Between Students and
Faculty at Grand Valley State University**
ELIZABETH BRANDT

Kirkhof Center 2250C

**Utilizing Graphical Processing Units to Accelerate the Computation
and Verification of Molecular Collision Models**
KURT O'HEARN

Kirkhof Center 2250D

To the Lighthouse
ALLISON STALEY

Kirkhof Center 2259

Narrator Credibility in Pawel Huelle's "Who was David Weiser?"
AMANDA JURCZAK

Kirkhof Center 2266

**Entrepreneurship/Small Business Programming
Within Correctional Facilities**
NIKKI POWERS

Kirkhof Center 2270

**Predicting Responses of Arctic Plants to Warming
with Species Distribution Maps**
JENNIFER LIEBIG

12:00 P.M.

Kirkhof Center 1104

**An Adaptive Management Plan for Improving the Howard Christensen
Nature Center Trail System**
PAUL BETHKE

Kirkhof Center 2250D

**Mediating the Streets: Exploring the Intersections of
Common Policing and Common Mediation Practices**
MATTHEW FERRE

Kirkhof Center 2259

**Mirror, Mirror, on the Wall Who is the Most
Attractive Politician of Them All?**
FRIEDERIKE HABEL

Kirkhof Center 2263

**Variables That Influence Cervical Cancer Screening
Behavior Among African American Women**
JULIE GRECH

ORAL PRESENTATIONS

9:00—4:00 P.M.

12:00 P.M. CONTINUED

Kirkhof Center 2266

**Mapping Sidewalks for Handicap Accessibility on the
GVSU Allendale Campus Using GIS**
REBECCA BRITAIN, JESSICA MILLER, KHERAN JOSEPH

12:20 P.M.

Kirkhof Center 2201

**A Comparison of the Prevalence of Depression Between
African Americans and Whites with Type II Diabetes Mellitus**
SARAH APPOLD, KIRRA SHEREMET, DAVID KLUNGLE

Kirkhof Center 2250D

Understanding Female Ex-Offender Re-Entry into the Workforce
BRITTANY DERNBERGER

Kirkhof Center 2266

**Into the Unknown: The Search for Identity in
Paul Auster's "City of Glass"**
HOLLY KAUPA

Kirkhof Center 2270

Sacred Threads
CAITLIN KELLY

12:40 P.M.

Kirkhof Center 2259

Indian Landing: An Archaeological Analysis of Glass Artifacts
BRITTANY GRAY

Kirkhof Center 2263

**Expression, Purification and Characterization of the
Asn152Thr Mutant P99 Cephalosporinase**
AMANDA HANKS

1:00 P.M.

Kirkhof Center 2201

The Fractal Beauty of Byzantine Music
JESSICA SEARS

Kirkhof Center 2250D

A Dark Revelation: Hidden Criticism in Lord Byron's Darkness
ALISON HANEY

Kirkhof Center 2263

Student Professional Development
MERRADITH DOYEN

Kirkhof Center 2266

Perfection is Possible, yet Unwanted
BRYAN KIMBALL

Kirkhof Center 2270

**"On, Lusty Gentlemen!" The Queer Ways the Boys Play in
Baz Luhrmann's Romeo + Juliet**
CASSEY STANK

ORAL PRESENTATIONS

9:00—4:00 P.M.

1:20 P.M.

Kirkhof Center 2201

Tessellations of the Hyperbolic Plane using KBMAG
CLIFFORD TAYLOR

Kirkhof Center 2250D

"The Ahistorical Fallacy" - How Americans Ignore History in Contemporary Analysis of Racial Disparities
MARCUS BELL

Kirkhof Center 2259

The Relationship between Maternal Periodontal Status and Pregnancy Outcome
STEPHANIE MISCO

Kirkhof Center 2270

Association Between Employment and GPA for Students
FERRIS JUMAH

1:40 P.M.

Kirkhof Center 2201

Transparency in Michigan Organizations
LEANDRO ROBLES, STEVE PETERSON, JESSICA BRAUTIGAM

Kirkhof Center 2250C

How the Readymade Will Save the World: Marcel Duchamp's Art in a Modern Context
DANI WILLCUTT

Kirkhof Center 2259

Examining the Potential Placement of Rain Gardens Using GIS Technology: Reallocating Rooftop Run-off
AMANDA MOORE, MATHEW KAPTEYN, DOLLY CATLIN, LINDSEY UPCHURCH, MATHEW CARSON, ANDREW REINHARDT

Kirkhof Center 2266

Cultural Diversity in Therapeutic Recreation
DANIELLE TAYLOR, SHELBY ABRAMSON, JESS SPORTE, EMILY FOSTER

2:00 P.M.

Kirkhof Center 2201

Quasicrystals, Tilings, and Diffraction Patterns
WYATT BREGE

Kirkhof Center 2250C

Portia's Ring: The Capacity for Power in 'The Merchant of Venice'
MARY HANCOCK

Kirkhof Center 2250D

Site Preparation and Hand Pulling Effects on Spotted Knapweed Control and Native Plant Establishment in the Bass River Recreation Area, Ottawa County, Michigan
COREY KAPOLKA

Kirkhof Center 2259

Globalization and Therapeutic Recreation
EMILY WEST, ASHLEY WALL, CHRISTINA KINTOPF, AUBRIE MEUNIER, KAYLEEN PERRY, JILL ELLISON

ORAL PRESENTATIONS

9:00—4:00 P.M.

2:00 P.M. CONTINUED

Kirkhof Center 2263

Sports and the Public Sphere
MICHAEL SALDANA

Kirkhof Center 2266

The International Criminal Court: A New Era in International Criminal Justice or Another Dead End?
ANNE VANDERBROEK

Kirkhof Center 2270

Will the Internet-Based Replacement of Ann Arbor's Daily Newspaper Become the New Model for Local Journalism?
NANCIE HUDSON

2:20 P.M.

Kirkhof Center 2201

Testing for Normality
ERIC PRINCE

Kirkhof Center 2250C

Parteras and Choice of Birth Practitioners in a Tourism Community of Yucatan, Mexico
LINSEY CORY

Kirkhof Center 2250D

The 1573 Lutheran/Orthodox Dialogue as a Coda to the Divergence of Eastern and Western Christianity
TIMOTHY FLANDERS

Kirkhof Center 2259

Health and Medical Pluralism in Rural Nepal: Studying One's Own Community
SWETA BASNET

Kirkhof Center 2263

Freezing as a Possible Means of Prehistoric Sugar Production
WESLEY JACKSON

Kirkhof Center 2266

Therapeutic Relationships in Therapeutic Recreation
DENISE BROOKS, LINDSAY JOHNSON,
CHRISTA SCHWARZ, MARILYNN ELLENBERGER

Kirkhof Center 2270

Exploring Operation of a Theremin
DOUG COLEMAN

2:40 P.M.

Kirkhof Center 2250D

An Archaeological Analysis of Metal Artifacts at Indian Landing
MELISSA LUDKE

Kirkhof Center 2266

Mosaic Collaboration Project Between Grand Valley Ceramics Department and East Kentwood High School
REBECCA BLOEM, LISA MALESKI, JESSICA SCHULTZ

ORAL PRESENTATIONS

9:00—4:00 P.M.

2:40 P.M. CONTINUED

Kirkhof Center 2270

Standardization in Therapeutic Recreation Academic Programs:

KAYLA MCGUIRE, REBECCA WICKENS, KIM PALASEK,
LAURA SVIHRA, LAURA CLARK, KRYSTAL MCNAUGHTON

3:00 P.M.

Kirkhof Center 2201

A Study of Native Language Use in Classroom Contexts:

Policy and Practice in the United States and the Netherlands

JILLIAN CROCKETT

Kirkhof Center 2250C

Writing and Design for the Modern Craft Brewing Market

CONOR BARDALLIS

Kirkhof Center 2250D

Religious Illiteracy in the United States

WHITNEY BELPREZ

Kirkhof Center 2259

Customer Database Marketing: Advancements

in Marketing Techniques

RACHELLE TIMMER

Kirkhof Center 2263

**Resurrection Machines: An Analysis of Burial Sites in Ancient Egypt's
Valley of the Kings as Catalysts for Spiritual Rebirth**

JARRETT ZEMAN

Kirkhof Center 2270

Czech Out Study Abroad and The Gilman Scholarship

KATIE BOOMS

3:20 P.M.

Kirkhof Center 2250C

**"Ek er ekki bastardör nema auk-nefini": Manipulation of William the
Conqueror's Bastardy in Játvarðar Saga**

BENJAMIN KNIGHT

Kirkhof Center 2250D

Assessing the Utility of Genetic Data as a Monitoring Tool:

A Case Study of Eastern Red Bats (Chiroptera:

Vespertilionidae: *Lasiurus borealis*)

ANNE MCNEELY

Kirkhof Center 2259

Application of Reminiscence Therapy in the Analysis of Gilligan's

Psychological Development of Women's Moral Decision

Making Theory: A Case Study

LINDSEY GUGEL

Kirkhof Center 2263

Mapping Manhole Utilities: GVSU Allendale Campus

DIANE MILLER, KAITLYN LEMON

PERFORMANCES AND FILMS

12:00—4:00 P.M.

12:00 P.M.

Kirkhof Center 0051

Art Education Students Service-Based Practice Through
Community Collaboration in an Art Museum Setting
LINDSAY ROSE, MITCH MOORE, TIMOTHY HOLSTAD, KEVIN BECKER

2:00 P.M.

Kirkhof Center 0051

Embracing Indigenous Cosmovision:
Understanding Indigenous Land Rights Crisis
PARIS CONWELL

3:30 P.M.

Kirkhof Center 2204

Tracing the Stylistic Elements of Jazz: From Bossa Nova to Fusion
DAVID JAMES

POSTER PRESENTATION ABSTRACTS

BEGINNING AT 9:00 AM

HENRY HALL ATRIUM 1

Effects on Substrate Selectivity due to Asn152 Mutation of P99 Cephalosporinase

Presenter(s): Mehreteab Mengsteab

Within this past century, medicine has been able to save millions by putting into use antibiotics based on a β -lactam core structure. β -lactam antibiotics combat bacterial infections by disrupting the latter stages of bacterial cell wall synthesis. Bacteria have evolved efficient ways to resist these antibiotics by producing β -lactamase enzymes. These enzymes interfere with β -lactams by hydrolyzing the lactam ring, thus rendering it inactive. One way bacteria gain resistance to β -lactam antibiotics are through new mutations. These mutations enable the enzyme to change substrate selectivity thus allowing one β -lactamase to potentially hydrolyze different β -lactams. In P99 cephalosporinase, mutation of the conserved asparagine residue at position 152 can have a large effect on substrate selectivity. In this study, crystallization characterizations of Asn152Ser mutant were performed. Further studies on Asn152Ser mutant of P99 β -lactamase may aid in the design of new antibacterial drugs.

Mentor(s): Rachel Powers

HENRY HALL ATRIUM 2

Diode-Laser-Based Measurement of a Fundamental Molecular Parameter: The Pressure Broadening Coefficient

Presenter(s): Todd Major, Luan Nguyen

A fundamental understanding of chemical reactions requires a detailed knowledge of energy transfer during molecular collisions. The pressure broadening coefficient is a parameter that helps provide this type of knowledge. Measuring the pressure broadening coefficient for a gas colliding with another gas furthers the understanding of the energy transfer between the two types of molecules. We report progress towards our goal of building a diode-laser-based spectrometer for obtaining the pressure broadening coefficients of gases.

Mentor(s): George McBane, Stephanie Schaertel

HENRY HALL ATRIUM 3

Male Pattern Baldness and Prostate Cancer Risk: Testing for a Significant Relationship

Presenter(s): David Boss

Elevated androgen levels, and in particular dihydrotestosterone (DHT), are believed to play a causal role in the etiology of prostate cancer. DHT also regulates hair growth and patterning and thus may serve as a biomarker of prostate cancer risk. We examined the association between hair patterning and prostate cancer in a case-control study of Caucasian men in Pittsburgh, PA. The results from the data analyses gave no indication of a significant relationship between either type of baldness, frontal or vertex, and prostate cancer risk. There could be some unknown factors that are affecting baldness and/or prostate cancer that are still unknown. There is still much more research and many more studies needed to fully understand these biological occurrences.

Mentor(s): Claudia Leiras-Laubach

POSTER PRESENTATION ABSTRACTS

BEGINNING AT 9:00 AM

HENRY HALL ATRIUM 4

Patient Non-disclosure of Alternative Medication Use to Healthcare Providers

Presenter(s): Kristyn Wheaton, Stacy Stone, Seth Ondersma, Ryan Gendron, Bradley Nettle, Angelyn Goyette

There are many alternative medicines offered today in a variety of forms. These supplements, specifically herbal remedies, are often not discussed with healthcare providers, occasionally causing complications with prescribed medications. In one study only 33% of participants using alternative medicines reported disclosure to their healthcare provider. The aim of this research review is to examine possible reasons why patients do not disclose their alternative medication use and to find different ways for healthcare providers to obtain this information. Searches were conducted using databases CINAHL, Cochrane Library, and PubMed with keywords herbal remedies, patient communication, disclosure, alternative medicine, and healthcare providers. By using Imogene King's Nursing Theory our analysis will identify possible techniques for healthcare providers that encourage patient disclosure of all alternative medication use, in order to improve patient-healthcare provider communication.

Mentor(s): Phyllis Gendler

HENRY HALL ATRIUM 5

The Antibacterial Activity of a Variety of Carboxylic Amides

Presenter(s): Kathleen Bedard, Jordan Evans, Aleks Archiyan, Megan Childers

Improper use of antibacterial compounds has led to the rise of resistant species of bacteria such as methicillin resistant *Staphylococcus aureus* (MRSA), vancomycin resistant enterococci (VRE), and extreme drug resistant tuberculosis (XDR-TB). We have discovered a new class of antibiotics that can potentially inhibit the growth of Gram-positive bacteria. Since inhibition against *S. aureus* and *E. faecalis* occurred, MRSA and VRE strains were tested and inhibition by our compounds was identical to non-resistant strains of each species. Additionally, this class of antibiotic also inhibits strict anaerobic Gram-positive organisms including *Clostridium difficile*, which can cause diarrhea in humans. These results demonstrate that our carboxylic amide compounds are a novel, non-penicillin based antibiotic that could be used to treat MRSA and other Gram positive infections.

Mentor(s): Robert Smart, Rod Morgan

HENRY HALL ATRIUM 6

X-Ray Crystallography

Presenter(s): Philip Shoemaker

An experimental project is underway studying and executing certain methods of X-ray crystallography. X-ray crystallography is the application of the techniques of X-ray diffraction to crystals of a vast spectrum of organic and inorganic structures. Although small molecules will be the experimental focus of this project, the major purpose of the research is to learn how crystallography applies to a whole range of problems. GVSU was granted data collection time at Argonne National Laboratory in December where data was collected from two YLiD crystals, two zinc sulfide crystals, as well as five samples from an unknown mineral. We plan to have completely solved structures of each molecule after analyzing the data collected from them. We are also currently in the process of restoring the GVSU diffractometer to working order as an addition to the experiment. If this proves to be successful, we will attempt to take data from the same crystals used at Argonne and compare results.

Mentor(s): Ross Reynolds

POSTER PRESENTATION ABSTRACTS

BEGINNING AT 9:00 AM

HENRY HALL ATRIUM 7

Origin of a Diamicton at Grand Valley State University in Allendale, Michigan

Presenter(s): Ross Cudney, Alexander Villhauer, Kathleen Lee

The ravines on the campus of Grand Valley State University in Allendale, Michigan, reveal sediments deposited during the Late Wisconsin Glaciation. A layer of diamicton capping a sequence interpreted to be lake and outwash sediments is exposed in an outcrop in a ravine located on the south end of the campus. Our goal is to characterize the diamicton and determine its origin. Eleven samples were collected at half-meter intervals and a stratigraphic column of the outcrop was constructed detailing the locations of each sample. Grain size analysis will be conducted on the samples by hydrometer and sieving. Clasts will be examined for striations and flat iron facets, both of which could indicate subglacial origins. Grain size analysis combined with visual characterization of clasts throughout the bed may indicate whether the diamicton is of subglacial (material transported beneath the ice sheet), supraglacial (debris accumulated on top of the ice sheet), or a combination of origins.

Mentor(s): Patrick Colgan, Patricia Videtich

HENRY HALL ATRIUM 8

Nurse Fatigue and Medication Errors

Presenter(s): Caitlin Cross, Karlene Wood, Sarah Zlotnicki, Christine Spiegowski, Laura Vander Wal, Heidi Van Houten

To have quality hospital care, it is vital to staff nurses who are attentive, make good judgments and have critical thinking skills. But, what happens to those qualities when a nurse works a 12 hour shift? Thousands of patients die yearly from medication errors. A review of the research comparing the effects of working a shift longer than 8 hours on fatigue and medical errors are considered. The purpose of this presentation is to evaluate the research on fatigue and medical errors. Searches were done through CINAHL, PubMed, and Cochrane library using the following words: Linda Scott, shift length, patient care, nurse, hospital, medication errors and fatigue. The research supports that shifts lasting longer than 8 hours lead to worker fatigue and a higher risk of errors. Neuman's model states the goal of nursing is to assist in maintaining client system stability.

Mentor(s): Phyllis Gendler

HENRY HALL ATRIUM 9

Geographic Information System (GIS) Mapping of a Kent County Gypsum Mine

Presenter(s): Neal Ringerwole, Kent Walters

There are nearly six miles of former mine workings at the Michigan Natural Storage (MNS) gypsum mine. Portions of the mine are being used for dry storage. A map of the mine, originally created by Williams & Works Civil Engineering & Survey in March of 1951, was obtained from MNS for evaluation. This hand-drafted map was scanned at 200 DPI on a large format scanner. Mine features, such as tunnels and infrastructure, were then digitized and analyzed using ArcMap Geographic Information System (GIS) software. Detailed mapping, using laser distance measurement devices, will confirm the accuracy of the original map. New layers will also be created that locate areas of standing water, tunnel collapses, historic mine features, and other locations of geologic interest such as mineral and fossil occurrences. The updated map and GIS database will help the mine owners track problem areas and will also provide a base map for the many geologic field trips that visit the mine.

Mentor(s): Peter Wampler

POSTER PRESENTATION ABSTRACTS

BEGINNING AT 9:00 AM

HENRY HALL ATRIUM 10

Grain-Size, Shape, and Mineralogical Analysis of Beach Sediments from Around the World

Presenter(s): Elizabeth Carr, Andrew Heyboer, Allison Stepnitz

Grain-size, shape, and mineralogical analyses are used to help determine the depositional environment, transportation history and source rocks of sediments. We performed these analyses on beach sediments from around the world. Our primary goal is to see how variable beach sediments are and to determine how likely statistical parameters can be used to identify beach sediments in ancient rocks. A secondary goal is to see if samples that have statistical parameters typical of beach sediment as suggested by the literature have certain shapes and mineralogies. If so, perhaps these data can be used to predict when statistical parameters are reliable indicators of a beach environment. We used sieving and calculated statistical parameters such as mean, mode, sorting and skewness using graphical methods. In addition, we used a binocular microscope to determine the mineralogy and shape of the grains, including sphericity, roundness and surface texture.

Mentor(s): Patricia Videtich

HENRY HALL ATRIUM 11

Bilateral Transfer in One-Handed Juggling

Presenter(s): Corie Auger, Joshua Sutton

The purpose of this study is to determine whether a greater amount of bilateral transfer occurs in subjects from dominant to non-dominant hand or from non-dominant to dominant hand while practicing juggling. All 24 subjects were split into two groups of 12, each with an equal number of male and female subjects. Group A juggled for 3 minutes using their dominant hand, then switched to their non-dominant hand for 25 minutes, at the end of which they returned to their dominant hand for 3 minutes. At the end of each allotted time, 10 trials were recorded based on number of consecutive throws. An average of each of these were taken. The percent improvement for each subject was calculated from the first three minutes' and the last three minutes' trials. Group B's actions mirrored this but began and ended with the non-dominant hand, practicing with their dominant hand for 25 minutes.

Mentor(s): Jim Scott, Bradley Ambrose

HENRY HALL ATRIUM 12

Phylogenetic Relationships within the Neotropical Plant Genus *Lymania* (family *Bromeliaceae*) based on Several Chloroplast DNA Regions.

Presenter(s): Caleb James

The genus *Lymania* is a member of Bromelioideae, one of three traditionally recognized subfamilies in the plant family *Bromeliaceae* (pineapple family). The genus consists of nine species of narrow geographic distribution within the neotropics. Members of *Bromelioideae* have undergone adaptive radiation, and there is evidence to support rapid radiation events along the lineage of modern *Lymania*. Recent phylogenetic studies have provided weak support for a monophyletic *Lymania*, but relationships within the genus have not been fully resolved. In this study, the chloroplast-encoded gene *rps16* will be sequenced in several species of *Lymania* and related genera (i.e. *Aechmea* and *Araeococcus*) in order to: 1) test the hypothesis of monophyly for *Lymania*; and 2) examine phylogenetic relationships among species in the genus. The data will be added to other molecular data already available for the genus.

Mentor(s): Timothy Evans

POSTER PRESENTATION ABSTRACTS

BEGINNING AT 9:00 AM

HENRY HALL ATRIUM 13

Positronium Annihilation Lifetime Spectroscopy Study of SBA-15

Presenter(s): Tracy Steinbach

Positronium annihilation lifetime spectroscopy (PALS) is a technique used in the characterization of porosity in nanostructured materials. Positrons, the antiparticle to the electron, capture electrons to form positronium (Ps), the hydrogen-like bound state. Ps annihilates (converting the total mass of the positron and electron into high-energy photons) with a lifetime corresponding to the pore size of the sample. SBA-15 is a mesoporous silica that consists of a two dimensional hexagonal array of cylindrical mesopores with interconnecting micropores and is an interesting system with potential uses in catalysis support or as a low dielectric constant material. Nitrogen adsorption, x-ray diffraction, and small angle neutron scattering (SANS) have been used to characterize the pore structure in SBA-15, but none of these techniques have been able to yield a complete picture. PALS has the potential to yield insight of the pore structure in SBA—15.

Mentor(s): Richard Vallery

HENRY HALL ATRIUM 14

Comparison of the Effects of Global Expansion and Gravitational Radiation on Orbiting Bodies

Presenter(s): Scott Bleiler

Bolen *et al* have introduced the effects of global universal expansion on the perihelion and possible orbital size of massive binary systems, using the McVittie metric. Here, the effects of gravity waves on the eccentricities of such systems are investigated to explore the possible outcomes on the local effects of global expansion and orbital change due to gravitational radiation. Global expansions effect on orbital eccentricity is compared against changes due to gravity waves, and the limits where each becomes more prevalent are explored.

Mentor(s): Brett Bolen

HENRY HALL ATRIUM 15

The Effect of Pertussis Toxin on G-Protein Signaling in the Coronary Vasculature

Presenter(s): Katherine Lazet

The purpose of this study is to determine the role of pertussis-sensitive G-protein signaling on the acute response of coronary arteries to testosterone. Testosterone is a natural steroid, acting as a vasodilator which binds to an androgen receptor. However, androgen receptor signal transduction is poorly characterized. Porcine anterior interventricular arteries were dissected into five millimeter rings, mounted onto force transducers, then suspended in tissue chambers in Krebs-Hensleit solution. Potassium chloride was added as a known vasoconstrictor, then nitroprusside, a known vasodilator, was added. Testosterone was then added to arteries that had been pre-treated with pertussis toxin and to arteries without the toxin as a control in order to measure the effect of the toxin on the vascular response. This research will provide insight into the role of G-protein signaling in the response of coronary arteries to testosterone.

Mentor(s): Francis Sylvester

POSTER PRESENTATION ABSTRACTS

BEGINNING AT 9:00 AM

HENRY HALL ATRIUM 16

The Effects of Ascorbic Acid - Histamine Reactions on Coronary Arteries

Presenter(s): Jamie Wolf

The objective of our research is to characterize the formation of free radicals and determine their effects on coronary artery physiology. Free radicals are highly reactive chemical species with an unpaired electron that reacts with proteins, lipids, and carbohydrates resulting in conformational changes. This damage is caused by oxidative stress. We seek to characterize the free radical producing power of ascorbic acid (Vitamin C) in the presence of the inflammatory mediator, histamine. Vitamin C is thought to be an antioxidant employed to neutralize free radicals, and when reacted, donates single hydrogen atoms instead of single electrons. On the molecule histidine, the side chain imidazole serves as a proton acceptor, and causes Vitamin C to become an electron donor. This reaction results in the production of a superoxide free radical. It may be that the reaction of Vitamin C and histamine results in increased oxidative stress that effects changes in vascular reactivity.

Mentor(s): Brian Kipp

HENRY HALL ATRIUM 17

Use of Complementary Therapies for Relief of Chemotherapy-Related Side Effects

Presenter(s): Colleen Barth

Chemotherapy induces side effects such as anxiety, fatigue, pain, nausea, and vomiting. Complementary therapies provide a way to gain further relief from these symptoms without additional medication. An in-depth literature search was conducted to determine the effectiveness of these therapies. Results will be compiled into a patient education booklet. Separate sections will be dedicated to each symptom with recommended therapies listed under each. Current evidence supports the efficacy of massage, hypnosis, relaxation techniques, acupressure, and acupuncture for relieving various chemotherapy-induced symptoms. Additional randomized controlled studies with larger samples are needed to gain more reliable evidence. However, these therapies can be implemented at little or no cost, have limited adverse effects, and may strengthen the therapeutic relationship between nurses and patients. Therefore, nurses should be alert for patients who may benefit from the use of complementary therapies.

Mentor(s): Joy Washburn

HENRY HALL ATRIUM 18

Factors that Affect Egg Mass in Tree Swallows

Presenter(s): Lisa Bol, Liberty Hightower, Matthew Romeyn, Marcella Baiz, Bradley Houdek, Angel Hayden

In female Tree Swallows, environmental factors and breeding phenology influence the mass of eggs laid by experienced breeders. Egg mass is positively correlated with nestling weight at hatching and subsequent survival. In 2008 and 2009 on the GVSU campus, we noted the laying sequence and measured masses of eggs laid by swallows in their first breeding season. Egg mass was positively correlated with mean and high temperatures one day before laying and negatively correlated with the amount rainfall three days before laying. Air temperature and rainfall affect the availability of aerial insects. Laying order had a significant effect on egg mass; eggs 1-3 were significantly lighter than eggs 4-6. Egg mass significantly increased with laying date in both early (8-29 May) and late (2-25 June) nests. These results suggest that first-time breeders, like more experienced swallows, vary their investment in egg production by responding to environmental factors, laying order, and laying date.

Mentor(s): Michael Lombardo

POSTER PRESENTATION ABSTRACTS

BEGINNING AT 9:00 AM

HENRY HALL ATRIUM 19

Where Have All the Physical Educators Gone? Hint: It is not Higher Education

Presenter(s): James Bozung

The purpose of this study was to determine why physical education teachers who are required to take graduate courses for teacher certification do not continue in higher education. Fifty percent of the positions in universities are not being filled due to the lack of physical educators going on to higher education. This project was designed to identify the barriers and opportunities related to higher education for physical educators. A review of the literature was conducted, key words were chosen in order to categorize articles and a survey was developed. Survey Monkey, an online survey tool, was used to create and distribute the survey. The survey was sent to experts in the field of physical education pedagogy in order to check validity of the instrument. The survey was then sent out to physical educators in Michigan and Indiana. Indiana requires a Master's degree to continue certification in K-12 instruction. Michigan requires 18 credits of continuing education in a planned program.

Mentor(s): Colleen Lewis

HENRY HALL ATRIUM 20

Characterizing the Regulation of the Diaphanous-Related Formin, DAAM1, by Expression of the Constitutively Active Full Length Protein in Cells

Presenter(s): Michael Schillaci-Schofield

Diaphanous-related formins (DRFs) are a family of proteins critical to the regulation of the cytoskeleton. DRFs are regulated by autoinhibition. The binding of the C-terminal Diaphanous-autoregulatory domain (DAD) to the N-terminal Diaphanous-inhibitory domain (DID) keeps the protein inactivated until an activated Rho GTPase releases the DID-DAD interaction. We examined the DID-DAD interaction of the Dishevelled-associated activator of morphogenesis-1 (DAAM1), a DRF protein, and created a constitutively active full-length DAAM1. We show the F1032 residue is critical to the DID-DAD interaction and the F1032A mutation in DAD prohibits binding to the DID region. Expression of F1032A DAAM1 in cells resulted in the protein evenly distributed in the filopodia and caused cells with more abnormally-shaped filopodia than wild type DAAM1. With DAAM1 being an important player in neurons, our studies of DAAM1 regulation should provide a better understanding of the mechanism of neuronal outgrowth.

Mentor(s): Brad Wallar

HENRY HALL ATRIUM 21

Low Resolution, High Spatial Resolution Spectroscopy with a Digital Camera

Presenter(s): Lisa Genovese

Conventional full-color digital images consist of three separate image frames, usually red, green and blue (RGB). A full-color digital image is a low resolution, but high spatial resolution, optical spectrum of the scene it records. The details of the way cameras and scanners map actual colors to their digital representations are well known so we proposed a set of experiments aimed at creating a way to extract spectral data from digital images recorded by color digital cameras. We captured digital images of scenes through narrow-band color filters to characterize the way the camera maps known spectral energy distributions (SEDs) to RGB images. We then analyzed the data to invert the camera's color mapping. It is straight forward to calculate an RGB color from a given SED. It is not possible to analytically invert this process to infer a SED from a given RGB color. Assuming a Gaussian spectrum we developed a method to get spectral information from digital images of various scenes.

Mentor(s): Douglas Furton

POSTER PRESENTATION ABSTRACTS

BEGINNING AT 9:00 AM

HENRY HALL ATRIUM 22

Alternate Source of Serum for Mammalian Cell Culture

Presenter(s): Ekaterini Iordanou

Fetal bovine serum (FBS) is a common ingredient of mammalian cell culture media. It is usually harvested from fetuses derived from pregnant cows. FBS is known to support and sustain growth of mammalian cells *in vitro*. The use of this serum is contentious, and there is a wide variation in composition between harvested sera. In addition, there is concern that FBS could potentially be a vehicle for disease transmission to humans. The serum is very costly to collect, and there are strong moral issues in regards to the way it is harvested. Because of this, chicken serum (CS) is a suggested alternative. It is easily collected and it is much more cost effective. Therefore, in this study, the effect of FBS and CS on two human derived cell lines, HEK 293 and HELA, were compared in tandem. The preliminary studies revealed that data from media supplemented with FBS 5% and 10% were consistent with literature, and CS 5% was shown to support mammalian cell growth to an extent.

HENRY HALL ATRIUM 23

Mir-146b-5p Suppresses EGFR Expression and Reduces Migration and Invasion of Glioma *in vitro*

Presenter(s): Thomas Rogers

The microRNA mir-146b-5p down-regulates expression of epidermal growth factor and suppresses invasion and experimental lung tumor metastasis. Human mir-146b-5p is located on chromosome 10q24.3. Loss of the 10q24-26 region is frequently observed in gliomas. Here, we demonstrate that mir-146b-5p suppresses expression of epidermal growth factor receptor (EGFR) in U87-MG and U251 human glioblastoma cells. Mir-146b-5p was under-expressed in these cell lines compared to normal cortical human astrocytes. Introduction of mir-146b-5p decreases cell invasion, migration and phosphorylation of protein kinase B (AKT). Mir-146b-5p suppresses transcription of EGFR, and binds to the EGFR 3'-UTR. Furthermore, analysis of U87-MG laser-capture micro-dissected cells in tumor-bearing nude mice indicated that expression of mir-146b-5p was inversely correlated with distance from the tumor core. These findings suggest mir-146b-5p warrants investigation as a novel treatment for this aggressive tumor.

Mentor(s): Bruce Ostrow

HENRY HALL ATRIUM 24

Coastal Terrace Tectonic Geomorphology, Trinidad, West Indies

Presenter(s): Mallory Morell

Geomorphic features in northwestern Trinidad reflect westward sinking into the active Gulf-of-Paria pull-apart basin. Coastal terrace deposits have been mapped along the northeastern and northern coasts. We better characterize these terraces, and test two hypotheses: as the western end of the island sinks, the eastern end (1) rises like a seesaw, or (2) remains fixed relative to changing sea level. We measured, described, and sampled 15 terrace deposits. We conducted granulometric, XRD, and optically stimulated luminescence (OSL) dating analyses. The deposits range in thickness from 60 to 280cm and contain predominantly sand and gravel. XRD showed that fine sieve fractions consisted almost entirely of secondary quartz. The data support that the terraces are marine in origin. Two reliable OSL ages ($40,090 \pm 3000$, $74,020 \pm 5,650$ y.b.p.) indicate that sea level was probably not high enough to form these terraces at current elevations. Provisionally, we accept the see-saw hypothesis.

Mentor(s): John Weber, Pablo Llerandi-Román

POSTER PRESENTATION ABSTRACTS

BEGINNING AT 9:00 AM

HENRY HALL ATRIUM 25

Symmetry Analysis of the Lane-Emden Equation

Presenter(s): Wyatt Brege

We will focus on Lie theory and how it can be used to find symmetries of the Lane-Emden equation (LE). This equation has provided a simple, physical description of the density distribution in many a stellar structure. By making use of the spatial dimensionality of the problem, we can identify when LE is reducible to quadratures. The Lie algebras of LE will be presented for each dimension, as well as an exemplary application to quadrature reduction.

Mentor(s): Karen Gipson

HENRY HALL ATRIUM 26

Avoidance Learning of Young Adult Zebrafish (*Danio rerio*) Exposed to Methylmercury

Presenter(s): Ryan Coppens

Young adult zebrafish who were either in groups exposed to varying concentrations of methylmercury or no methylmercury were run through an active avoidance conditioning paradigm. Zebrafish were placed in a shuttle-box consisting of two equal compartments. Here they were taught, during a training session, to associate light with an electrical shock. That is, a light was presented for 12 seconds and then followed by a shock. The zebrafish were able to avoid the electrical shock if they associated light with shock and swam to the other compartment within 12 seconds of the initial presentation of the light; this behavior was defined as an avoidance response. The groups were then tested for this avoidance response two days later. A comparison on the test scores among the groups was made to determine whether methylmercury exposure impaired avoidance learning.

Mentor(s): Xandra Xu

HENRY HALL ATRIUM 27

A Statistical Consulting Experience: The Effects of Pedagogical Intervention on ESL Learners' Vocabulary Knowledge

Presenter(s): Joshue Padron, Glen Gerwatowski

Professor Shinian Wu of the English department is studying the effect of three different teaching methods on English learners' vocabulary knowledge gain. He also seeks to determine if either of the two measurement instruments (translation and sentence-making) is a better indicator of learners' true vocabulary knowledge gain. We will discuss our roles as statistical consultants in analyzing the data to provide answers to the stated research questions.

Mentor(s): Neal Rogness, Shinian Wu

POSTER PRESENTATION ABSTRACTS

BEGINNING AT 9:00 AM

HENRY HALL ATRIUM 28

Effects of Asn152 Mutation on Substrate Selectivity of P99 Cephalosporinase

Presenter(s): James Ruble

For over 50 years, bacterial infection has been fought with β -lactam antibiotics. Bacteria, however, have evolved resistance to these compounds through β -lactamase enzymes, which hydrolyze their β -lactam rings and render them inactive. Of major concern are bacteria that have become resistant through mutations in their β -lactamase genes, altering the selectivity of enzyme substrate and allowing the mutant enzymes to hydrolyze many different classes of β -lactam compounds. For the enzyme P99 cephalosporinase it has been shown that mutation of a conserved asparagine residue at position 152 has a substantial effect on its substrate selectivity. In this study, a kinetic characterization of the N152G mutant was performed with several compounds of various classes. Attempts to crystallize the mutant are also underway. Further studies will help to elicit the structure and function relationship for this enzyme and might aid future development of improved antibiotics.

Mentor(s): Rachel Powers

HENRY HALL ATRIUM 29

Nest Characteristics of Piping Plovers

Presenter(s): Anna Young

Conservation efforts have encouraged the growth of the Great Lakes Piping Plover (*Charadrius melodus*) population. As plovers disperse from core breeding habitat, land managers must locate and protect new breeding sites. This study compares vegetation and cobble at nest sites with randomly selected sites from the same beach. Location of the nest in relation to shoreline, vegetation, the nearest neighboring plover nest, and nearest creek or river was also compared with random sites. Sand samples were collected to determine if sand color played a role in nest site selection. The age of the resident plover was also compared to the physical characteristics of its nest. The comparison of nest sites with random locations may elucidate the range of characteristics that Piping Plovers will accept when choosing a nest territory. Further, nest site characteristics can be compared to resident individuals to determine if the age of an individual affects which nest sites are chosen.

Mentor(s): Michael Lombardo

HENRY HALL ATRIUM 30

The Effects of Weathering on Pebble Sphericity and Roundness: An Experimental Study

Presenter(s): Erica Dalman, Elizabeth Koeman, Adam Mulling

Sedimentologists use sphericity and roundness to study weathering and transportation of sediment. Sphericity is believed to stay relatively constant during transportation processes, whereas roundness increases. Acceleration of weathering by using a rock tumbler may demonstrate this. In this study, we will test for the effects of weathering on shape using pebbles with different mineralogies. The samples will be run in a tumbler and mass, sphericity, and roundness will be documented daily. We will quantify sphericity using equations from the literature and take photographs to document roundness. In each experiment, when testing a single characteristic (e.g., roundness) the other two parameters (e.g., sphericity and mineralogy) will be held as constant as possible. Previous researchers have equated time in the tumbler to distance of transport, allowing us to relate our data to real world situations. Such data may be used to estimate distance traveled from a source rock.

Mentor(s): Patricia Videtich

POSTER PRESENTATION ABSTRACTS

BEGINNING AT 9:00 AM

HENRY HALL ATRIUM 31

An Evolutionary Approach to Loyalty

Presenter(s): Kraig Lischke

Loyalty has been researched in many areas (e.g., to brands, lovers, organizations), but little attention has been paid to whether loyalty is a unitary construct or differs across areas or domains. We suggest that loyalty will differ across domains in accordance with the challenges our ancestors faced during their evolutionary history. We propose testing this idea by developing a series of psychometric loyalty scales and using them, as well as existing scales, to test our prediction that there will be significant individual variation across domains. We also predict sex differences in some domains, specifically that men will report greater group loyalty and women will report greater friend and lover loyalty. This research may provide a comprehensive framework for understanding the contextual and dispositional factors contributing to loyalty.

Mentor(s): Robert Deaner

HENRY HALL ATRIUM 32

Functional Fatigue and Lower Extremity Latency

Presenter(s): Joshua Bennington

Objective: The objective is to determine if functional fatigue affects muscle reactivity about the knee joint in response to an unplanned perturbation. **Design:** Thirty subjects between the ages of 18 and 45 are being recruited for the study. Each participant will undergo anterior tibial translation of their dominant leg using a customized knee perturbation device prior to fatigue. The latency of the vastus medialis, vastus lateralis, biceps femoris, semitendinosus, and the medial head of the gastrocnemius will be recorded using surface EMG electrodes. After five trials, the subject will undergo a functional fatigue protocol followed by five more trials of knee perturbations and EMG recordings. **Results:** No results or conclusions are available at this time because the study is still being performed. **Key Words:** Anterior cruciate ligament, functional fatigue, knee perturbation, EMG, latency

Mentor(s): Brian Hatzel

HENRY HALL ATRIUM 33

Compared to *in vivo*, Isolated Hearts Respond Differently to Acetylcholine After Reperfusion Injury

Presenter(s): Negin Nadvar

We examined changes in power spectral density of tachograms (interbeat interval vs. beat number) in guinea pig isolated hearts to quantify the myogenic component of heart rate variability (HRV) unrelated to autonomic tone. Three groups (n=6 each) of hearts were perfused with Krebs-Ringers (KR) solution. After Baseline Stabilization (BL), hearts were perfused continuously either with KR (CON), KR+ atropine (ATR; cholinergic blocker), or KR + esmolol (ESM; adrenergic blocker) for 30 min followed by 30 min global ischemia and 120 min reperfusion (REP). Bipolar electrograms were recorded and from the tachograms, we computed total power (TP), power in low frequency (pLF) and high frequency (pHF) bands, as well as pLF/pHF. We observed that results from CON and ATR, but not ESM, agree with *in vivo* results suggesting that after ischemia i) denervated hearts exhibit attenuated parasympathetic vs. sympathetic response to residual neurotransmitters and ii) the changes in PSD may be myogenic.

Mentor(s): Samhita Rhodes

POSTER PRESENTATION ABSTRACTS

BEGINNING AT 9:00 AM

HENRY HALL ATRIUM 34

Mutagenesis of OXA-40

Presenter(s): Caleb Ortega

Mutagenesis of the valine at position 130 of OXA-40 to the other 19 amino acids was carried out to determine the importance of this residue in the carboxy-lysine general base mechanism. Characterization of all mutants was performed using minimum inhibitory concentration analysis, (MIC). We hypothesized that mutating this valine will alter the ability of the lysine at position 70 to become carboxylated. This may in turn explain why OXA-40 can breakdown carbapenems, while other class D enzymes such as OXA-1 cannot. By learning more about the mechanism of action of OXA-40, it is hoped that better antibiotics can be created in the future to help in the fight against bacteria that use this enzyme to develop resistance to antibiotics.

Mentor(s): Dave Leonard

HENRY HALL ATRIUM 35

CFI Michigan: An Internship Experience.

Presenter(s): Stephen Iveson

This poster describes an internship experience with the Center for Inquiry (Grand Rapids), documenting the role of the Center in the community, and the learning experiences gained with involvement at the community level with religious diversity. The poster describes the Center's programs and the intern's activities building a database and in cultural programming. The application of anthropology to learning about local religious diversity is explored.

Mentor(s): Russell Rhoads

HENRY HALL ATRIUM 36

The Effect of Caffeine on the Bacterial Populations of a Freshwater Aquarium System

Presenter(s): Adrienne Gibson

Caffeine has become a common chemical released in the environment. Without understanding the consequences of releasing this drug in the environment, we might not know if it has a negative impact on organisms or their habitats. The main focus of this study was the response to caffeine from the bacteria of the genus *Pseudomonas*. This bacteria is quite common and plays an important role in the nitrogen cycle. It was found with this study that *Pseudomonas* shows a dramatic increase in growth when exposed to caffeine, which results in a bio-film like sheen, which appeared on the glass of the experimental aquarium. Along with this sheen, dramatic changes in ammonia concentrations were found. Ammonia is toxic to fish, and can be correlated with the metabolic activity of the *Pseudomonas* bacteria, making the caffeinated environment toxic for aquatic life.

Mentor(s): Rod Morgan, Alexey Nikitin

POSTER PRESENTATION ABSTRACTS

BEGINNING AT 9:00 AM

HENRY HALL ATRIUM 37

The Effect of Breed Specific Legislation on Communities

Presenter(s): Rebecca Takacs

The "Pit Bull" is one of the most media-sensationalized dogs within our country. Reports occur on an almost daily basis about their predisposition to human aggression and killing instinct. However, what is portrayed in the media is not a true picture of the "Pit Bull". A "Pit Bull" is not even a recognized breed by the American Kennel Club, rather it is a designation given to a large number of breeds including the American Pit Bull Terrier, American Staffordshire Terrier, boxer mixes, and several other breeds. Many communities have tried to enact breed specific legislation (BSL) to ban or severely restrict the ownership of "Pit Bulls" or other "Bully-type breeds". My research explores the reasoning behind such legislation and why such laws are not humane or even conducive to our rights as American citizens. My research also explores alternatives to BSL and ways that communities can better protect all of their citizens- human and canine.

Mentor(s): Seong Moon

HENRY HALL ATRIUM 38

Parental Anti-Predator Responses During the Nestling Period in Tree Swallows

Presenter(s): Marcella Baiz, Liberty Hightower, Lisa Bol, Angel Hayden, Matthew Romeyn, Bradley Houdek

Parental effort influences the success of altricial young in monogamous bird species. In 2009, we examined parental responses to a potential human predator during both halves of the 20-day nestling period. We found no differences between males and females in the number of attacks and vocalizations during either half of the nestling period, but both attacked and vocalized more frequently during the second half. Male attacks significantly varied during observation periods, while female attacks did not. Parents that attacked often during the first half of the nestling period also did so during the second half. Responses to the predator were not influenced by brood size, weather conditions, or time of day. While these results suggest that parents increased defense as nestlings got older, male and female patterns differed; the rate of male attacks decreased during observations periods.

Mentor(s): Michael Lombardo

HENRY HALL ATRIUM 39

A Preliminary Phylogenetic Analysis of the Genus *Aneilema* (*Commelinaceae*) Based on Chloroplast DNA Sequences

Presenter(s): Corey Davis

Molecular phylogenetic studies using the chloroplast-encoded *matK*, *rps16*, *psbA-trnH*, and *trnL-trnF* genes are underway to examine relationships among species of the plant genus *Aneilema* (family *Commelinaceae*) and to clarify the relationship of *Aneilema* to other genera in tribe *Commelineae*, particularly *Pollia*, *Polyspatha*, and *Rhopalephora*. The species sampled represent all seven sections plus *Aneilema brasiliense*. The basal grade of *Aneilema* consists of species of two sections, the Australian sect. *Aneilema* and African sect. *Amelina*. *Amelina* appears to be polyphyletic. Strong support is found for the monophyly of sect. *Brevibarbata*. The East African section *Lamprodithyros* is also monophyletic. *Rhopalephora* is placed within *Aneilema*. The inclusion of *Rhopalephora* within *Aneilema* and the exclusion of *A. brasiliense* from the genus would render *Aneilema* monophyletic. The *Commelinaceae* molecular phylogeny will be used to evaluate speciation and extinction rates in the family.

Mentor(s): Timothy Evans

POSTER PRESENTATION ABSTRACTS

BEGINNING AT 9:00 AM

HENRY HALL ATRIUM 40

Biological and Photochemical Transformation of Organic Matter in a Great Lakes Watershed

Presenter(s): Kaitlyn Driza

The carbon cycle in the Great Lakes watershed is seriously understudied. My project aims to describe trends and uncover mechanisms in the aquatic carbon cycle of a west Michigan watershed. Carbon transformations rates have been measured in the past, but structural and chemical changes happening to the organic matter complex due to processes such as photochemical oxidation/alterations and biological respiration have not been fully explored. My analysis of changes in the biochemical composition of dissolved organic matter undergoing photochemical and biological changes will help clarify the driving forces of production and respiration along a land/lake continuum from Cedar Creek to Lake Michigan. Initial findings point to a decrease in biological and photochemical activity with increasing distance from the land. Results should have bearing on our understanding of carbon transformations worldwide in marginal coastal land-water ecosystems which are highly reactive carbon cycling sites.

Mentor(s): Bopi Biddanda

HENRY HALL ATRIUM 41

Impact of Auditory Background on College Level Reading Speed and Comprehension

Presenter(s): Kate Johnson, Lauren Bernott, Ashley Gwinn

The purpose of this project was to determine if background music affected reading speed and comprehension. The participants read a thirty page passage from *House on Mango Street* by Sandra Cisneros. They were asked to read at their normal reading pace for ten minutes. We used three different groups of students. The students were chosen randomly, with no restriction on gender, age, or area of study. Each group had a different auditory background: silence, classical music, and popular music. After the ten minutes of reading, the participants were asked to mark the point in the text where they ended and to complete a ten question quiz about the text they read. The quiz determined the participants' reading comprehension. There was also a survey to find out more information about the participants' normal study habits and music involvement, although no identifying personal information was used in the study.

Mentor(s): Jim Scott, Edward Baum, Bradley Ambrose

HENRY HALL ATRIUM 42

Mg/Ca: Is it a True Paleothermometer?

Presenter(s): Sarah Clark

The Mg/Ca in foraminifera shells is commonly used as a proxy to estimate ocean temperatures in Earth's past. However, studies have shown that both dissolution and salinity influence the Mg/Ca in shells of tropical foraminifera, which can cause paleotemperature estimates to be inaccurate. We measured Mg/Ca and $\delta^{18}\text{O}$ in shells of *Globigernoides ruber* and *Globigerinoides sacculifer* from core tops in the eastern equatorial Pacific. We compared our results with global core top data, which paleotemperature equations have been calibrated and published. We find that Mg/Ca values range greatly at the same surface ocean temperature. We also find that salinity and dissolution do not affect the relationship between Mg/Ca and temperature. In analyzing the carbonate ion concentration of the water at 30m, we find that this might be affecting the relationship between Mg/Ca and temperature, which could be affecting the accuracy of the Mg/Ca proxy.

Mentor(s): Figen Mekik

POSTER PRESENTATION ABSTRACTS

BEGINNING AT 9:00 AM

HENRY HALL ATRIUM 43

Dynamics of a Spacecraft in Multi-Center Systems

Presenter(s): Wyatt Brege

We will investigate the motion of a spacecraft in two- and three-center dynamical systems. In the two center case, we provide exact solutions for a spacecraft which moves about two stationary centers in either two or three dimensions. When one center rotates about the other, the hamiltonian system constructed from this dynamical model is inherently non-integrable. Using numerical approximations developed on Python, we will present solutions for this system and examine how these solutions elucidate the chaotic behavior of motion in non-integrable hamiltonian systems. A natural extension of the rotating two-center problem is the rotating three-center problem, where we have restricted the motion of the spacecraft to be in a common plane spanned by the circular orbits of two gravitating bodies orbiting about another (herein, the Earth and Mars orbiting about the Sun).

Mentor(s): Milun Rakovic

HENRY HALL ATRIUM 44

Analysis of a Cyclic Peptide Library to Identify Proteins That Effect *hilA* Expression and Salmonella Invasion

Presenter(s): Tyler Richardson, Philip Kaseska, Hans Hill

Salmonella enterica serovar Typhimurium is a gram-negative bacterium that produces a localized gastroenteritis upon ingestion of contaminated food or water. Pathogenesis demands Salmonella recognition of apt environmental conditions which activate a 40 kb region of DNA known as Salmonella Pathogenicity Island 1 (SPI-1). The expressed SPI-1 proteins manipulate normal host cell function and direct the uptake of the bacteria into targeted cells. The expression of the SPI-1 genes is controlled via the sensing of various environment conditions through multiple pathways. The central regulator of SPI-1 is the transcriptional activator *hilA*. In collaboration with Brad Jones at the University of Iowa, we acquired a plasmid library that produces random cyclic peptides. We are screening this library against a *hilA::lacZY* reporter to identify cyclic peptides that inhibit *hilA*. Once we have identified these inhibitors we will characterize the effects of these peptides on Salmonella invasion.

Mentor(s): M. Aaron Baxter

HENRY HALL ATRIUM 45

Bringing Research into a Teaching Lab: The Development of Novel Antibiotics

Presenter(s): Shelby Beaubien, Greg Patten, Erik Wolf, Michelle DeFouw, Christie Offringa, Kyle Armstrong, Travis Bisson, Olivia White, Peter Minnich, Patrick Loudon, Cody Hager, Eric Hansen, William Couture, Eric Firestone

Students as well as their professors can benefit from incorporating real life scenarios into course work. By applying concepts learned in class to current research questions, labs become more useful and rewarding, which also makes the material easier to retain when students are interested in actively participating in solving real problems. In Chemistry 248, students were posed with synthesizing novel derivatives of an antibacterial compound being researched at GVSU. The previously synthesized compounds suffered decreased activity due to protein serum binding. The goal of each student research pairing was to synthesize a carboxylic acid amide derived from a unique amino acid and tested its effectiveness against gram (+) bacteria.

Mentor(s): Randy Winchester, Robert Smart, Matthew Hart

POSTER PRESENTATION ABSTRACTS

BEGINNING AT 9:00 AM

HENRY HALL ATRIUM 47

A Comparison of Group and Individual Creativity under Conditions of Experimentally Induced Fixation

Presenter(s): Catherine Idema, Owen Hunter

Individuals who generate creative solutions to problems show evidence of the conformity effect when their solutions fail to deviate from existing solutions. While much work has explored this phenomenon at the individual level, little work has examined the conformity effect in groups. In our study, individuals and three-person groups were asked to complete two creativity tasks. Half of all participants, prior to idea generation, were given three sample solutions for each of the tasks. In both instances, the samples all shared important characteristics with one another. In previous research individuals who were shown sample solutions were more likely than control participants to generate solutions that possessed the features presented in the examples. It is less clear how interacting groups will respond to sample solutions. Conceptually similar research suggests that the conformity effect is likely to be exacerbated in groups. Our study aims to assess this possibility.

Mentor(s): Christine Smith

HENRY HALL ATRIUM 48

Ecology of Juvenile Salmon in Upland vs. Lowland Alaskan Streams: An Assessment of Food Webs Using Stable Isotope Analysis

Presenter(s): Megan Cookingham

Stable isotope analyses were used to track the food webs of 6 upland and 7 lowland coho salmon rearing streams in the Matanuska-Susitna Valley, Alaska. Wetland streams are characterized by slow moving tannic water, silty substrate and are dominated by grass and shrub riparian vegetation, whereas upland streams are characteristically clear, fast flowing, with gravel or cobble substrate, and dominated by tree riparian vegetation. CPOM, algae, and juvenile salmon samples were analyzed for carbon and nitrogen stable isotopes. Preliminary data from 2008 show significantly different ^{13}C signatures between upland and wetland sites, suggesting food webs have different energy sources. The data also show similar ^{15}N signatures, suggesting juvenile salmon maintain a similar trophic position, regardless of site. We hypothesize upland streams' food webs will be autochthonously, whereas wetland streams will be fueled by allochthonous input. Hypotheses are currently being tested with 2009 data.

Mentor(s): Eric Snyder

HENRY HALL ATRIUM 49

Investigating Efficient Catalytic Systems for Coupling 2'-Deoxyguanosine Mesitylene Sulfonate with Terminal Alkynes

Presenter(s): Jamie Gomez

A copper-free palladium-catalyzed cross coupling of protected 2'-deoxyguanosine mesitylene sulfonate and terminal alkynes has been accomplished. Protected 2'-deoxyguanosine mesitylene sulfonate was coupled with various terminal alkynes. The reaction conditions were optimized in the presence of a ligand, Pd species, base, and solvent at 90°C to create a new sp-sp² carbon-carbon bond at the C-6 position of 2'-deoxyguanosine. Results of our optimization studies will be presented.

Mentor(s): Felix Ngassa

POSTER PRESENTATION ABSTRACTS

BEGINNING AT 9:00 AM

HENRY HALL ATRIUM 50

The Effectiveness of a Cooking Program on Increasing the Nutrition Knowledge of School-Age Children and their Parents at an Elementary School

Presenter(s): Kayleigh Higgins, Melissa Cannan, Kristine Ostby

The Coordinated School Health Program is a school-based health program to address students' health needs including nutrition education. As part of this program, an Ottawa county elementary school requested assistance on educating 3rd grade children and their parents on cooking healthy meals. We first conducted a survey to gather information on the struggles parents face preparing healthy snacks and meals. We then requested favorite family recipes, which were revised to improve the nutrient content. Three cooking nights for the children and their families will be implemented at school. Our goals for the cooking nights are to: 1) inform families on the importance of healthy meal choices 2) supply them with an opportunity to practice cooking healthier versions of favorite recipes and 3) provide an informal environment where they can ask questions regarding their families' nutrition. The effectiveness of the cooking program will be determined by a follow-up survey.

Mentor(s): Deborah Lown

HENRY HALL ATRIUM 51

A Periodization Program for the Female Figure Athlete

Presenter(s): Brent Vogel, Andrew Mulbrecht

Does a systematic, complex integration of altering calorie consumption, macronutrient intake, supplementation, exercise selection and volume, and cardiovascular training sound effortless? Female figure athletes must endure a highly controlled exercise and diet regimen in order to prepare themselves for competitions that assess the individual's athletic appearance based on muscle tone, body symmetry, and stage presentation. The purpose of this study was to provide a periodization program for the female figure athlete based upon an extensive review of related literature due to the limited amount of research on this increasingly popular, but new, sport. Due to the multifaceted nature of the sport; the schematic program design will include proper nutrition, exercise programming, and both physical and mental preparation for competition. This periodization program for a figure competitor can benefit both the individual and trainers when striving to achieve the athlete's full potential.

Mentor(s): Amy Crawley

POSTER PRESENTATION ABSTRACTS

BEGINNING AT 9:00 AM

HENRY HALL ATRIUM 52

Where Writers Write: Writing Environments and Writing Centers

Presenter(s): Samantha Howard

How and why do writers' environments affect their work and their productivity? And how do writing centers fit into that equation? Writing centers do not necessarily encourage writing within their spaces. I explain why writing centers should remodel their spaces so that writers can write there, rather than just drop by for tutoring help. I researched through three methods. First, I surveyed writers to find out what value they find in different writing spaces. Second, I visited four Michigan writing centers and interviewed their directors to see how writers could use their spaces. Third, I read from building design and writing center scholarship to learn about space design to find ways to make writing centers more hospitable to writers. My findings show the importance of a good writing environment and argues that if writing centers became spaces for writers to write, they could expand their pedagogy to intervene during the writing process and build a supportive community of writers.

Mentor(s): Ellen Schendel

HENRY HALL ATRIUM 53

Energy Distribution in the Triplet Channels of Ozone Photodissociation

Presenter(s): Luan Nguyen

Photodissociation of ozone in the Hartley band ($4 \text{ eV} < h\nu < 6 \text{ eV}$) yields roughly 90% of its products in the singlet channel, and most of the remainder in the ground state triplet channel. The triplet products are produced by a transition between the initially excited B diabatic state and the repulsive R state of ozone, and have a broad distribution of kinetic energies centered around 2 eV. This distribution is reproduced by surface hopping calculations on new B and R potential surfaces at several different wavelengths of light. The maxima in the vibrational and translational energy distributions are clearly related to maxima in the distribution of the emerging oxygen bond lengths at the time the B/R crossing is encountered. Explorations of the physical basis of the translational energy distribution will be presented.

Mentor(s): George McBane

HENRY HALL ATRIUM 54

Aroma as a Memory Cue Device

Presenter(s): Haley Otman, Michele Booms

The purpose of this study was to determine if the use of odor can be a useful aid in learning through memorization. Research has shown that specific odors may individually cue memories of words associated to the odor. Subjects in this study were students attending Grand Valley State University. The experiment consisted of each subject attempting to memorize names associated with previously unknown people in photographs. For the control test, subjects studied the ten photographs for five minutes and then took a written test. Subjects also completed two experimental tests, each replicating the control test (with the exception of different photographs and names). The study environment in the one test had the aroma of Pine Sol. In the other test, both the study and test environments had the aroma of Pine Sol. All tests were done in random order. In completing this experiment we were able to determine the effects of aroma on memorization and the recall of memorized information.

Mentor(s): Edward Baum, Bradley Ambrose, Jim Scott

POSTER PRESENTATION ABSTRACTS

BEGINNING AT 9:00 AM

HENRY HALL ATRIUM 55

Development of Innate Immunity in Nestling Tree Swallows

Presenter(s): Tammy Stambaugh

The innate immune system provides a first-line of defense against pathogens. The ability to respond to pathogens confers fitness benefits in terms of health, survival and reproductive success. Defense mechanisms are compromised at an early age due to energy allocation to rapid growth. Immunity should increase as birds mature. Assays were conducted in vitro to assess the ability of the immune system to kill *E. coli* via lysis. Blood was drawn from nestlings during days 6, 12, and 18 of the 20 day nestling period. Lysis increased as birds matured. The innate immune system and wing chord in 18 day olds were not fully developed relative to adults indicating that development of innate immunity and growth continued after fledging. These data suggest that nestlings allocated energy to rapid growth, with apparently less energy towards the development of innate immunity. This may reflect a balance of predation and pathogen pressures on nestlings ultimately favoring selection on rapid growth.

Mentor(s): Michael Lombardo

HENRY HALL ATRIUM 56

The Impact of a Nutrition Education Program on the Nutrition Knowledge of Parents of Preschool Children

Presenter(s): Joshua Pickett, , Lyndsay Flanigan

The incidence of obesity in preschool children has been steadily rising with prevalence of 18.4% in 4-year old children in 2009. Large portion sizes and consumption of energy dense foods have been shown to increase the calorie intake in children. The purpose of this project was to develop and implement an education program for parents of preschool children addressing appropriate portion size for their children, coping with picky-eaters and improving the nutrient content of foods in the home. Parents of the preschool students attending an Ottawa county early child-care center are the target population. We will provide a nutrition education program with developed materials during a scheduled parent meeting. The effectiveness of the program will be measured using pre- and post-surveys. Improving the knowledge of parents of preschool children on appropriate portion sizes and the nutrient content of foods may prevent weight gain in these young children.

Mentor(s): Deborah Lown

HENRY HALL ATRIUM 57

The Implications of Child Abuse/Neglect on Later Delinquency

Presenter(s): Christine Hansen

In federal fiscal year 2007, 794,000 children were found to be victims of child abuse and neglect. Many studies have been conducted to determine whether child abuse and neglect affects the likelihood of engaging in criminal behavior. This paper attempts to answer this question by incorporating two studies as well as other literature on the issue of child abuse/neglect and later delinquency. I conducted an extensive review of the literature with an emphasis on gender, race, and class differences. All the literature points to the same conclusion: child abuse and neglect affects the likelihood of engaging in deviant or criminal behavior. This is true of both males and females, and across races. These findings suggest that strategies designed to reduce child abuse and neglect may in fact serve a dual purpose of delinquency prevention.

Mentor(s): Patrick Gerkin

POSTER PRESENTATION ABSTRACTS

BEGINNING AT 9:00 AM

HENRY HALL ATRIUM 58

The Uncanny Valley and Implicit Expectation of Facial Structure

Presenter(s): Brandt Smith

The uncanny valley refers to the feelings of unease or revulsion that individuals feel when viewing realistic but synthetic human-like faces. Although the uncanny valley effect has proven robust, there is presently no convincing explanation for it. We suggest that the uncanny valley represents a “family” of related phenomena, all based on expectancy violations of typically occurring facial configurations. Here we propose an experiment to test this hypothesis in the domain of disgust and pathogen avoidance. In particular, we propose comparing observers’ reactions to facial images that systematically vary in their representation of disease markers (e.g. splotching, disfigurement, asymmetry) in several dimensions. The key prediction is that uneasiness will be greatest when dimensions show the greatest mismatch, i.e, health in one dimension and disease in another. This research has implications for understanding facial processing and the production of computer generated images.

Mentor(s): Robert Deaner

HENRY HALL ATRIUM 59

Gender Difference in Walleye PBDE Congener Concentrations from Saginaw Bay

Presenter(s): Autumn Trombka

Twenty walleye from Saginaw Bay were analyzed for six Polybrominated diphenyl ethers (PBDE) congener concentrations, PBDE-28 (2,4,4'-tri), PBDE-47 (2,2',4,4'-tetra), PBDE-100 (2,2',4,4',6-penta), PBDE-99 (2,2',4,4',5-penta), PBDE-154 (2,2',4,4',5,6'-hexa), and PBDE-153 (2,2',4,4',5,5'-hexa). PBDEs are thought to cause ill-health affects. Differences in total PBDE concentrations could be seen between male and female as well as in comparison to the body weight of the fish. The tetra PBDE analyzed, PBDE-47, had the highest overall concentration. This congener is part of the penta mixture, as well as may have high levels due to photodegradation of higher brominated mixtures. Attention is currently being given to deca-BDE in the Michigan legislature as House Bill 4699 introduced by Rep. Deb Kennedy is proposing to ban the manufacturing, selling, or distributing of deca-BDE.

Mentor(s): Richard Rediske

HENRY HALL ATRIUM 60

Possible Effects of Climate Change on Australia's Coast

Presenter(s): Stacey Knapp

The goal of this study is to explore some potential effects of climate change on Australia's coastal zones. Previous research on coral bleaching in the Great Barrier Reef indicates that climate change has already significant impact on corals. As concentrations of CO₂ are increasing the air and water temperature continue to increase, making the water expand and ice melt. The temperature increase causes coral bleaching and eventually degradation and death. This research is conducted with MAGICC 5.3 one-dimension climate model and SCENGEN regional scenario simulator, remote sensing, and bibliographic research. We expect that our findings will provide important recommendations on future climate and coastal development policies in Australia.

Mentor(s): Elena Lioubimtseva

POSTER PRESENTATION ABSTRACTS

BEGINNING AT 9:00 AM

HENRY HALL ATRIUM 61

Analysis of the Patterns of Suture Closure and the Inner and Outer Cortical Bone Density in Humans Using Computerized Tomography

Presenter(s): Lisa Burson

Human cranial anatomy has typically been characterized by visual observations. Computerized tomography, however, can be used to more thoroughly examine the crania. This study follows two lines of inquiry using CT technology—a comparison of the density of the inner and outer cortical layers of the parietal bone, and an examination of the pattern of suture closure of the sagittal and coronal sutures. A sample of 49 CT scans of crania of known age, sex, and ancestry from the Raymond A. Dart Collection from the University of Witwatersrand School of Anatomical Sciences were analyzed using the computer program Slicer v3.5. The results show that the pattern of endocranial to ectocranial suture closure may vary more than previously thought. It was also found that in a significant number of cases, the outer bone table is denser than the inner bone table.

Mentor(s): James Reed

HENRY HALL ATRIUM 62

Computational Pharmacophore Discovery to Aid in the Synthesis of New MRSA Antibiotics

Presenter(s): Jacob Luker

Methicillin-resistant *Staphylococcus aureus* (MRSA) causes infections difficult to treat with current antibiotics. To discover new drugs for the effective treatment of MRSA infections, computational pattern recognition was used to identify growth-inhibiting features, known as a pharmacophore, in a set of compounds. The compounds are structurally related but with various minimum inhibitory concentration (MIC) values. By superimposing low energy conformers, Discovery Studio Catalyst software identified features in three-dimensional space correlating with MIC values. Features searched for include hydrophobic groups, aromatic rings, and hydrogen bond acceptors and donors. This pharmacophore will direct the synthesis of new compounds to combat MRSA infections.

Mentor(s): Mary Karpen

HENRY HALL ATRIUM 63

Using GIS to Evaluate the Effective Use of Parking Spaces for Residents and Commuting Students on GVSU's Allendale Campus: Mapping the Vacant Spaces

Presenter(s): Zachary Darrow, Josh Stauber, Ryan Hinkley, Mike Papranec

The objective of this project was to identify and map parking lot use, and measure the ratio of unused parking spaces on student parking lots at the Allendale campus. Data was collected with GPS receivers at predefined times between 9:00am and 4:00pm Monday-Friday for two months to evaluate parking concentration, pattern, and density within each parking lot. We used GIS technology to create daily, weekly, monthly and other temporal simulations for each parking lot. The results are useful as guides for future planning.

Mentor(s): Edwin Joseph

POSTER PRESENTATION ABSTRACTS

BEGINNING AT 9:00 AM

HENRY HALL ATRIUM 64

Importance of Macrophytes for Macroinvertebrate Secondary Production and Implications for Juvenile Salmon Feeding Ecology

Presenter(s): Edward Krynak

Aquatic macrophytes alter stream characteristics creating unique microhabitats. Macrophytes within Wiggle Creek (Matanuska-Susitna Borough, Alaska) harbor both invertebrates and juvenile coho salmon (*Oncorhynchus kisutch*). To determine the importance of macrophytes to invertebrates and coho development, secondary production of invertebrates will be compared between three habitats: macrophytes, riffles, and under-bank habitats. Coho diet will be assessed using stomach lavage to determine if macrophyte-inhabiting invertebrates make a significant contribution. Juvenile coho are a mobile species and may change their habitat on both small and large temporal scales. To assess if coho temporal habitat changes correspond with insect production, PIT tags will be used to track coho movement from May - September 2010. This research hopes to provide insight into the importance of macrophyte rich streams to salmon rearing and production, and to make suggestions for habitat preservation and restoration.

Mentor(s): Eric Snyder

HENRY HALL ATRIUM 65

Targeted Nonpolar Deletions in SPI-6 and their Role in Salmonella Enterica Serovar Typhimurium Invasion and Survival

Presenter(s): Philip Kaseska, Tyler Richardson, Hans Hill

Salmonella enterica serovar Typhimurium causes a localized gastroenteritis in humans. *Salmonella* Pathogenicity Islands (SPI) are located throughout the genome and are critical determinants expressed during the disease. SPI-1 contains the genes required for invasion and uptake of the bacterium within the small intestine. The key activating gene within SPI-1 is *hilA*. Due to the number of genes required for invasion, many regulators respond to different environmental stimuli and regulate *hilA* expression. One of these regulators is *hilE*, a gene located on SPI-6. This regulator leads to the repression of *hilA* transcription under noninducing conditions. As a pathogenicity island, SPI-6 genes remain uncharacterized. Utilizing genomic databases, we generated PCR primers to create specific deletions within this region of the *Salmonella* chromosome. We hope to utilize these mutations to assay the effects these deletions have on *hilA* expression, cell invasion and macrophage survival.

Mentor(s): M. Aaron Baxter

HENRY HALL ATRIUM 66

Adult vs Peer Modeling for Children with Autism

Presenter(s): Lisa Wilkinson

Video modeling has been shown to be effective for teaching a variety of skills to children with autism. However, few researchers have investigated the types of models that lead to better outcomes, e.g., peer versus adult models. Early work by Bandura suggested that individuals were more likely to model behaviors if the model was similar to the observer. From this perspective, we would expect that children with autism would respond better to peer models than adult models. This study was designed to evaluate the effectiveness of peer versus adult video models to teach play skills to preschoolers with autism. Session data will be analyzed and we will discuss changes in the frequency of modeled and unmodeled play behaviors and verbalizations prior to and following intervention. We will also analyze and discuss data comparing measures of child attentiveness and affect when watching child versus adult models.

Mentor(s): Jamie Owen-DeSchryver

POSTER PRESENTATION ABSTRACTS

BEGINNING AT 9:00 AM

HENRY HALL ATRIUM 67

The Effectiveness of Individual Identification of Bobcats (*Lynx rufus*) Using Automatically Triggered Cameras in Michigan

Presenter(s): Karen Ickes

The ability to identify individuals of several wild felid species by pelt characteristics has been verified through past studies. Researchers in Texas examined images from remotely triggered automatic cameras and confirmed that individual bobcats could be identified. Given adequate numbers of images, traditional capture-recapture based population estimates could also be calculated. This technique allows the calculation of population estimates in situations where physical capture and marking are undesirable. Bobcats exhibit variation in coat coloration between regions of the species' home range and no attempt has been made to identify individual bobcats from their coat pattern using remotely triggered cameras in Michigan. We evaluated whether individual bobcats can be identified using this technique and whether adequate numbers of images could be collected to calculate a population estimate in central Michigan.

Mentor(s): Paul Keenlance

HENRY HALL ATRIUM 68

A Periodized Speed & Agility Program for a College Football Running Back

Presenter(s): Mike Zimmer, Nate Best

A good speed and agility program is required for all college football players, and arguably no position on the football field requires speed and agility more than a running back. In order to maximize their talent, they must undergo a workout regimen that is tailored to meet the goals of the individual. Through the use of an extensive literature review, the purpose of this study was to provide college football running backs with a year-round periodized speed & agility training regimen. The objective of this program was to provide running backs with the means to reach their expectation of becoming the quickest, most agile player they could be. However, there were limitations on the amount of literature available for speed and agility training. The application of a speed and agility training program aids in increased performance in most NFL combine events; an invaluable advantage for any athlete, especially college football running backs looking to play on the next level.

Mentor(s): Amy Crawley

HENRY HALL ATRIUM 69

GIS Analysis of Earthquake Damage by Building Type in Port-au-Prince, Haiti

Presenter(s): Raymond Powell, Alexander Villhauer, Mallory Morell

On January 12th, 2010, a 7.0 magnitude earthquake occurred in Haiti causing extensive damage. The epicenter of the quake was approximately 15 miles west-southwest of the capital city, Port-au-Prince. Our goal is to provide a spatial analysis of the differences in earthquake damage to different types of structures using geographic information systems (GIS). The study will examine a roughly 1.4 km² area of central Port-au-Prince, Haiti. Qualitative damage assessment, as well as structure type, will be determined from high resolution aerial photos taken January 21, 2010. Structures will be selected for analysis by generating a layer of several hundred random points. Slope, distance from the epicenter, and elevation will also be recorded for each point. This study should improve our understanding of the relationships among building type, location, and earthquake damage. This information will inform rebuilding efforts to prevent damage during future earthquakes.

Mentor(s): Peter Wampler

POSTER PRESENTATION ABSTRACTS

BEGINNING AT 9:00 AM

HENRY HALL ATRIUM 70

Investigation of the Silaallyl Anion

Presenter(s): Randall Breckon

Computational and experimental investigations of the allyl anion and allyllithium have provided significant insight into the structure of this compound and its rotational barriers. Replacement of a terminal carbon with silicon yields a silaallyl anion, which has interesting properties. We are investigating the rotational barriers of the silaallyl anion and its derivatives as these compounds will lead to insights into the nature of the silicon-carbon double bond as well as resonance involving silicon. The results of attempts to synthesize diphenylvinylsilyllithium and silafluorene analogs will be reported. In addition, computational modeling studies done to predict the structures and the rotational barriers for the four systems dimethyl, di-*t*-butyl, diphenyl and fluorenyl silaallyllithium will be discussed.

Mentor(s): John Bender, Randy Winchester

HENRY HALL ATRIUM 71

Paleomagnetism of an Inflated Lava Flow: Kilauea, Hawaii

Presenter(s): Catherine Carlisle

Oriented cores of basalt were collected from the 1990 Kupainaha flow to determine if the paleomagnetism of pahoehoe flows is affected by inflation. Inflation is the process by which pahoehoe lava expands, mostly vertically, from its original size of 0.3 meters up to 6-7 meters thick. If the flow falls below the Curie Temperature, the temperature at which paleomagnetic data is preserved, before inflation, there should be a difference in inclination from cores collected from the horizontal top of the flow and the flank, which is dipping about twenty degrees. A spinner magnetometer is used to measure inclinations and declinations. Randomly selected samples were demagnetized using an alternating field demagnetizer and preliminary data did not show any magnetic overprints. Because there is only a slight change in inclination, Hawaiian pahoehoe must have reached the Curie temperature after inflation. Thus, it is safe to assume paleomagnetism does not need to be corrected for inflation.

Mentor(s): Steve Mattox

HENRY HALL ATRIUM 72

Communication is Key: A Study of Interpersonal Communication in Women's Volleyball

Presenter(s): Kerry Harrison

This paper and poster presentation looked closely at volleyball team communication development. Using Coordination Management of Meaning Theory, Social Penetration Theory, Expectancy Violations Theory, and methodologies of observation and ethnographic thick description, this study found that the volleyball team studied developed from interpersonal to group communication. Using these three communication theories, will provide insight into sports communication, and give one the ability to better understand interpersonal communication in a sport context. Coaches will be able to facilitate accelerated methods to improve communication within a team or group. Player to coach, as well as, player to player communication can advance, potentially leading to the group's success on the court. Keywords: volleyball & communication, communication & sports, expectancy violations theory & sports, coordination management of meaning & sports, social penetration & sports, interpersonal & sports

Mentor(s): Danielle Wiese

POSTER PRESENTATION ABSTRACTS

BEGINNING AT 9:00 AM

HENRY HALL ATRIUM 73

Bringing Research into a Teaching Lab: The Synthesis of TAAR Regulators

Presenter(s): Shelby Beaubien, Schuyler Bos, Jonathan Lehmann, Kiely Rich, Greg Kortman, Marlisa Hawley, Andy Starr, Aaron Yusten, Beth Vallier, Patrick Feuerstein, Robert Graff, Anna Falcon, Jason Harper, Rowanna Humphreys

Instead of a typical laboratory experience, our CHM 248 class has been presented with a real-life research problem. While the course has been designed to teach us many of the techniques needed to understand organic chemistry, we are working towards a common goal. This has made this experience more meaningful. In particular, our class assisted in studying the trace amine-associated receptor (TAAR). It is believed that regulators of TAAR will help to balance the effects of several thyroid disorders. Our research is focused on the development of small molecules capable of regulating TAAR. The use of urea or thiourea linkages will be examined in addition to differential substitution on the proposed regulators.

Mentor(s): Robert Smart, Randy Winchester, Matthew Hart

HENRY HALL ATRIUM 74

Nato3 is Sufficient to Promote Ectopic Floor Plate Marker Expression in the Rostral Neural Tube of the Gallus Gallus Embryo

Presenter(s): Darcy Kaufman

Nato3 is a basic helix-loop-helix protein that is expressed in the floor plate region of the neural tube during development. To determine if Nato3 expression is sufficient to promote floor plate cell lineage in the developing neural tube we misexpressed Nato3 in the neural progenitors of the rostral neural tube using *in ovo* electroporation. We monitored neural progenitors and their progeny that misexpressed the electroporated Nato3 during development using a bicistronic EGFP reporter expression vector. Using immunohistochemistry we compared the effect of Nato3 misexpression on neural progenitors in the spinal cord and hindbrain using the floor plate cell marker Foxa2. Nato3 misexpression in the hindbrain after of the closure of the neural tube caused ectopic expression of the floor plate marker Foxa2. These results indicate that there are regional differences in neural progenitor response to Nato3 overexpression in the neural tube.

Mentor(s): Merritt Taylor

HENRY HALL ATRIUM 75

Synthesis of Novel Cyclic Polyamides as Potential DNA-Interactive Agents

Presenter(s): Alyssa Lopez

Telomerase is an enzyme found in over 80% of all human cancer cells, and is a potential target for anti-cancer drug development. Telomerase elongates the telomeric region of chromosomes after DNA replication. This constant lengthening of the telomere can prevent cancer cells from dying. In normal cells telomeric DNA gets progressively shorter every time a cell divides. Telomeric DNA is guanine-rich and can fold into a three-dimensional "tetraplex" conformation. Telomerase cannot act upon the telomere when it is folded in this fashion; so tetraplex-targeted small molecules are an attractive anti-cancer therapy. It is hoped that they will indirectly inhibit telomerase and prevent "cell immortality". This presentation will describe the current synthetic efforts being undertaken in the synthesis of ortho-substituted cyclic polyamides as telomerase inhibitors. These compounds are based on telomestatin, a known effective inhibitor of telomerase and tetraplex binding natural product.

Mentor(s): Toni Rice

POSTER PRESENTATION ABSTRACTS

BEGINNING AT 9:00 AM

HENRY HALL ATRIUM 76

Geographic Information System Analysis of Damage Resulting from the 2010 Haiti Earthquake

Presenter(s): Christi Kroskie, Patricia Heldt, Amberjane Schneider

On January 12, 2010, a 7.0 earthquake struck near Port au Prince, Haiti. The resulting damage was devastating, but some of the damage and subsequent lives lost may have been preventable if buildings met current earthquake standards. It is often assumed that more affluent people build their homes to a higher standard than less affluent people. ArcMap Geographic Information System (GIS) software and aerial photographs taken both before and after the earthquake will be used to qualitatively estimate affluence based on square footage of buildings, based on the assumption that larger buildings were built by more affluent Haitians than smaller buildings. Buildings will be classified based on before and after aerial photographs within several 500 square meter areas to evaluate damage and the relationship between building size and damage extent. Mapped areas will be selected so that they are approximately the same distance from the earthquake epicenter.

Mentor(s): Peter Wampler

HENRY HALL ATRIUM 77

Music Therapy and Chronic Pain Management

Presenter(s): Denise Stepanovich, Katherine Spring, Ashley Byars, Gerald TenBrink, Jerod Sinclair, Kelley Veltman

Millions of people suffer from chronic pain. Traditional drug therapies are limited in the effects that can be provided and music therapy (MT) is a viable option for pain management. Chronic pain affects roughly 25% of the US population and costs \$61.2 billion yearly from lost productive time. The purpose of this research review is to evaluate the effects of MT on the alleviation of chronic pain. The online databases CINAHL, Cochran Library, and PubMed and the key words music therapy, chronic pain, cancer, and palliation are used to locate original research articles. MT is widely used and has been shown to provide non-pharmacological pain relief. Nursing care needs to be based more on holistic care and should pair complementary and traditional therapies. Our review will include the application of Myra Levine's Conservation Model to this issue.

Mentor(s): Phyllis Gendler

HENRY HALL ATRIUM 78

Implementation Status of Recycling Policy at GVSU: An Applied Archaeology

Presenter(s): David Babcock

Analysis of the recycling program is an important factor in determining GVSU's success in decreasing its environmental impact. Recycling is one of the best ways to accomplish this, since many materials can be almost entirely reclaimed, or reused an infinite number of times, and the program is one of GVSU's most heavily promoted initiatives. The present study uses systematic samples of six recycling bags per week from the GVSU recycling waste stream, taken from GVSU on-campus housing. These samples were collected over the course of two months to determine the percentage of material that is processable and not processable (contaminated/invalid) for reuse. These data are then measured against reports from GVSU's participation in the 2008 and 2009 Recyclemania competitions. They are then used to evaluate whether the program is being as efficient as possible. Additionally, these data are used to make recommendations on any future action Grand Valley can take in improving its program.

Mentor(s): Dale Borders

POSTER PRESENTATION ABSTRACTS

BEGINNING AT 9:00 AM

HENRY HALL ATRIUM 79

Geographic Information System (GIS) Analysis of a River Flume Experiment

Presenter(s): Benjamin Matzke

Woody debris in river systems can cause major changes in channel patterns including: channel anabranching, sinuosity, and flood plain width. These changes can occur abruptly and may have expensive and even dangerous implications for humans, structures, or wildlife in the vicinity. Valuable insights can be gained by modeling woody debris in an experimental flume. Impacts from wood addition to a simulated river channel will be evaluated using simulated wood debris in a one-meter wide, 3 meter long flume. Experiments with and without wood will be compared to evaluate the role of wood in shaping stream morphology. Parameters such as slope, discharge, width, depth, and length will remain the same for both experiments. Topographic data will be collected during and after each stream channel formation for quantitative analysis using ArcMap Geographic Information System (GIS) software. Results may provide important insights into how wood debris impacts channel morphology and processes.

Mentor(s): Peter Wampler

HENRY HALL ATRIUM 80

Facial Masculinity Does Not Predict Aggression in Criminals or Hockey Players

Presenter(s): Stefan Goetz, Amanda Taylor, Bob Erickson, Kraig Lischkge, Tony Schnotala

Recent studies have reported that facial masculinity predicts aggression, but the robustness of this effect is unclear. We thus tested whether two putative measures of facial masculinity--the width-to-height ratio and the eye-mouth-eye angle--predicted convictions for non-violent or violent crimes or the number penalty minutes accrued by hockey players. Data and pictures for 680 male criminals were taken from www.michigan.gov/corrections; information for 240 NHL players was taken from sportsillustrated.cnn.com. We achieved high inter-rater reliability for both masculinity measures, yet neither measure predicted aggression in criminals or hockey players. Moreover, these results were unchanged when we controlled for several potential confounds. These results suggest that previous reports of a correlation between facial masculinity and aggression may represent type 1 error, i.e. false positives. Thus, the cliché, "never judge a book by its cover" remains sound advice.

Mentor(s): Robert Deaner

HENRY HALL ATRIUM 81

Characteristics of EJ-200 Plastic Scintillator

Presenter(s): Bradly Wyn

The purpose of this project is to give a detailed method on how to construct a gamma ray detector and use it to investigate the trade off between the energy resolution and photopeak efficiency for varying well depths of EJ-200 plastic scintillator. Multiple 1.8" x 1.85" cylindrical scintillators will be used to measure a gamma ray source. The energy spectra recorded for each scintillator will then be analyzed to find the energy resolution of the photopeak, relative photopeak efficiency, and how various well-depths affect these quantities.

Mentor(s): Gregory Caskey

POSTER PRESENTATION ABSTRACTS

BEGINNING AT 9:00 AM

HENRY HALL ATRIUM 82

Conversion of Cellulose to Value-Added Chemicals

Presenter(s): Shane McGrath

Developing pathways towards valuable chemicals from renewable feedstocks is an important step towards weaning our country off of its non-renewable fuel addiction. Recently, much work has been done on cellulose and starch to produce renewable fuels. Starch, a water soluble biopolymer made up of 1,4-glycosidic bonds, is the main component of foods such as corn, the main feedstock for E-85 fuel. Cellulose however, is a biopolymer that like starch is both renewable and abundant, but is made up of the hardy 1,4-glycosidic bonds that are unable to be digested by humans. Herein we explore the conversion of cellulose to various sugar alcohols in "green" reaction conditions, using lower energy, metal catalysts, and mild conditions. Our results show accessible pathways from cellulose to two sugar alcohols, sorbitol and mannitol, known to be convertible into alcohol mixtures usable to replace traditional fuel but also into value-added chemicals currently obtained from petroleum.

Mentor(s): Dalila Kovacs, Jim Krikke

HENRY HALL ATRIUM 83

Investigation of Phosphorus - Nitrogen Polymers

Presenter(s): Ben Thome, Anthony Montoya

Experimental information will be presented towards the synthesis of the unknown solid, PN, and related organophosphorus nitride compounds. PN compounds are potentially more efficient replacements for existing lithium-ion mobility fuel cells and batteries.

Mentor(s): John Bender

HENRY HALL ATRIUM 84

The Acute Effect of Histamine and Vitamin C on Coronary Arteries

Presenter(s): Brent Hazlewood

The purpose of the study was to determine whether the vascular responses of rings of porcine left anterior descending coronary arteries (LADs) would be adversely affected by being subjected to 3 hour incubation in a combination bath of histamine and ascorbic acid as compared to the controls. The changes in tension generated by the rings induced by potassium chloride (KCl) and nitroprusside (SNP), vasoconstrictors and dilators respectively, were recorded and used as a baseline for each ring to be compared to after incubation. Vasoconstriction of coronary arteries induced by KCl was not affected by incubation in a combination of ascorbic acid and histamine as compared to controls. Results for loss in response to SNP between control and combination bath were statistically significant ($p=0.023$). The data shows arteries incubated in a combination of histamine and ascorbic acid have a reduced vasodilation response to SNP compared to those incubated in control.

Mentor(s): Francis Sylvester

POSTER PRESENTATION ABSTRACTS

BEGINNING AT 9:00 AM

HENRY HALL ATRIUM 85

Modeling Problem Solving: Creating and Evaluating Student-Generated Screencasts

Presenter(s): Kaitlin Downey

The purpose of this project was to create novice-level screencasts and to investigate students' perceptions and usage of them. A survey of 61 general chemistry students revealed polarity, Lewis structures, molecular geometry, and bond polarity to be topics of greatest concern. Over 25 screencasts were created using Camtasia Studio software and a Dell TabletPC. A blog (<http://mi-chemed.net>) was created to host the tutorials and monitor student usage. After students registered and logged in to the blog, their viewing patterns were recorded. They were encouraged to comment on the content and technical features of the videos (e.g. animations). Online comments and student interviews were generally positive; their constructive criticism prompted several improvements to the website's organization and content. For example, a difficulty scale was added and each tutorial was assigned a rating. This helped students select a starting point of viewing tutorials of appropriate difficulty.

Mentor(s): Nathan Barrows

HENRY HALL ATRIUM 86

Analysis of Ravine Sediments at Grand Valley State University, Ottawa County, Michigan

Presenter(s): Andrew DeWitt, Kent Walters, Philip Kenroy

Steep sided ravines are eroding into the Allendale campus of Grand Valley State University in Ottawa County, Michigan. This landscape has been shaped by small tributaries draining into the Grand River since the end of the last glaciation (~10-15 ka). Whereas previous researchers have calculated the downcutting rates of these streams, little is known about the streams sedimentary facies. Six sediment cores, ranging in depth from 1.5-4.5 m, were taken within 25 m of one another perpendicular to the current stream path where two ravines converge. These cores contain multiple layers ranging from 10-60 cm thick. They are composed of sediments classified from clay to gravel size and give clues to the geomorphic and depositional history of sediment in the ravine. In this study, cores will be described and grain size analysis (sieve and hydrometer) will be performed on each stratum in order to correlate the beds and interpret the depositional history of the study area.

Mentor(s): Patrick Colgan, Patricia Videtich

HENRY HALL ATRIUM 87

Water Evaporation From Tropospheric Aerosols

Presenter(s): Patrick Loudon

With the recent discovery of the ubiquity of organic material in tropospheric aerosols, it has been postulated that the rates of water evaporation and condensation into the aerosols could be affected by thin surfactant films, which could ultimately affect cloud formation. Nathanson *et al.* have begun to study the effect of water evaporation from sulfuric acid solutions through the short-chain surfactant, butanol. They have found that a nearly full monolayer of butanol fails to reduce water evaporation from the acid. This unexpected result raises many questions about the mechanism of water evaporation. We used molecular modeling to help answer some of these questions as it allowed us to examine the trajectory by which a molecule leaves the liquid at the molecular level. We also are able to study this problem under conditions closer to that of the troposphere because we are free of certain experimental limitations and we intend to do so in the future.

Mentor(s): Christopher Lawrence

POSTER PRESENTATION ABSTRACTS

BEGINNING AT 9:00 AM

HENRY HALL ATRIUM 88

Construction of a Transgene to Analyze the Function of the 3' UTR in Hdc Gene Expression

Presenter(s): Embriette Hyde

Histamine has been shown to be a neurotransmitter used in the nervous system of *D. melanogaster*. Histidine decarboxylase (HDC) is the enzyme that catalyzes the synthesis of histamine. All genetic information necessary for Hdc expression is present in a 9.4kb genomic DNA fragment. A previous study fused the 5'-promoter region of Hdc to the marker protein, GFP. Microscopy analysis of flies transformed with the 5'-pHdc-eGFP transgene showed an incomplete pattern of GFP expression in the nervous system, as compared to histamine expression, indicating that another genomic region may be necessary for full Hdc expression. Recent studies have suggested the 3' UTR of a gene may play an important role in its expression. Current efforts are focused on the construction of a transgene that fuses the 3' UTR of Hdc to the 5'-pHdc-eGFP transgene. Examination of GFP expression in flies bearing this new transgene (5'pHdc-eGFP-3'UTR) may demonstrate the role that a 3' UTR has in Hdc gene expression.

Mentor(s): Martin Burg

HENRY HALL ATRIUM 89

GIS Analysis of Offshore Wind Turbine Locations in Lake Michigan

Presenter(s): James Bennett II, Elizabeth Carr

Historically the United States has been dependent on non-renewable sources of energy such as coal, natural gas, and petroleum. As these energy sources become less available and more expensive, wind energy and other alternative energy sources become more economically viable. Michigan ranks 14th in terms of wind energy potential in the United States, both on land and in the Great Lakes. Most wind turbines in Michigan are currently installed on land, but recent advances in technology have made offshore designs more feasible. Selection of favorable offshore locations can be facilitated using ArcMap Geographic Information System (GIS) software. GIS was used to select locations which maximize wind energy production and minimize adverse affects from waves, ice, and shipping. Favorable locations were selected based on depth, available wind energy resources, ice coverage, wave height, and proximity to population centers.

Mentor(s): Peter Wampler

HENRY HALL ATRIUM 90

Quantification of Antibiotics in Water

Presenter(s): Jody Wycech

The presence of antibiotics in the environment can have harmful effects on all living organisms due to the development of bacterial resistance. Analytical chemistry techniques including high performance liquid chromatography (HPLC), UV-visible spectroscopy, and solid phase extraction (SPE) were used to quantify amount of antibiotics in water samples. The antibiotic group of sulfonamides, commonly used in both human and veterinary medicine, was specifically analyzed. Solid phase extraction was developed to clean the aqueous samples, and high performance liquid chromatography separated and identified the specific antibiotics in solution. The study provides the appropriate methods to measure antibiotics contamination levels in river and lakes.

Mentor(s): Min Qi

POSTER PRESENTATION ABSTRACTS

BEGINNING AT 9:00 AM

HENRY HALL ATRIUM 91

Microarray Analysis of CD82 Expression in Normal Prostate Cell Lines (+/- CD82)

Presenter(s): Pushpaja dodla

KAI1/CD82 a tumor metastasis suppressor gene is downregulated during prostate metastasis progression. The exact mechanism for the role of CD82 in metastasis suppression is still unclear. Previous studies performed in our lab, with Agilent Microarray technology on prostate tumor cell lines PC3 (+/-CD82) have identified genes regulated by CD82. Three of the top twenty differentially expressed genes (CXCR4, CXCR7, CCL2) were found to play a major role in tumor metastasis with different levels of expression and are currently being validated by Q-PCR. Alternatively, microarray analysis in two types of normal prostate cell lines PEC 31(+/-CD82) will be performed to further validate the previous microarray results. We expect to identify the same list of genes as observed in our previous microarray analysis with tumor cells. These results will allow us to further identify the pathways and downstream signaling molecules regulated by CD82 and decipher its role in metastasis tumor suppression.

Mentor(s): Suganthi Sridhar

HENRY HALL ATRIUM 92

Spatial Distribution of Damage Resulting from the 2010 Haiti Earthquake

Presenter(s): Andrew DeWitt, Jason Arnold, Erica Dalman

The January 12, 2010, magnitude 7.0 earthquake in Haiti occurred as a result of movement along the Caribbean-North American plate boundary, resulting in tragic destruction throughout the densely populated city of Port-au-Prince. Damage extent from this earthquake can be studied using post-earthquake aerial photos and LiDAR data. In this study, ArcMAP GIS is used to evaluate earthquake damage as a function of distance from the epicenter and surface slope. It is anticipated that damage will be greater closer to the epicenter and in areas with steeper slopes. Damage will be evaluated using a qualitative damage scale of high, medium, and low based on aerial imagery. Rectangular regions containing at least 30 dwellings per area will be analyzed at different slopes and distances from the epicenter. The results of this analysis will provide an understanding of the spatial distribution of earthquake damage and the role surface slope plays on damage in the area.

Mentor(s): Peter Wampler

HENRY HALL ATRIUM 93

Why the Top of the World is on the Top of Our Minds

Presenter(s): Robert Slider

Many call it a "canary in the coal mine" when it comes to Climate Change, but Arctic scientists are well-aware that a changing tundra may be much more than a harbinger of Global Warming. In a region of the world where temperatures may drop below freezing even during the summer, it seems intuitive that warming will affect Arctic plants and animals. What may not be as apparent is how these changes could set off a chain of events resulting in accelerated warming on a local and global scale. This poster exhibits recent impacts of Climate Change on Arctic vegetation, explores how these impacts may affect the globe, and highlights the ways researchers in Grand Valley's Arctic Ecology Program are currently working to understand and predict these processes.

Mentor(s): Robert Hollister

POSTER PRESENTATION ABSTRACTS

BEGINNING AT 9:00 AM

HENRY HALL ATRIUM 94

Cyclic Polyamides as Telomerase Inhibitors

Presenter(s): Nathaniel Strong

The enzyme telomerase is present in approximately 80-90% of cancer cells. Telomerase works by copying linear telomeric DNA and extending it. In normal cells this guanine-rich DNA gets progressively shorter during each round of cell division. Telomeric DNA, located at the ends of human chromosomes, is able to fold into three-dimensional, tetraplex structures, stabilized by hydrogen bonds between the guanines. It is thought that by stabilizing the tetraplex DNA structure, and preventing the linear DNA from being formed, the activity of telomerase will be inhibited resulting in a potential treatment for cancer. Telomestatin is a cyclic natural product that stabilizes tetraplex DNA and inhibits telomerase. This presentation will describe the design and current synthetic efforts towards the synthesis of meta-substituted cyclic polyamides, based on telomestatin, as potential telomerase inhibitors.

Mentor(s): Toni Rice

HENRY HALL ATRIUM 95

The Application of Communication Accommodation Theory When Working With At-Risk Youth

Presenter(s): Derek Duzan

This research will present the success of compliance with the use of Communication Accommodation Theory, coined by Howard Giles. The accommodation of speech patterns between youths labeled "at-risk" and their authority as it relates to compliance will be measured. Key concepts discussed are convergence, divergence, Maintenance, & over accommodation. Through the observation of authorities working with youth, the applications of all accommodations are measured based on the success of compliance. Through this research, it is proven that convergence has shown less successful than divergence and both have fell short in comparison to maintenance. Through convergence, authority figures also inadvertently reinforce unprofessional speech patterns. By doing so, those authority figures hinder the youth's ability to become a young professional.

Mentor(s): Ann Byars, Danielle Wiese

HENRY HALL ATRIUM 96

The Carbonate Record and Glacial-Interglacial Cycles

Presenter(s): Michael Wicker

To understand current climate change we must first understand Earth's natural glacial-interglacial cycle. A current hypothesis says that in a cooling climate the ocean stores increasing amounts of CO_2 in the deep ocean via positive feedbacks until these exhaust themselves. A deglacial event is believed to be due an abrupt release of CO_2 into the atmosphere causing rapid warming. This would result in a dramatic shift in ocean chemistry causing a spike in preservation of CaCO_3 . To test this, I generated size-normalized shell weight data dating back to the Last Glacial Maximum using foraminifera from a core in the Eastern Equatorial Pacific. Results show increased shell weights correlating to the last deglacial event, however shell weight data had an additional spike indicating that is unlikely deep sea preservation is being represented by these results. This research is currently to better understand the effect of surface ocean $[\text{CO}_3^{2-}]$ on size-normalized shell weights of foraminifera.

Mentor(s): Figen Mekik

POSTER PRESENTATION ABSTRACTS

BEGINNING AT 9:00 AM

HENRY HALL ATRIUM 97

Bilingual Board Books in Early Childhood Education: A Contribution to Developing Intercultural Competency

Presenter(s): Nikki Whiteford

"Board Books" are Spanish/English books created by students of Spanish in collaboration with a faculty member. Students volunteer for this project and design, write, edit and assemble bilingual books in exchange for extra credit. Students use this initiative to take learning in their own hands, connecting and sharing their foreign language skills while outreaching to preschools in the community. The books are fun and helpful tools for teachers in bilingual classrooms, and for parents, to help break down the language barrier in preschool learners. Learners may reinforce their process of developing skills in the foreign language while enhancing languages through playful reading. We also may promote in preschool learners an openness towards people speaking other languages and towards their cultures, helping kids become more tolerant and accepting of different languages and cultures other than their own. This may contribute to build learners' intercultural competency at an early stage.

Mentor(s): Alberto Veiga

HENRY HALL ATRIUM 98

***Drosophila* Genomics: An Active Approach to Genomics in the Classroom**

Presenter(s): Anna Wylie, Chad Gier, Jeffrey Pashnick, Spencer Lofquist,
Alicia Baran, Amanda Mercer, Shadie Emiah, Lindsay Hoogenboom

Genomics is not only an increasingly important tool in biology, but also one that can provide opportunities for undergraduate engagement in research within a classroom setting. *Drosophila* has been a model organism used in genetic research for over a century. With approximately 14,000 genes on four chromosomes, its usefulness in the field of genetics is well established. While most *Drosophila* species have had their genomes sequenced for several years, the DNA sequence of the fourth (or 'dot') chromosome in all of these species has been mostly unfinished, except *D. melanogaster*. Through conducting both DNA sequence finishing and annotating of fosmid clones, using *D. melanogaster* as a reference genome, students in the *Drosophila* Genomics course participate in the Genomics Education Partnership, through which they are contributing valuable information to a worldwide database of genomic information, while gaining a deeper understanding of the research process and for genomics as a whole.

Mentor(s): Martin Burg

POSTER PRESENTATION ABSTRACTS

BEGINNING AT 9:00 AM

HENRY HALL ATRIUM 99

Forging the Missing Link Between Sustainability and Green Chemistry

Presenter(s): Kaitlyn Driza

The term "green" is emerging as a hot new keyword in many settings, yet green chemistry is rarely discussed. It is often associated with sustainability, a popular subject throughout college campuses. However, the principles of green chemistry are often not included in chemistry teaching. There is a vital link missing, between green chemistry and sustainability. This project forges that missing link through presenting the science of sustainability in terms that appeal to students and can be easily understood, while promoting green chemistry within Grand Valley State University (GVSU). One direction of our approach is ascertaining the general understanding of student knowledge of green chemistry through a campus-wide survey. The other is to link green chemistry with sustainability activities happening on campus via websites and mutual involvement of student clubs. Results that benefit GVSU's commitment to sustainability and lessons learned from this project will be presented.

Mentor(s): Dalila Kovacs

HENRY HALL ATRIUM 100

Own-Face Fixation in the Formation of First Grader's Face Prototypes

Presenter(s): Andrew Taylor

Prior studies have shown that facial prototypes in infants are a direct result of the amount and variability of contact with human faces received in their short lifespan. Such studies use preferential looking tasks to show that infants prefer to look at the face of their primary caregiver, the face of someone with the same gender as their primary caregiver, and a person of their same race. The current study was designed to test the contact hypothesis in first graders using an ambiguous facial drawing technique and an assessment of longitudinal close contact with the child. Analyses found that whereas the gender of those individuals who had close contact with the child was not a good predictor of the gender of the drawing, the gender of the child him or herself was a significant predictor. This study uses a fixation hypothesis to explain the observed results.

Mentor(s): Bradley Morris

HENRY HALL ATRIUM 101

Cultural Beliefs Regarding Misfortune: A Cross-Cultural Test of the Just World Belief

Presenter(s): Brianna Middlewood, Rachel Walker

Individuals may shift attributions of outcome responsibility depending on contextual factors, the valence of event outcomes, and dispositional factors. The Belief in a Just World (Lerner, 1965) is one example of this. Previous research indicates that culture may influence attributions of responsibility as well. Students in two countries (U.S. vs. China) were asked to read three scenarios in different domains (e.g., medical, economic) and outcome valences (good vs. bad) and to attribute responsibility for the outcomes as a function of different factors (e.g., external circumstances, God, fate). Chinese participants attributed less deservingness than U.S. participants to an individual when a good outcome was achieved. Chinese participants also attributed more deservingness than did U.S. participants to an individual experiencing a negative outcome. Cultural factors such as attributing outcomes to personal actions versus external factors may play a role in attributions of deservingness.

Mentor(s): Luke Galen

POSTER PRESENTATION ABSTRACTS

BEGINNING AT 9:00 AM

HENRY HALL ATRIUM 102

Me in an Ideal Place: Exceptional Students Recycled Environments Projects

Presenter(s): Jill Vyverberg, Jenica Bock, Richard Gibson, Vanessa Bouwkamp

GVSU Art Education students invited a group of exceptional students from Rockford Area Schools to participate in four art workshops based on the Big Idea: Me in an Ideal Place. The thirteen visiting students were asked to invent and visually create an identity and place based on desired character. The project allowed participants to practice visual expression of the self, creative problems solving by utilizing recycled materials, improving manual dexterity, and nurture social interactivity. Through participant observation, visual documentation, written reflection and group discussion GVSU Art Education students gained knowledge to a) call upon multiple intelligences of exceptional students, b) developing inclusion skills as future educators, c) advocacy of exceptional student population, d) reflective teaching practice, and e) emphasis on process over product in art making.

Mentor(s): Katalin Zaszlavik

KIRKHOF CENTER KC1

The Importance of Play in Hospitalized Children

Presenter(s): Kali Penfold

Research suggests that there is a gap between nurses' knowledge of the importance of play behaviors and the application of therapeutic play to benefit pediatric patients (Jessee, 1992). Play behaviors allow children to cope with the anxieties of normal development as well as more stressful conflicts like hospitalization (Kaminski, Pellino & Wish, 2002). Play therapy also provides a very basic way of communicating with children and facilitates the formation of a therapeutic relationship between children and their nurses. The purpose of this project is to better define for nursing students and practicing nurses the importance of play therapy for hospitalized children and their role as an advocate in making sure children's psychosocial needs are met during hospitalization. The project will define the nurse's role in facilitating play therapy and outline the most effective ways to incorporate play therapy into nursing school education.

Mentor(s): Sue Mlynarczyk

KIRKHOF CENTER KC2

Love Means Nothing when Training for Tennis

Presenter(s): Allison Berkas, Courtney Barry

Short balls, high-speed serves, and fiery backhands are skills that make the game of singles tennis unique. Along with these attributes, it is essential for the tennis athlete to have fine motor skills, explosive leg movements, and exceptional cardiovascular endurance, due to the ever changing dynamics on the court. The purpose of this research is to provide a periodized strength and conditioning model for the professional female tennis athlete. This study reviewed the current literature; no data was collected on human subjects at this time. This program is significant due to the long competition phases and complications that arise when implementing a scientifically sound program for this population. This research strives to demonstrate that athletes who participate in this method of training should be able to separate themselves from the rank of amateur to the status of elite.

Mentor(s): Amy Crawley

POSTER PRESENTATION ABSTRACTS

BEGINNING AT 9:00 AM

KIRKHOF CENTER KC3

A Statistical Consulting Experience: Studying the Effectiveness of ooVoo as a Video Conferencing Tool

Presenter(s): Emily Evans, Jay Jandasek

Students in Management 432 (Grievance Administration, Arbitration and Collective Bargaining) are learning arbitration skills and collective bargaining methods to aid them in dispute resolution. Learning and implementing these techniques requires teamwork both in and out of the classroom. Dr. Swift, the MGT 432 professor, wished to determine if ooVoo's video conferencing ability is an effective collaborative tool between student groups and with the professor. Our roles as statistical consultants on this project will be discussed.

Mentor(s): Neal Rogness, Maris Stella Swift

KIRKHOF CENTER KC4

Uncovering the Tuskegee Syphilis Study

Presenter(s): Britni Kaniewski

While many people have heard of the Tuskegee Syphilis Study, not all are aware of the ethical dilemmas that took place during this study. As Americans, we are quick to point our fingers at other unethical acts such as the Nazi medical experiments; however, we are just as guilty. The Tuskegee Syphilis Study is the most prominent example of this. In order to help prevent future unethical studies from taking place, it is important to educate as many future researchers about this study as possible. If students are properly educated on the details of the Tuskegee Syphilis Study, it may help them to empathize with the subjects of the study and prevent a repeat of history. For this study, students in an introductory microbiology course were asked to view a power point presentation about the Tuskegee Syphilis Study. They then completed a survey stating how important they feel it is to learn about this study, and how this will impact their future careers. The results will be presented.

Mentor(s): Steven Hecht

KIRKHOF CENTER KC5

Using Ongoing Eruptions to Study the Basic Characteristics of Volcanoes

Presenter(s): Stacia Schipper

Use Google Earth to visit 15 continuously erupting volcanoes and train students to measure relief, basal diameter, and slope, and to classify volcano type, materials, and explosivity.

Mentor(s): Steve Mattox

POSTER PRESENTATION ABSTRACTS

BEGINNING AT 9:00 AM

KIRKHOF CENTER KC6

The Effect of Ascorbic Acid and Histidine on Coronary Artery Function

Presenter(s): Hannah Hollandsworth, Patrick Roach, Tim Dykgraaf

The purpose of this study is to determine if a nonenzymatic reaction between histidine and ascorbic acid produces free radicals capable of altering the vascular responses of coronary arteries. Coronary arteries were obtained from pig hearts since porcine hearts serve as an excellent anatomical and physiological model of the human heart. It is hypothesized that the mixture of ascorbic acid and histidine will impair the artery's response to potassium chloride, a known vasoconstrictor, and nitroprusside, a known vasodilator. Alterations in the ability of coronary arteries to constrict and dilate are a hallmark of cardiovascular disease. A secondary purpose of this study is to develop a protocol for studying the acute effects of free radicals on coronary arteries.

Mentor(s): Francis Sylvester

KIRKHOF CENTER KC7

Performance on Sit-and-Reach Flexibility Tests as a Function of Body Proportions

Presenter(s): Anna Worm, Molly Barnard

This project sought to determine the effect that body length measurements and proportions have on performance of two forms of the sit-and-reach test, the original sit-and-reach test and the modified sit-and-reach. The primary difference between the tests is that the modified sit-and-reach test attempts to control for arm reach while the trunk remains vertical. The influence that body build has on the scores of hamstring flexibility tests has been debated in previous studies. Some have found that its influence is irrelevant, while other investigators claim that differing body proportions skew the results enough to throw the validity of sit-and-reach tests into question. This study was performed on Grand Valley State University students ages 18 to 25. Subjects' standing height and arm, leg, and trunk length were measured and compared to their scores on both the traditional sit-and-reach test and the modified sit-and-reach test.

Mentor(s): Bradley Ambrose, Jim Scott, Edward Baum

KIRKHOF CENTER KC8

The Phylogeography of Eastern Red Bats (*Lasiurus borealis*) and Effects of Wind Turbine-Related Mortality

Presenter(s): Min Lee

While wind is rapidly becoming a viable source of alternative energy, it is becoming increasingly clear that the presence of wind turbines is a conservation threat for many bird and bat species. Particularly hard-hit among bats are the tree-roosting migratory bats, including hoary bats (*Lasiurus cinereus*), eastern red bats (*L. borealis*), and silver-haired bats (*Lasionycteris noctivagans*). For these same species, however, basic elements of their life history are unknown. We are using DNA sequence data from eastern red bats to provide genetic estimates of these demographic parameters, including population size, migration rates, and patterns of historical population size change. As wind turbine-related fatalities continue to increase, it is important to understand the impact this industry is having on the long-term evolutionary health of these bat populations.

Mentor(s): Amy Russell

POSTER PRESENTATION ABSTRACTS

BEGINNING AT 9:00 AM

KIRKHOF CENTER KC9

Efficient Catalytic Systems for the Cross Coupling of 2'-Deoxyguanosine Tosylates with Terminal Alkynes

Presenter(s): Michael Ostach

The coupling of 2'-deoxyguanosine with various terminal alkynes using a copper-free Sonogashira type method offers a route for the creation of deoxyguanosine analogs by modification of the O6 position. A variation of the Sonogashira coupling method was used that utilized a tosylate leaving group, palladium species, ligand, and base in a copper-free environment. Several different catalytic systems were investigated for the coupling of protected deoxyguanosine tosylates and various terminal alkynes. The results of our optimization studies will be presented.

Mentor(s): Felix Ngassa

KIRKHOF CENTER KC10

The Acute Effect of a Low Concentration of Imidazole and Ascorbic Acid on the Vascular Reactivity of Coronary Arteries

Presenter(s): Devon Banda, William Van De Car, Kate Weir

The purpose of this experiment is to test the effect of the generation of free radicals resulting from the reaction between imidazole and ascorbic acid on blood flow regulation in coronary arteries. A low concentration of imidazole will be used in an attempt to observe vascular responses independent of a change in pH. Impairments in coronary blood flow regulation may be seen as alterations in the ability of coronary arteries to increase or decrease tension in response to pharmacological stimuli. Anterior interventricular arteries will be dissected from porcine hearts, cut into five millimeter sections, attached to a force transducer, and placed in an organ bath. Following equilibration, the rings of coronary artery will be incubated in PSS, imidazole, ascorbic acid, or imidazole and ascorbic acid for three hours. Changes in tension will subsequently be recorded in response to potassium chloride (a known vasoconstrictor) and nitroprusside (a known vasodilator).

Mentor(s): Francis Sylvester

KIRKHOF CENTER KC11

Silicon in Wonderland

Presenter(s): Nicole Gibbons

If Alice, while in wonderland, was to look at herself in the mirror she would see her "opposite" self. This opposite self would still be Alice, but a ring on her left hand would now be on her right. This is what happens with carbon molecules, many of the carbon based molecules (DNA, amino acids) are not the same as their mirror images. Interestingly, there are no naturally occurring silicon compounds with this property, which chemists refer to as chirality or handedness. We will be presenting our results studying reactions of silicon compounds that produce chiral silicon compounds and in the presence of chiral catalysts yield an excess of one of the two mirror images.

Mentor(s): Randy Winchester

POSTER PRESENTATION ABSTRACTS

BEGINNING AT 9:00 AM

KIRKHOF CENTER KC12

Cyanobacterial Mats of the Earth: Spotlight on Lake Huron's Sinkholes

Presenter(s): Nicole Horne

Recent underwater explorations in the Great Lakes reveal the presence of hotspots of biogeochemistry where a variety of microbial mats cover the lake floor bathed by high sulfate and low oxygen groundwater. While not hospitable to the fish and invertebrates that are typically found in Great Lakes, these habitats are a haven for specialized microbes. Here diverse and abundant microbial cells and some specialized invertebrate micrometazoa appear to be living in symbiosis with the microbes. These filamentous cyanobacteria can form brilliant purple, green or whitish mats, and perform different kinds of metabolism: oxygenic/anoxygenic photosynthesis or chemosynthesis. In sulfate-rich lakes of Yellow Stone, Mexico, Switzerland, and Antarctica, cyanobacteria form similar structures on the sediment surfaces. In this study, we compare the taxonomy, behavior, and community composition of the microbial mat communities in Lake Huron to microbial mats found in different parts of the world.

Mentor(s): Bopi Biddanda

KIRKHOF CENTER KC13

Paleolatitude of the Mississippian Marshall Sandstone: Jackson, Michigan

Presenter(s): Mary Russo, Amberjane Schneider, Kyle Crosby, Michael Wicker

Paleomagnetism uses magnetic minerals preserved in sediment to study Earth's magnetic field. Paleomagnetic analysis can measure magnetic polarity, intensity, inclination, and declination of the geomagnetic field as recorded in sediment during deposition. Previous analysis of shale in the Michigan Formation from a core near Jackson, Michigan, indicates a paleolatitude of $\sim 6^{\circ}\text{S}$; however, there is a large uncertainty likely due to extreme age and mineralogy. Using a similar method we will use sandstone from an older portion of the core, the Marshall Sandstone, which may have stronger magnetic properties. These samples will be analyzed using a spinner magnetometer and plotting the data on stereonet and Zijderveld diagrams to determine declination, inclination, and intensity. Ultimately, paleolatitude will be derived from the resulting data. This research tests the current hypothesis that Michigan was located near the equator during the Mississippian.

Mentor(s): Patricia Videtich, Patrick Colgan

KIRKHOF CENTER KC14

Error Analysis of Modeling Antarctic Climate

Presenter(s): James Collins

Global climate change has become an increasing concern in recent years and to what extent human activity affects the climate has been a subject of controversy. Although, it has been determined that human activity does affect the climate, how exactly it affects the climate is unknown. Climate modeling is a way of simulating the climate on a computer. Atmosphere-Ocean Circulation Models (AOGCM) are the most commonly used modeling tool for predicting future climate and assessing potential impact of climate change. Each AOGCM has its own method of climate simulation and inherent error or uncertainty. Because of the nature of climate change, colder regions of the world are more sensitive to slight changes in the atmosphere's chemistry. Using existing AOGCM scenarios available from the IPCC and MAGICC/SCENGEN 5.3 software, this project will investigate the climate of Antarctica and what climate model best predicts the effects of climate change on this region of the world.

Mentor(s): Elena Lioubimtseva

POSTER PRESENTATION ABSTRACTS

BEGINNING AT 9:00 AM

KIRKHOF CENTER KC15

Prevention of Methicilin Resistant Staphylococcus Aureus (MRSA) in Athletes

Presenter(s): Ellen Bruno, Samantha Dunavant, Sarah Metiva, Ryan Mann, Nichole Woityra, Marilyn Warren

MRSA was once thought to be only a nosocomial infection; however it has emerged into a problematic infection in the community. In 2007 the CDC survey of high school athletic trainers reported that 53% had treated MRSA infections in football players. CA-MRSA (community acquired) is through direct person-to-person or object-to-person contact. MRSA is prevalent in athletes due to direct contact and closeness to other players. We will be evaluating the effectiveness of strategies to prevent the occurrence and/or transmission of MRSA infections. CINAHL, PubMed, and Cochrane Library were searched using the keywords: Community Acquired, methicilin resistant staphylococcus aureus, and athletes. Measures to decrease MRSA infections in athletes were evaluated. According to Pender's Health Promotion Model, helping athletes promote their health to prevent CA-MRSA and decrease the incidence in the athletic environment would be appropriate for nurses to do.

Mentor(s): Phyllis Gendler

KIRKHOF CENTER KC16

GIS Analysis of the Impacts of Sea Level Rise Near Port-au-Prince, Haiti

Presenter(s): James Buzzell, Kyle Siemer

This research project focuses on mapping and modeling the impact of sea-level rise along the coast of Port-au-Prince, Haiti. The goal is to explore changes in coast length and inundation area of developed land, associated with sea-level rise, as a result of global climate change. ArcMap Geographic Information System (GIS) software will be used for mapping and three-dimensional analysis. GIS will be used to evaluate changes in shoreline length and inundated areas, as well as structures that would be flooded as a result of incremental sea level rise. Data used for the analysis includes Light Detection and Ranging (LIDAR) data, as well as aerial photos taken between January 17th and January 25th, 2010, in response to earthquakes in Haiti. Results will include a detailed prediction of land area loss and shoreline length changes resulting from sea level rise, allowing local inhabitants and relief workers to rebuild in a manner compatible with future sea level changes.

Mentor(s): Peter Wampler

KIRKHOF CENTER KC17

Nato3, a bHLH Protein, is Expressed in the Floor Plate of the Developing Neural Tube at all Axial Levels in the Chicken and Mouse Embryos

Presenter(s): Sarala Sarah

Nato3, a bHLH transcription factor, is expressed in the neural tube of the developing mouse and chicken embryos. Published literature suggests Nato3 is a transcriptional inhibitor and a negative regulator of neurogenesis. The objective of our study was to determine which population of neural progenitor cells in the neural tube expresses Nato3. We hypothesized that Nato3 expression is restricted to the floor plate region of the developing neural tube at all axial levels. We established the in situ hybridization technique to detect endogenous Nato3 mRNA expression. We found Nato3 is expressed in the floor plate region of the spinal cord, hindbrain and midbrain at the onset of neurogenesis and continues until late gestation. The expression pattern suggests that Nato3 may have a role in the function of floor plate cells throughout the course of development. A critical question is to determine if Nato3 promotes floor plate cell lineage and if this occurs at the expense of neurogenesis.

Mentor(s): Merritt Taylor

POSTER PRESENTATION ABSTRACTS

BEGINNING AT 9:00 AM

KIRKHOF CENTER KC18

Characterizing the Cellular Regulation of the Diaphanous-related Formin, mDia3, by Expression of the Constitutively Active Full-length Protein

Presenter(s): Samantha Seaberg

Diaphanous-related Formins (DRFs) are a family of proteins involved in the regulation of the cytoskeleton and are normally maintained in an inactive state by two regions of the protein (DID and DAD) binding to each other. Release of the DID-DAD binding interaction activates the protein. The regulation and cellular localization of a specific DRF, mDia3, has not been widely characterized. Here, we show that a specific amino acid residue (M1053) in the DAD region of mDia3 is involved in regulation by DID-DAD binding. We have also been able to express engineered, full-length mDia3 in three mammalian cell lines. Activated mDia3 results in increased numbers of filopodia-like extensions which localize at the tips of the filopodia. Fluorescence anisotropy confirms that the M1053A mutation in DAD results in the inability to bind to DID. These results demonstrate the critical contribution of M1053 to mDia3 autoregulation, as well as the effects and localization of full-length activated mDia3.

Mentor(s): Brad Wallar

KIRKHOF CENTER KC19

Ergogenic Effects of Caffeine on Submaximal Cycle Ergometer Performance

Presenter(s): Jonathan Havenhill, Ellyse Birch

To investigate the ergogenic effects of caffeine on submaximal cycle ergometer testing performance, subjects completed three YMCA submaximal cycle tests. This test is a graded submaximal bicycle ergometer test, utilizing heart rate and workload in a stepwise protocol to predict oxygen consumption. The subjects first completed a test to establish a predicted oxygen consumption level to serve as control and to measure heart rate and rate of perceived exertion. Subjects later returned to the lab to complete two additional YMCA cycle tests. For the second and third trials, subjects were randomly assigned to a treatment group. The first treatment group completed the second trial 30 minutes after having ingested a solution of caffeinated Gatorade, and the second treatment group received a placebo solution of regular Gatorade. For the third trial, subjects were assigned to the opposite treatment group. Results from all three test were then compared to determine if caffeine had an effect.

Mentor(s): Edward Baum, Jim Scott, Bradley Ambrose

KIRKHOF CENTER KC20

Synthesis of Novel Indane Derivatives as Regulators of TAAR Activity: An Updated Approach

Presenter(s): Kevin Maupin

3-Iodothyronamine (T1AM) is a metabolically active derivative of thyroid hormone (TH). Research has shown that T1AM and other similar thyronamine analogs are potent activators of the trace amine associated receptor (TAAR1) in vitro. This research has also shown that the binding of TAAR1 by these thyronamines rapidly induces physiological responses opposite of those exhibited by TH. Previous research in our lab has shown an interesting regulatory pattern of TAAR1. R(-)Apomorphine activated TAAR1, while S(+) Apomorphine proved to be an antagonist. Herein we present an updated synthesis of a proposed TAAR regulator using an aziridine to incorporate an amine functional group to an indene ring. By testing analogs of T1AM, more potent agonists and antagonists could be uncovered. Developing these compounds could not only lead to a better understanding of TAAR1 receptor's role in biology, but advancements in the treatment of patients with thyroid hormone related diseases.

Mentor(s): Matthew Hart

POSTER PRESENTATION ABSTRACTS

BEGINNING AT 9:00 AM

KIRKHOF CENTER KC21

Embryonic Methylmercury Exposure Caused Hyperactivity and Impaired Learning in Zebrafish

Presenter(s): Melanie Smith, Lillian Schaefer

Methylmercury is a common pollutant that has shown to cause toxic effects in humans. In order to learn about the effects methylmercury can have on human fetus, the present study focuses on the neurobehavioral effects of embryonic methylmercury exposure in zebrafish. Zebrafish embryos were separated into groups in which they were either exposed to no methylmercury or different levels of methylmercury. The adult fish hatched from those embryos were trained and tested in a shuttle-box that consisted of a tank separated into two equal compartments by a divider. The fish were taught to associate a light stimulus with an electrical shock. That is, a light was presented for 12 seconds and then followed by a shock. The fish crossing the divider within 12 seconds of the light stimulus could avoid the shock. Each fish was trained on Experimental Day 1 and tested on Experimental Day 3. The results showed that embryonic methylmercury exposure caused hyperactivity and impaired learning

Mentor(s): Xandra Xu

KIRKHOF CENTER KC22

Terror Management Theory and the Just World Belief as a Cultural Worldview

Presenter(s): Laura Smith, Christina Koutouzios

Individuals endorse worldviews that support a sense of order self-esteem. The Belief in the Just World (BJW) is such a view. Terror Management Theory (TMT) predicts that threats of mortality increase the adherence to worldviews as a protective or compensatory response. To test TMT in relation to the BJW, students were asked to write either an essay making on their own mortality or a control essay. Because unconscious effects of mortality salience are delayed, two orderings of questionnaires were used. For some subjects, measures of religiosity immediately followed the essays, in others, measures of BJW immediately followed. Analysis revealed that, relative to a pre-test administered at the start of the semester, participants exposed to mortality salience increased their BJW relative to the control essay, but only for the condition who filled out the just world measures after a delay. This indicates that just world beliefs function as an existentially meaningful worldview.

Mentor(s): Luke Galen

KIRKHOF CENTER KC23

Dual Caregiving Roles

Presenter(s): Hayley Baker

The purpose of this project is to evaluate differences in fatigue among nurses in dual caregiving roles. It has been shown that nurse fatigue decreases alertness, vigilance, judgment, concentration, mood and performance. Likewise family members who assume care for a loved one report burden, fatigue, and mood changes. As more nurses assume dual roles as professional and family caregivers, it is important to recognize this phenomenon. Furthermore, the identification of strategies that will reduce fatigue and maximize alertness are imperative. This project will address these important issues and their implications for nurse, patient, and family well-being.

Mentor(s): Linda Scott

POSTER PRESENTATION ABSTRACTS

BEGINNING AT 9:00 AM

KIRKHOF CENTER KC24

Effects of Kangaroo Care In the Management of Pain in Neonates

Presenter(s): Sandra Sepulveda, Ashley Necci, Mindy Niedzwiecki, Kaitlyn French, Katelyn Grashorn, Sarah Wood

Currently, managing pain in neonatal care is not a standardized process. Neonates are more sensitive to pain due to their full capacity of pain perception and poor pain inhibition. Neonates are submitted to many procedures that are painful and stressful. The purpose of this review is to determine if kangaroo care is an effective method for pain control in neonates. We will conduct a research review on the benefits of kangaroo care using CINAHL, Medline, and The Cochrane Library databases. Keywords used include: kangaroo care, preterm, neonate, skin to skin, and pain. The research found that Kangaroo care has been found to reduce the response of neonates to painful stimuli. Roy's Adaptation Model was used, which says humans are adaptive systems that cope with change through adaptation. Nursing helps to promote client adaptation through health and illness. Through the nursing intervention of teaching kangaroo care, nurses are helping the neonate adapt to life outside the womb.

Mentor(s): Phyllis Gendler

KIRKHOF CENTER KC25

A Phylogenetic Analysis of the African Plant Genus *Palisota* (family *Commelinaceae*) Based on Chloroplast DNA Sequences

Presenter(s): Grady Zuiderveen

The plant genus *Palisota* (family *Commelinaceae*) consists of approximately 20 species and is distributed throughout tropical Africa. The genus exhibits several unusual morphological characteristics, and as a result has been difficult to classify based on morphology. Molecular phylogenetic studies have placed it in a relatively basal position within *Commelinaceae*, but the exact placement of *Palisota* within the family is only weakly supported. The chloroplast-encoded gene *rbcL* has so far been sequenced in three species of *Palisota*. The goal of this study is to sequence *rbcL* in several additional species of *Palisota* in order to: 1) determine the phylogenetic relationship of the genus with respect to other members of *Commelinaceae*; and 2) evaluate phylogenetic relationships among species of *Palisota*. Additionally, we are exploring the use of other molecular regions for phylogenetic analysis within the genus.

Mentor(s): Timothy Evans

KIRKHOF CENTER KC26

Starting and Maintaining a Real Estate Portfolio

Presenter(s): Timothy Shamilov

A real estate portfolio is a practical means for the average investor to develop strong cash flows and utilize leverage. To establish my own real estate portfolio, I filed for an LLC and purchased a multi-unit foreclosure in the downtown area. Budgeting was required, as well as projections of future cash flows. I was then able to project a simulated portfolio using the equity invested in the first property to purchase three more projected properties within the downtown area. My projected portfolio included 4 properties and annual cash flows of over \$34,000. I was able to establish a real framework with which an average person can become independently wealthy aside from their day job. As a result of my research and purchase, I will always maintain real estate investments in my financial portfolio, and I have established some equity which which to buy future properties.

Mentor(s): Douglas Adams

POSTER PRESENTATION ABSTRACTS

BEGINNING AT 9:00 AM

KIRKHOF CENTER KC27

A Statistical Consulting Experience: Studying the Effectiveness of the Structured Learning Assistance Program

Presenter(s): Ben Thull, Rachel Morrell

The Structured Learning Assistance (SLA) Program gives students at Grand Valley State University supplemental instruction in select courses. SLA sections have scheduled workshops in addition to regular class times where students can seek help from a facilitator and review previous material covered in class. These workshops are optional to attend once a student meets and continues to maintain a certain grade set by the instructor of the course. We will talk about our roles as statistical consultants in analyzing the data to compare student performance in SLA sections and non-SLA sections.

Mentor(s): Karel Swanson, Neal Rogness

KIRKHOF CENTER KC28

Wii Active: Examining Cardiorespiratory, Body Composition and Body Esteem Changes in Female College Students

Presenter(s): Lauren Ramer, Tracey Allers, Amy Kolin, Courtney Athy

A quasi experimental pretest/posttest design was used in this pilot study to examine the changes in cardiorespiratory fitness (CRF), body composition (BF%), and body esteem (BE) in 10 college-aged females as a response to completing 20 workouts that comprise the EASports Wii Active 30-day Challenge. Participants completed a total of 20 workout sessions with Wii Active. During the first and last sessions height, weight, and BF% were measured; the 23-item Body Esteem Scale was completed; and a submaximal treadmill test was administered to assess CRF. Data for this pilot study has been collected and is now being reviewed and analyzed. ANOVA will be utilized to determine differences in CRF, BF%, and BE pre/post treatment (workouts). Results will provide information relative to the potential of exergames (Wii Active) to improve CRF, BF%, and body esteem in college females.

Mentor(s): Christina Beaudoin

KIRKHOF CENTER KC29

Synthesis of Calix[4]Furan Derivatives

Presenter(s): Alvina Qureshi

We report investigations into the synthesis and characterization of a series of molecular receptors based on a calix[4]furan scaffold. These hosts are close relatives to the well-known calixarene and calix[4]pyrrole family of macrocycles. Calix[4]furans feature 4 hydrogen bond acceptors present in the interior of the cavity, able to interact with guests of suitable size, shape and charge (e.g. ammonium salts). Host-guest complexes can be characterized by ^1H NMR, MS and X-Ray crystallography.

Mentor(s): Shannon Biros

POSTER PRESENTATION ABSTRACTS

BEGINNING AT 9:00 AM

KIRKHOF CENTER KC30

Histamine and eGFP co-Localization in Flies Bearing an Hdc Promotor-eGFP Gene Fusion

Presenter(s): Wendi-Jo Ervin

Histamine, a biogenic amine synthesized by histidine decarboxylase, is used as a neurotransmitter by various cells in *D. melanogaster*. We are interested in understanding how tissue-specific expression of Hdc is controlled by examining the function of the Hdc 5'-UTR and 3'-UTR in regulating expression of a reporter gene, eGFP, in histaminergic cells. The 5'-UTR containing the Hdc promoter region, previously identified as being necessary for normal Hdc expression, was fused to eGFP in a pGreenPelican vector, to determine whether the 5'-UTR region is sufficient for normal Hdc expression. The nervous system was dissected and stained for histamine, imaged using fluorescence micrography for both histamine and eGFP. Results indicate the 5'-UTR region of Hdc can induce expression of eGFP in centrally located histamine-containing neurons. Differences in the level of expression between cell types and developmental stages suggest that the 3'-UTR of Hdc may be required for complete expression.

Mentor(s): Martin Burg

KIRKHOF CENTER KC31

Educating School-Aged Children and their Parents on the Importance of Breakfast to Increase Breakfast Program Attendance in Kelloggsville Public Schools

Presenter(s): Zoe Kilbourne, Josh Woodhull, Erica Fedewa, DarLisa Meaders

Research has proven that eating a balanced breakfast is associated with a lower BMI, increased concentration and promotion of a healthier diet. At Kelloggsville Public Schools, while 82% of the students qualify for a free or reduced lunch, only 22% of students participate in the breakfast program. To improve breakfast attendance, this school system recently implemented a Universal Breakfast Program. The purpose of this 3- month project was to educate school-aged children and their parents about the nutritional importance of breakfast in order to increase the Breakfast Program attendance. Various educational tactics were used including informative posters and brochures, personal interactions at school and health promotion events, and surveys. The effectiveness of the 3-month project will be determined by change in Breakfast Program participation.

Mentor(s): Deborah Lown

KIRKHOF CENTER KC32

Bilingual Board Books in Early Childhood Education: A Contribution to Developing Intercultural Competency

Presenter(s): Michelle Tucker

"Board Books" are Spanish/English books created by students of Spanish in collaboration with a faculty member. Students volunteer for this project and design, write, edit and assemble bilingual books in exchange for extra credit. Students use this initiative to take learning in their own hands, connecting and sharing their foreign language skills while outreaching to preschools in the community. The books are fun and helpful tools for teachers in bilingual classrooms, and for parents, to help break down the language barrier in preschool learners. Learners may reinforce their process of developing skills in the foreign language while enhancing languages through playful reading. We also may promote in preschool learners an openness towards people speaking other languages and towards their cultures, helping kids become more tolerant and accepting of different languages and cultures other than their own. This may contribute to build learners' intercultural competency at an early stage.

Mentor(s): Alberto Veiga

POSTER PRESENTATION ABSTRACTS

BEGINNING AT 9:00 AM

KIRKHOF CENTER KC33

A Filtering Approach to Computer-Aided Student Study Group Formation

Presenter(s): Kurt O'Hearn

Students thrive in a variety of collaborative learning environments. Furthermore, research has shown student study groups are especially effective methods to promote learning. Our research project developed an artificially intelligent, Internet-based system that aids in formation of study groups outside the classroom setting. The system utilized an HTML/PHP/CSS web interface with a MySQL database back-end for the system design. Analysis of student feedback following system demonstration revealed significant support on viability and potential usage. A formal study conducted during the Winter 2010 semester at Grand Valley State University revealed that different conditions were needed to obtain more conclusive results. These conditions include larger participant pools, more participating class sections, student incentives to participate, and deployment in the fall semester to reach new students, especially freshmen.

Mentor(s): Roger Ferguson

KIRKHOF CENTER KC34

Materialism, Intrinsic Aspirations, and Meaning in Life Predict Students' Meanings of Education

Presenter(s): Amanda Mitchell

A deep literature attests to the effects of college attendance on student development, but little research has examined the meaning of education to students. We studied whether materialism, intrinsic aspirations, and the search for meaning in life predict what education means to students. Regression analyses indicate that materialist students view their education as the opportunity to gain independence, a time to establish relationships, and a source of stress. Individuals high on intrinsic aspirations were more likely to see education as a time for career preparation, gaining independence, exploring future life directions, learning, personal growth, increasing social connections, and learning skills to make a difference in the world. Individuals who sought meaning in life viewed education as a way to prove independence, explore life directions, engage in personal growth, establish relationships, learn skills that will help change the world, and escape future responsibilities.

Mentor(s): Donna Henderson-King

KIRKHOF CENTER KC35

Beliefs and Comprehension: Importance of the Reason for Holding Beliefs

Presenter(s): Andrew Taylor, Shawna Tanner, Gabrielle Austin

Processing and memory for scientific texts were examined as a function of belief towards a topic and the basis for that belief (evidence vs. affect). Sentence reading times were recorded while subjects read texts that either supported or refuted specific topics (evolution and television violence). Processing was assessed by regressing reading times on certain sentence characteristics, including the extent to which each sentence supports or refutes the text position. Belief basis, but not the beliefs themselves were a good predictor of reading times. Evidence-based subjects slowed down their processing for sentences that opposed the main text position (e.g. pro-evolution sentences in a text that argues against evolution). No such trend was seen in affect-based subjects. Results suggest that evidence-based subjects will, more than affect-based subjects, alter their level of processing throughout a text to create a balanced situation model.

Mentor(s): Michael Wolfe

POSTER PRESENTATION ABSTRACTS

BEGINNING AT 9:00 AM

KIRKHOF CENTER KC36

Clogging of the Southern Kent County Landfill Drainage System

Presenter(s): Kyle Siemer

The Southern Kent County Landfill is a non-hazardous waste facility with a confined drainage system which prohibits migration of contaminated leachate from the landfill into the subsurface environment. The landfill contains solid waste (MSW) and incinerated waste (fly ash). The drainage system clogs with precipitated bio-rock. This investigation examines the composition and genesis of bio-rock. Layers of calcite (CaCO_3) are separated by algal/fungal mats. Plumose calcite indicates rapid growth. Precipitation of bio-rock was attempted under controlled conditions. Bio-rock forms where leachate from the fly-ash pit mixes with MSW leachate. Preliminary analysis suggests zeolite precipitation. New experiments are being designed such that Na-rich zeolites hinder precipitation of bio-rock via a Na-Ca ion exchange process.

Mentor(s): Linda Davis

KIRKHOF CENTER KC37

Strength and Conditioning Programming Specific to Rock Climbing Athletes

Presenter(s): Leonard LaGarde III, Matthew Flutur

The aim of this study is to garner evidence and information on strength and conditioning programming for rock climbing. The periodized methodology provided is based on a thorough evaluation of the current literature and related scientific analysis. Although rock climbing is not a new sport, the ascension of participation has increased only recently; and thus there is not a significant amount of specific research data available for review. As rock climbing is a very versatile sport, incorporating many different muscle groups and skills, it is important to determine if athletic training methods from other similar sports can be applied effectively. As this sport continues to grow in popularity, the necessary skill level and evolving training methods of athletes will continue to drive researchers to ascertain effective periodized programs.

Mentor(s): Amy Crawley

KIRKHOF CENTER KC38

A New Aragonite Preservation Proxy to Measure $[\text{CO}_3^{2-}]$ in Shallow Pelagic Seas

Presenter(s): Calvin Vander Boon

The goal of the research is to develop a global aragonite dissolution proxy (ADP) to accurately measure $[\text{CO}_3^{2-}]$ in open sea environments above the calcite saturation horizon (CSH). The G. menardii Fragmentation Index (MFI) is a recently established calcite dissolution proxy for the deep sea but it is not sensitive to $[\text{CO}_3^{2-}]$ above the CSH. Since the aragonite saturation horizon is significantly shallower than the CSH in the Atlantic Ocean (2600m vs. 3700m), an ADP will be more sensitive to $[\text{CO}_3^{2-}]$ of bottom waters in shallow pelagic seas and will allow the accurate quantification of $[\text{CO}_3^{2-}]$ in sediments shallower than the CSH. The core top calibration of the ADP was created using samples from the Rio Grand Rise (RGR) and then compared to MFI. MFI loses sensitivity above the CSH but this is where an ADP would be most sensitive to changes in aragonite concentration. Thus, a pteropod-based proxy has potential for tracing marine carbonate chemistry above the calcite lysocline.

Mentor(s): Figen Mekik

POSTER PRESENTATION ABSTRACTS

BEGINNING AT 9:00 AM

KIRKHOF CENTER KC39

Capillary Isoelectric Focusing of Bacteria Using Cellulose Coated Capillaries

Presenter(s): Ryan Nelson

In recent years, capillary electrophoresis has gained significant attention as a tool for the separation and detection of microorganisms. Few methods currently exist for the identification of microbial contaminants that fulfill the requirements of modern industry: namely rapid analysis, high sensitivity, low cost, and method simplicity. Traditionally used to isolate proteins, capillary isoelectric focusing has shown promise for the analysis of biocolloids, separating cells by their isoelectric point resulting from differences in ionizable groups on their surfaces. Here, a method is presented using isoelectric focusing to separate several microbial species. Capillaries were statically coated with hydroxypropylmethyl cellulose to suppress the electroosmotic flow and limit cell adsorption to the capillary wall. The method with which fungus can be isolated, developed through this study, shows the potential for complete separation of numerous cell types within the capillary.

Mentor(s): Andrew Lantz

KIRKHOF CENTER KC40

Progress Towards an Efficient Synthesis of a Truncated Ergoline: The Development of TAAR Regulators

Presenter(s): Ryan Enck

Many people are diagnosed with thyroid related disorders and many more are unaware of their existing thyroid problems. T1AM, a naturally occurring metabolite of the thyroid hormone (TH), was shown to activate the trace amine associated receptor 1 (TAAR1) and exhibit physiological effects that oppose those of the TH. In order to better understand the relationship between T1AM and the TH, we want to evaluate the molecular basis of TAAR1 regulation. Previously, our lab examined apomorphine, which exhibited agonist/antagonist regulation due to the different enantiomers. This project is targeted toward the synthesis of a truncated ergoline, which is structurally similar to both T1AM and apomorphine. For the ergolines, only one enantiomer is naturally occurring and it was shown to be an agonist for TAAR1. The other enantiomer must be synthesized. Progress toward a novel synthesis involving an intramolecular cyclization of an aziridine and an indole is reported herein.

Mentor(s): Matthew Hart

KIRKHOF CENTER KC41

Personality in the Jumping Spider, *Phidippus audax*

Presenter(s): Beth Baumgartner

Studies of many species reveal individual behavioral profiles, personalities, are consistent across time and context. A common personality axis is the shy/bold axis, which is defined as an individual's willingness to take risks. We examined personality in the jumping spider, *Phidippus audax* by studying the exploratory behavior of 36 individuals. Jumping spiders are highly visual, cursorial hunters, making them a prominent model for spatial learning studies. After weighing and sexing spiders, we placed individuals into a circular arena with black and white hexagons on the floor. We recorded for 5 minutes, and then introduced prey for an additional 5 minutes. 5 trials were conducted. Based on the videos, we determined the amount of movement, how much time was spent on cryptic (black) hexagons, and how long it took to attack prey. If spiders exhibit personalities, we predict that some will be bolder than others across multiple trials, and across different measurements of boldness.

Mentor(s): Michael Henshaw

POSTER PRESENTATION ABSTRACTS

BEGINNING AT 9:00 AM

KIRKHOF CENTER KC42

The Role of Anxiety on Perfectionist Individuals Predisposed to Disordered Eating

Presenter(s): Amanda Willis

In this study, individuals who varied in trait levels of perfectionism and disordered eating (DE) were given an anxiety (vs. control) prime and reported 1) their desire to engage in DE and 2) the extent that they felt engaging in such behaviors would alter their affective state. Our findings indicate that individuals with high levels of perfection and trait DE reported a greater desire to engage in DE more frequently in high anxiety situations, compared to those with low levels of perfection and trait DE. Furthermore, our results show participants who felt anxious after the anxiety prime were more likely to anticipate relief after engaging in DE. These findings suggest that anxiety may elicit disordered eating among perfectionists who engage in this response as a coping strategy. Future research should further investigate this relationship and seek to develop intervention programs that teach high risk individuals alternate coping strategies.

Mentor(s): Todd Williams

KIRKHOF CENTER KC43

The Effect of Music on Perceived and Actual Running Pace

Presenter(s): Michele Verellen, Kelsey Davies, Melanie Gross

The purpose of this study was to determine the effect of different tempos of music on perceived and actual running pace, where pace is defined as the time that it takes to run a predetermined distance. Based on previous research, music has the largest effect on perceived exertion particularly when the exercise is of moderate intensity rather than high intensity, and when runners are amateur rather than experienced. This study extends the research in that it investigates perceived and actual pace rather than perceived exertion or ultimate performance. All participants were recruited from the Grand Valley State University Running Club and were between the ages of 18 and 23. Participants were asked to run to three tempos of music and a control (no music) and their actual and perceived paces were recorded. This study has implications for all athletes seeking to improve their running pace.

Mentor(s): Bradley Ambrose, Jim Scott

KIRKHOF CENTER KC44

Vector Construction of shRNA to Suppress Nato3 Expression in the Embryonic Gallus Gallus Central Nervous System: Design and Advances

Presenter(s): Jake Carpenter-Thompson

Our long term goal is to disrupt the expression of the gene Nato3 in the Gallus gallus embryo to better understand the role of Nato3 in the development of neural progenitor cells. We hypothesize that when Nato3 expression is disrupted, there will be a decrease in the number of floor plate cells. To develop this vector I have designed an oligonucleotide that specifically targets a region of the Gallus gallus Nato3 gene. The shRNA will form a simple hairpin, and specifically bind to the mRNA encoded to produce Nato3 protein, thus targeting Nato3 for degradation by the cell. Once generated, the vector can express shRNA against Nato3 in the developing neural tube by in ovo electroporation. If our hypothesis is correct then there will be fewer cells that express floor plate markers when shRNA targeting Nato3 is expressed, demonstrating that Nato3 plays a crucial role in the development of neural progenitors in the floor plate.

Mentor(s): Merritt Taylor

POSTER PRESENTATION ABSTRACTS

BEGINNING AT 9:00 AM

KIRKHOF CENTER KC45

Climate Change Destroying Polar Bear Habitat

Presenter(s): Katelynn Carnesk

This study is focused on the effects the Arctic area is currently facing due to climate change. Since this region is home of many polar bears, their habitat is putting them in great danger. Since arctic ice is melting at a rapid rate, polar bears are having a hard time getting enough food to survive. I plan to develop regional and global paleoenvironmental reconstructions based on the published data, analyze AOGCM (Atmosphere Ocean General Circulation Model) scenarios and develop regional climate change scenarios using MAGICC/SCENGEN5.3 climate model, and also examine AVHRR NOAA data analysis for the Arctic region of the world available since 1981. I expect to examine the evidence of rapid climate change and demonstrate warming trends in the Arctic regions during the past century. Not only is climate change effecting humans all over the world, it is also effecting many species of animals who are at risk of becoming extinct because of loss of habitat.

Mentor(s): Elena Lioubimtseva

KIRKHOF CENTER KC46

The Combination of a Selective Nicotinic Agonist and Modulator Protects Against Cellular Damage in 2 Models of Glaucoma

Presenter(s): Juan Rango

Our goal was to determine the neuroprotective capabilities of an α -7 nicotinic specific agonist (PNU 282987) in the presence of a selective α -7 modulator (PNU-120596) using adult pig retinal ganglion cells (isolated RGC culture & eye-cup preparations). With chronic exposure to the agonist and modulator, we observed an average of a 40% higher survival rate of RGCS exposed to the drug combination than in control culture media. Isolated RGCs exposed to the drug combination displayed more neuronal processes with branches as well as more intense staining; both of which may indicate healthier cells. Retinal slices were prepared from the eyecup preparations and cells in the RGC layer were counted. Preliminary results support the concept of enhanced survival of RGCs when exposed to the drug combination. Although preliminary in nature, the data reinforces the idea of using acetylcholinergic nicotinic compounds as 'neuroprotectors' to prevent apoptotic cell death in glaucoma.

Mentor(s): David Linn

KIRKHOF CENTER KC47

Determining Personality in Sanctuary Chimpanzees (*Pan troglodytes*)

Presenter(s): Rebecca Brittain

To date, methods used in the assessment of individual personality in nonhuman animals have been mostly limited to direct experimentation and surveys from animal keepers and care staff. Generally, animals are scored for presence or absence of personality traits on a scale, limiting their scientific value for several reasons, meaning they are often subjective and difficult to compare. Our study tested a "bottom-up" methodology proposed by Uher (2008), on chimpanzees (*Pan troglodytes*) at Chimp Haven in Keithville, Louisiana. This bottom-up approach scores "personality" based on objective, observed behaviors rather than subjective keeper surveys and/or direct experimentation. Data were collected on 13 adult chimpanzees between June 22, 2009 and July 29, 2009 using The Observer XT 9.0 software (by Noldus). In total, 465, 10-minute focal observations were taken. A factor analysis, based on the Human 5-Factor model (plus dominance) was completed to extract behavioral groupings.

Mentor(s): Judith Corr

POSTER PRESENTATION ABSTRACTS

BEGINNING AT 9:00 AM

KIRKHOF CENTER KC48

Age of the Apishipa Dikes Near Spanish Peaks, Colorado

Presenter(s): Austin Westhuis

Many unusual igneous rock types are present in the Apishipa area of south-central Colorado. The oldest east-west trending dikes are examined in this study. Samples were examined in thin section and hand specimen to determine which would be good candidates for radiometric age dating. Based on geographic location, the presence of phlogopite, and the absence of alteration, we chose four samples. We worked with the New Mexico Geochronology Research Institute to obtain four ^{40}Ar - ^{39}Ar age determinations. While at the Institute, researchers led us through mineral separation processes, introduced the mass spectrometer, and explained the theory behind radiometric age dating. This technique is used to date materials based on the presence of radioactive isotopes and their decay products. After sample preparation, separates were sent to a research nuclear reactor for irradiation. Once the $^{40}/^{39}\text{Ar}$ ratio is determined, we will have what we hope to be geologic ages of approximately 38 Ma.

Mentor(s): Linda Davis

KIRKHOF CENTER KC49

A Periodization Program for an Elite Collegiate Long Jumper

Presenter(s): Christopher Wolbert, Emily White

Ever wonder what propels a long jumper to jump so far? The dynamics of the long jump include the approach, take-off, and landing phases. Improving each phase would not only make the participant jump longer, but would make them a better overall athlete as well. The purpose of this research is to provide a fundamental periodization program for an elite collegiate long jumper. The program focuses on a comprehensive strength and conditioning approach to ensure overall optimal competitive performance. Though an extensive literature review was conducted, this study was theoretical in nature and no data was collected from human subjects. This project was an important long step forward, designed to assist and inform elite collegiate long jumpers and their coaches of the necessary tools to enhance performance.

Mentor(s): Amy Crawley

KIRKHOF CENTER KC50

International Development and Sustainability: Cleaner Burning Stoves and Their Impact on Rural Peruvian Communities

Presenter(s): Bethany Sheffer

Being heavily relied upon for years, traditionally built stoves in many rural Peruvian communities are posing dangerous threats to their users and environments. Many women are plagued with a host of serious respiratory illnesses as a direct result of having no way for the smoke to escape from the houses. Traditionally built stoves also consume a substantial amount of natural resources and emit an unhealthy amount of carbon emissions. In 2002 an organization called ProWorld Service Corps introduced its first "cleaner" burning stove model to Peruvian communities. This study looks at the benefits that Peruvian communities have experienced as a result of having high-efficiency stoves in their homes; highlighting the importance of doing international developmental work in a healthy, sustainable way.

Mentor(s): Melissa Baker-Boosamra

POSTER PRESENTATION ABSTRACTS

BEGINNING AT 9:00 AM

KIRKHOF CENTER KC51

Electronic Health Care Records: Their Impact on Medication Errors

Presenter(s): David Hasper, Kristen Dib, Meaghann Stawasz, Betsy Baker, Amanda Stuckey, Katie Swiderski

Patient safety is significant in health care. Paper charting leaves room for mishap, negatively affecting patient safety due to medication errors. Health care systems are adopting electronic health care records (EHRs) to help alleviate these problems. An estimated 1.5 million people are harmed by medication errors yearly. The adoption of EHRs can improve patient safety. The purpose of this critique is to observe effects of EHRs on medication errors by reviewing research on EHRs currently in use. CINHALL and MEDLINE databases will be searched using key words: electronic health records, medication errors, and automated healthcare. Research shows that EHRs are associated with a decrease in hospital mortality. Transitioning from paper charting to electronic documentation may be difficult for some; however, in accordance with the Theory of Innovation Diffusion by Everett Rogers, it takes an innovation, communication, social system, and time to properly adopt and accept new technology.

Mentor(s): Phyllis Gendler

KIRKHOF CENTER KC52

A Literature Review on the Importance of the Relationship between Nurse Preceptors and Newly Licensed RNs

Presenter(s): Kelli Bernott, Callan Pohler

Literature indicates that the difficulty in the transition of newly licensed registered nurses (RNs) to professional nursing practice is not a new issue, but one of long standing duration. The purpose of this study was to conduct an extensive literature review to assess how the relationship between nurse preceptor and novice nurse impacts the professional practice process for newly licensed RNs. Existing data from CINAHL was used to identify the needs of novice nurses and preceptors prior to, throughout, and beyond the duration of the transitional relationship. The findings of this study have potential implications for newly licensed RNs, nurse preceptors, staff RNs, nurse educators, and nurse managers.

Mentor(s): Joy Washburn

KIRKHOF CENTER KC53

Development of Novel Chelating Agents Used in MRI's

Presenter(s): Felix Boucher

Ionized gadolinium (Gd) is a potent contrast agent used in medical resonance imaging (MRI). Chelating agents are needed to prevent Gd's toxicity. Current chelating agents are available; however, they suffer from a lack of water solubility or by having a negative effect on water relaxivity rates. An ideal chelate binds well to Gd while allowing it to simultaneously interact with the solvent water. A novel class of chelating agents, containing carbamoylmethylphosphine oxides (CMPOs), shows high water solubility while potentially retaining a favorable effect on water relaxivity. One CMPO can only form two bonds with Gd, which can form up to nine bonds depending on the conditions, so multiple CMPOs are needed for an effective chelate. The current research being performed is intended to create CMPOs, effectively complex multiple CMPOs together while retaining water solubility, discover relaxivity of the CMPO Gd complex, and ultimately to create a safe and highly effective chelating agent.

Mentor(s): Shannon Biros

POSTER PRESENTATION ABSTRACTS

BEGINNING AT 9:00 AM

KIRKHOF CENTER KC54

Testosterone-induced Vasodilation in Large and Small Coronary Arteries

Presenter(s): Sampath Madanu

Coronary arteries supply blood to the myocardium. The blood flow within these arteries is altered by various hormones. Hormones such as testosterone induce the relaxation of large coronary arteries. The response to testosterone is greater in *in vivo* conditions than *in vitro* conditions. We hypothesize that the response of coronary arteries to testosterone is heterogeneous. The anterior interventricular artery and its branches were isolated from hearts and mounted in organ baths. The large and small arteries were then precontracted with KCl and exposed to increasing concentrations of testosterone to determine if the responses to testosterone vary within different regions of the coronary circulation. The testosterone caused significant relaxation in both large and small arteries. Further experiments will be completed to determine if the amount of relaxation is different between the large and small coronary arteries.

Mentor(s): Francis Sylvester

KIRKHOF CENTER KC55

Effectiveness of Structured Learning Assistance Instruction in Rotational Kinematics

Presenter(s): Elliot Michel

Introductory physics courses thoroughly lay the groundwork of linear kinematics and forces. When rotational kinematics and torque are introduced, students stumble over a slight twist to familiar concepts. Fortunately, student understanding can be improved through the use of tutorials that actively involve students. GVSU's Structured Learning Assistance (SLA) program is designed to maximize student understanding in target courses, its curriculum includes lecture and tutorial/worksheet based group work. A unique opportunity arose last semester to test the effectiveness of the SLA program. This study is concerned with student understanding of linear kinematics and rotational kinematics (with SLA intervention). Student responses to pretests and exams were recorded. Looking at performance in the specified areas, SLA students' performance is compared with a control group, addressing the question, "Does SLA increase student understanding of rotational kinematics?"

Mentor(s): Bradley Ambrose

KIRKHOF CENTER KC56

Factors Influencing Weight Gain in Grand Valley State University Students

Presenter(s): Jennifer Nisenbaum

Research indicates that weight gain is common among traditional college students. The purpose of this study was to determine the impact of residency on campus, use of campus dining facilities, and alcohol intake on Grand Valley State University (GVSU) student weight gain. The subjects will be GVSU student volunteers in selected biomedical science, and liberal studies classes. These students will be requested to complete a survey consisting of questions on age, gender, class-level, student status (full-time/part-time), self-reported weight, self-reported weight gain, frequency of usage of the GVSU Dining facilities, residency status (on campus/off campus), and kitchen status, if in a dorm. Nutrient analysis of the available food in dining facilities will also be completed to determine their potential role in weight gain. This study is significant as it is the first to describe the nutrition environment at GVSU and the potential role this environment may play in student weight gain.

Mentor(s): Deborah Lowen

POSTER PRESENTATION ABSTRACTS

BEGINNING AT 9:00 AM

KIRKHOF CENTER KC57

BRCA1/BRCA2 and Genetic Counseling

Presenter(s): Erica Mee

BRCA1 and BRCA2 are human genes that are tumor suppressors, preventing uncontrolled cell growth. When these genes mutate, it is often linked to certain hereditary cancers. The most common of these cancers are breast and ovarian. Certain individuals have a higher risk for having a BRCA1 or BRCA2 mutation. Family histories and past medical histories can help determine the risk for an individual. Genetic tests are available to detect these mutations, but concerned individuals should first visit a genetic counselor. Once testing validates having either gene mutation, many treatment options are available. There are many myths and misconceptions concerning genetic counseling and BRCA1 and BRCA2. These misconceptions, however, do not mask the importance of the genetic field concerning modern medicine. Thanks to these advances, it is possible to accurately identify individuals with BRCA1 or BRCA2 gene mutations which saves many lives every year.

Mentor(s): Nancy Shontz

KIRKHOF CENTER KC58

Sex Differences in Innate Immunity in Tree Swallows

Presenter(s): Bradley Houdek

Evolutionary theory predicts that exposure to more diverse pathogens leads to the evolution of more effective immune responses. The innate immune system defends the host from pathogens in a non-specific manner and acts as an important first-line of defense preventing pathogens from gaining a foothold in hosts. We predicted that female Tree Swallows have more robust innate immunity than males; during the breeding season females are exposed to more sexually transmitted microbes (STMs) than males because (a) females participate in multiple extra-pair copulations, (b) transmission of STMs during copulation is likely asymmetrical because ejaculates move from males to females, and (c) tree swallow semen contains potentially pathogenic STMs. We tested our prediction in the 2009 breeding season by conducting a microbicidal assay of the innate immune system that produced an index of the blood's capacity to rapidly thwart a potential pathogenic invasion. Results of this assay will be presented.

Mentor(s): Michael Lombardo, Patrick Thorpe

KIRKHOF CENTER KC59

A Statistical Consulting Experience: Analysis of Visitor Use Patterns at Nordhouse Dunes Wilderness

Presenter(s): Brett Klamer, Brian Taff

The Nordhouse Dunes Wilderness (NDW) is a 3,500-acre, highly-protected area of land within the Huron-Manistee National Forest. In order to bring the NDW up to and exceed the minimum levels for wilderness stewardship established by the U.S. Forest Service, a study was conducted by Dr. Carol Griffin, professor of Biology. In this study, data were collected from a survey of visitor use patterns at five main sites within the NDW. As statistical consultants, our role was to determine if there were statistically significant differences between visitor use patterns among the five different locations. Additionally, we compared the survey results with U.S. Forest Service usage estimates and with Michigan State University estimates.

Mentor(s): Neal Rogness, Carol Griffin

POSTER PRESENTATION ABSTRACTS

BEGINNING AT 9:00 AM

KIRKHOF CENTER KC60

Evaluation of Non-radioactive Luminescence Assays for Protein Kinase Activity

Presenter(s): Kirk Wyatt

Protein kinases (PKs) play vital roles in the mediation of cellular signaling. Because of their ubiquity and importance in the cell, they have become major drug targets. The development of compounds targeting PKs necessitates a reliable method for quantifying the activity of target kinases. Radioisotope-labeling assays are often cited as the "gold-standard" for measuring kinase activity; however, the use of radioisotope-based assays has several disadvantages including the short shelf-life and cumbersome disposal requirements for radioisotopes. For this reason, non-radioactive assays which provide sensitivity to rival radioisotope-labeling assays are sought by protein kinase researchers. Commercially-available luminescence assays were evaluated for their suitability to be used in lieu of a radioisotope-labeling assay for the quantitation of the activity of the protein tyrosine kinases Src and FAK.

Mentor(s): Laurie Witucki

KIRKHOF CENTER KC61

Motivations for Self-Defensive Aggression in Dating Relationships

Presenter(s): Christine Meltzer

Research suggests that 20-37% of dating couples experience physical aggression in their relationships (Magdol, et al., 1997). Current research has found numerous motivations for such behavior, including self-defense. However there are notable issues with the current assessment measures of this construct within previous research, which makes it difficult to discern the factors involved in self-defensive aggression. Therefore, the current study was designed to gain a clearer understanding of the motivations for physical aggression in dating relationships using an expertly evaluated, contextual self-report measure of self-defensive violence. Results suggested that male and female college students report multiple motivations for physical aggression for both sexes, in addition to self-defense. There was also data to suggest that self-defense was defined broadly for many individuals. These findings provide useful information for dating violence prevention programming and future research.

Mentor(s): Tara Cornelius

KIRKHOF CENTER KC62

Intraperitoneal Immunization and Obesity in Mice

Presenter(s): Nesanthy Kanagalingam, Patrick Kilcoin, Sarah Getter, Hilary Fales, Alex Gilde

In previous work, it was observed that mice receiving intraperitoneal immunization gained a significant amount of weight compared to an unimmunized cohort. There is evidence in the literature to suggest that intraperitoneal immunization causes a significant change in the type of immune cells present in the peritoneal cavity. The type of immune cells present can impact the development of autoimmune disease, chronic inflammation or obesity. In the current study, we are replicating the conditions under which the previous observations were made and formally documenting the changes in the mice after immunization. Mice will be immunized with saline, alum adjuvant only, or adjuvant plus ovalbumin. The mice will then be monitored weekly for weight gain, antibody response, and water intake. Comparisons will be made among the three groups for significant differences in the parameters measured. (This study is approved by the GVSU IACUC under Protocol No. 10-06-A.)

Mentor(s): Debra Burg

POSTER PRESENTATION ABSTRACTS

BEGINNING AT 9:00 AM

KIRKHOF CENTER KC63

Relationship Based Care: An Evidence Based Framework and Application

Presenter(s): Stacy Heggen

This poster has two objectives: The first is to provide an overview of evidence related to relationship based care (RBC). RBC has been promoted as a means of improving quality of care within direct care patient settings. It works by focusing on the relationships between self, team members, and patients and families. The RBC Framework provides tangible actions that clinical staff can use to improve their effectiveness and efficiency. The actions result in changes in care giving processes and in the mindset of caregivers, directly impacting the quality of care while also promoting a more positive healing environment. The second objective of the student poster will be to compare the implementation process as outlined in the literature to the processes used within a large Midwestern hospital that has been implementing RBC for several years. Synthesis of practice application with literature will insure the continued development of this evidence-based framework.

Mentor(s): Elaine Van Doren

KIRKHOF CENTER KC64

The Influence of Two Alkylphenols on Development, Growth, Reproductive Behavior, and Survival of Juvenile and Adult Crayfish

Presenter(s): Steven Gauthier

Chemical pollutants, such as pesticide/herbicide runoff and industrial waste effluents, affect crayfish. Crayfish are an important resource for other animals and can alter species diversity and abundance. They are also raised for human food consumption. For these reasons, crayfish are important organisms to study effects of pollution on their physiology and behavior. Alkylphenols are chemicals used in various laboratory detergents and in pesticide formulations, making them frequent pollutants in aquatic systems. Bioaccumulation of these chemicals in the tissues of crustaceans, fish, and birds is becoming widespread. We examined the effect of exposure to recommended sublethal levels of two alkylphenol pollutants (nonylphenol and octylphenol) on crayfish development, growth, reproductive behavior, and success finding food. We found numerous significant impacts on many aspects of crayfish life when exposed to alkylphenols, including significant mortality increases for juvenile crayfish.

Mentor(s): Daniel Bergman

KIRKHOF CENTER KC65

Children's Understanding of the Semantics of Negation

Presenter(s): Amanda Hiltz

The focus of the project is to discover children's understanding of the semantics of negation. Children's word learning is helped by their knowledge of the relations between concepts. Two forms of these relations are taxonomic & thematic relations. Research has shown that children have a conceptual preference for thematic relations over taxonomic relations. This study looks at a possible interaction between children's understanding of the word "not" & the development of thematic & taxonomic relations. The procedure is a selection task framed as an "I spy" game where children are presented with 3 objects for each trial. The method includes 2 experiments where experiment 1 focuses on thematic relationships & experiment 2 includes both thematic & taxonomic relationships. Preliminary results suggest that given a negation, children are more likely to select items that are thematically related than those that are unrelated & children comprehend negations by first interpreting them as affirmatives.

Mentor(s): Bradley Morris

POSTER PRESENTATION ABSTRACTS

BEGINNING AT 9:00 AM

KIRKHOF CENTER KC66

Comparing the Psychological and Physiological Effects of Wii Active and a Normal Circuit Training Routine in College Students.

Presenter(s): Matthew Wittbrodt

Exergames (Nintendo Wii) have shown an inability to achieve adequate intensity levels for moderate physical activity (40-59% VO₂R). Previous research from GVSU Movement Science Laboratory has established high levels of enjoyment independent of Exercise Identity (EI). PURPOSE: To examine the physiological relationships between Wii Active and a circuit training workout (CT). A secondary aim is to quantify the level of enjoyment between the aforementioned modes of exercise. METHODS: A convenience sample of 40 undergraduate students will complete 4 sessions. Session (1) included completion of an EI Scale, Behavior Regulation Exercise Quantifier, physical assessments, and CT familiarization. Session (2) familiarized students with the Wii Active routine. Sessions (3,4) required students to complete the Wii Active and CT. During each session, VO₂, HR, RPE, and accelerometry data was collected. RESULTS: Testing is still currently in progress.

Mentor(s): Christina Beaudoin

KIRKHOF CENTER KC67

Microbial Colonization of Nestling Tree Swallows (*Tachycineta bicolor*)

Presenter(s): Heather Danhof

Microbes may have a positive impact on fitness of birds through improving host nutrition and/or host pathogen defense. The oral microbial community of nestling tree swallows was characterized by sampling of the pharyngeal region. Samples were obtained at Nesting Day (ND) 3 and ND 18. DNA was extracted and a hypervariable region of the 16s rRNA gene was amplified. PCR products of similar size were separated based on sequence variation on a denaturing gradient gel (DGGE). We predict that parents and offspring will be more similar to each other than unrelated swallows due to transfer of microbes between mates and between parents and offspring. We also predict that adult-like microbial communities will develop over time and show increasing similarity to adults by ND18. Characterization of the patterns within and between families as well as identifying microbes represented by specific bands will provide a direction for determining the influence of specific microbes on avian fitness.

Mentor(s): Patrick Thorpe, Michael Lombardo

POSTER PRESENTATION ABSTRACTS

BEGINNING AT 9:00 AM

KIRKHOF CENTER KC 68

Monsoonal Variations Caused by Climate Change and their Impact on Water-Borne Diseases in South East Asia

Presenter(s): Carolyn Ulstad

The region of South Asia is expected to have continued warming and higher sea levels. This is likely to have an effect drawing to more intense storms and stronger variations in the monsoon seasons. With warmer climate, water born disease will have a better chance of survival and will amplify endemic mortality in regions with little clean drinking water. The objective is to find the areas that will be most affected by rising climate temperatures. This information could provide the base for suggestions on how to apply clean water systems in the region. In this study, Geographic Information System, ArcGIS, a one-dimensional climate model MAGICC/SCENGEN 5.3 and remote sensing data are used along with bibliographic material to better predict the outcomes of such variations in the climate and its effects on human health. This project will be beneficial and of scientific importance due to the large number of people living in rural areas without clean water and sanitation methods.

Mentor(s): Elena Lioubimtseva

KIRKHOF CENTER KC 69

Analysis of GAP-43 in an Animal Model of Alzheimer's Disease Using Two Dimensional Gel Electrophoresis

Presenter(s): Cynthia Mitchell, Zach Breen, Stephanie Schrader

We examine the molecule GAP-43, a brain protein that has been shown to become biochemically altered in the process of learning and memory. Specifically, levels of phosphorylated forms of GAP-43 have been shown to increase following a controversial paradigm of learning and memory in several animals including mouse and rabbit. We are interested to see if any differences in the profile of GAP-43 are associated with dementing illnesses that severely disrupt memory and learning. We utilize brain tissue from a genetically altered mouse engineered to resemble Alzheimer's disease. To test the hypothesis that the profile of phosphorylated isoforms of GAP-43 are changed, GAP-43 will be examined by 1 and 2 dimensional SDS polyacrylamide gel electrophoresis. Revealing molecular defects generates potential targets for the development of possibly more effective drugs to combat dementia.

Mentor(s): John Capodilupo

KIRKHOF CENTER KC 70

Soil Bacteriophage

Presenter(s): Ashleigh Mangas, Charu Sharma, Megan Emeott

Bacteria are infected by viruses called bacteriophage. These "phage" are a useful way of studying bacteria and also learning more about virus infections and spread. Initially we are developing methods that will allow us to isolate new phage from soil. We report here on these efforts to find new phage. Our long term interests is to use this approach to look for soil bacteria that may be making chemicals to block the transmission of phage. Just as soil bacteria have been a rich source of antibiotics, they may also harbor antiviral chemicals of use in human diseases or in understanding the transmission of viruses.

Mentor(s): Steven Hecht

POSTER PRESENTATION ABSTRACTS

BEGINNING AT 9:00 AM

KIRKHOF CENTER KC 71

A Twelve-Month Periodization Program for Developing Collegiate Male Sprinters

Presenter(s): Charles Benton, Matthew Moede

What is it that allows a sprinter to be better and faster than others? Is it his genetics, his coaching, or his training? The purpose of this research study was to investigate the current available training programs of college-level sprinters and develop a comprehensive periodization plan utilizing all areas of training; agility, plyometrics, strength, and power. This was accomplished through an extensive review and comparison of research-based literature and periodization plans of the typical college sprinter. This study was hypothetical in nature as no data was collected on human subjects at this time. Limitations involved in this study included the ability to compare numerous periodization plans of college sprinters and to collect current research on the subject. This study should provide up to date and relevant information on how to design a proper periodization plan that can be utilized by collegiate male sprinters to improve and enhance performance during the track season.

Mentor(s): Amy Crawley

KIRKHOF CENTER KC 72

Use of the chambira palm (*Astrocaryum chambira*) in rainforest communities of the Peruvian Amazon

Presenter(s): Anel Guel

Palms have great ecological and economic value in the Peruvian Amazon. In this research project, we studied the socioeconomic impacts of the chambira palm (*Astrocaryum chambira*) on five different villages near the Tahuayo River, about 100 miles south from Iquitos, Peru. Fibers from the chambira palm are used to make handicrafts, the same of which provide an important source of income to women in the villages. We recorded the density of chambira in family owned gardens, as well as various plots in mature forest and fallow areas. Our field studies were complimented by 122 interviews of local women who harvest chambira in these areas. Our goal was to gather a general and accurate consensus of each aspect of handicraft production, including harvesting methods, sustainability, and monthly income.

Mentor(s): Jim Penn

KIRKHOF CENTER KC 73

A Periodized Approach to Strength and Conditioning for the United States Special Forces

Presenter(s): Thomas Barnett, Mike Bowers

Service in the U.S. Military can often have extreme physical demands. This research was designed to shed light on current methods and strategies used in strength training for Special Forces in the U.S. Military. There has been growing interest in using Certified Strength and Conditioning Specialists (CSCS) to better prepare these tactical athletes for the physical demands of service. By understanding what their bodies go through in the field, a more specialized training regimen can be designed and implemented to optimize fitness and performance while minimizing detraining effects and injury. This study did not include testing or data collection from human subjects; all data utilized during this research was obtained through literature review. A strategic periodization method was utilized to optimize performance and conditioning before troops are sent into active duty.

Mentor(s): Amy Crawley

POSTER PRESENTATION ABSTRACTS

BEGINNING AT 9:00 AM

KIRKHOF CENTER KC 75

Laker Mobile - All Things GVSU Right on Your Mobile Phone!

Presenter(s): Muhammad Qureshi, Richard Zhuang, Greg Zavitz, Ravi Singapati, Alejandro Montoya, Gina Caratelli

Laker Mobile is a mobile application designed for the GVSU community by students in the School of Computing's Mobile Applications and Services Lab. The application icons were designed by students in the Department of Art and Design. The purpose of the project was to give students an opportunity to learn about mobile application development. The application provides mobile access to a variety of the latest GVSU news, or you can find out what's happening on campus in real-time by browsing the campus twitter zeitgeist. There are also interactive maps for all campus to help you quickly find the way around, access to the live campus web cams, and access to the GVSU directory to make it easy to find phone numbers and email addresses. You can also browse the campus photos, and the GVSU YouTube channels - all conveniently available on your phone. Laker Mobile will be available for free soon on the iPhone/iTouch as well as on all phones running the Google Android operating system.

Mentor(s): Chitra Gopalakrishnan, Jonathan Engelsma

KIRKHOF CENTER KC 76

Periodization Model for a Female Collegiate Sprinter

Presenter(s): Anthony Rollins, Meghan Huber

Sprinting a 100 meter distance is very short and quick for a collegiate athlete. The act of sprinting requires an extremely large amount of dedication to be very successful on this level. The athlete must possess speed, strength, and a high lactate and ventilatory threshold. To operate at peak performance for such a short duration, proper development of the metabolic systems, muscles, and cardiovascular system are required to be successful. The purpose of this study was to provide a comprehensible and practical periodization model for a female collegiate athlete training for the 100-meter sprint. All findings for this project were based on a comprehensive literary review. The information presented is a theoretical approach based on sound scientific principles and application. This program is designed to provide coaches, athletes, and the general public a model for developing a yearlong training regimen that can be applied to collegiate female sprinters.

Mentor(s): Amy Crawley

KIRKHOF CENTER KC 77

A Scientifically Reinforced Strength-Training Regimen for Male Golfers

Presenter(s): Jonathan Potvin, Kevin Proctor

With rising media coverage and increasing popularity, golf is attracting a more competitive crowd than ever before. What was once seen as a leisure activity for an older and less versatile population is now evolving into a highly competitive sport drawing in all genders and age groups, particularly young and middle-aged men. The purpose of this study was to develop a golf-based strength-training regimen using the most recent and sound scientific literature available. While short game and driving range utilization are vital forms of practice, supplementing these with strength-training and conditioning may improve club-head speed, power, stamina, and durability. Due to the study's hypothetical nature, actual testing and data collection have not been performed on athletes. By providing the information found through this research, young and middle-aged adult males should be able to augment their golf performance, allowing them to achieve a competitive advantage on the course.

Mentor(s): Amy Crawley

POSTER PRESENTATION ABSTRACTS

BEGINNING AT 9:00 AM

KIRKHOF CENTER KC 78

A Periodization Program for Professional Soccer

Presenter(s): Brad Van Oostenbrugge, Meghan Peters

What sets soccer players apart from other athletes? Soccer players strive to thrive in a physically demanding setting with little rest periods. The purpose of this research study was to examine the literature related to key athletic attributes while providing a periodized strength and conditioning soccer program to enhance performance. The main attributes reviewed include: aerobic capacity, speed and agility, muscular strength training through plyometrics, endurance, and onset of fatigue. The three energy systems: phosphagen, glycolysis, and the oxidative system are also examined since they are all utilized in this particular sport. This research was an extensive review of the current literature and has not yet been conducted with human subjects. A limitation of the research may be the small number of participants often found in the data reviewed. This research may benefit the amateur soccer player looking to bring their performance to the next level.

Mentor(s): Amy Crawley

KIRKHOF CENTER KC 79

Affordable Housing in Grand Rapids, MI: Using GIS to Locate Areas in Need

Presenter(s): Kendra Socks

The objective of the proposed project is to locate affordable housing in Grand Rapids, MI using GIS technology. GIS techniques will be used to produce several maps of the city of Grand Rapids at the census block group level including maps of: poverty levels, cost of housing, zoning (single family/multi-family), as well as vacant properties. Point features will be used to represent the locations of homeless shelters, soup kitchens and other ministries. From these GIS data layers the following will be explored in this research project: 1) The location of low-income neighborhoods and services that support those in need; 2) Services located in or near block groups with high poverty levels; 3) Areas in need in which services are not located; and 4) Vacant properties available in low income neighborhoods that could possibly be developed into affordable housing or other helpful resources to low-income or homeless families.

Mentor(s): Wanxiao Sun

KIRKHOF CENTER KC 80

Conversion of a Class 1A Dihydroorotate Dehydrogenase to a Class 2 Enzyme

Presenter(s): Sarah Getter

Dihydroorotate dehydrogenases (DHODs) catalyze the oxidation of dihydroorotate (DHO) to orotate (OA) in the only redox step in the pathway of pyrimidine biosynthesis. DHODs are divided into 2 classes: Class 1 and 2. The residues that bind the substrate are almost identical in Class 1A and 2. However, Class 1A enzymes use Cys as an active site base, while Class 2 DHODs use Ser and a proton transfer network. Previously, the proton transfer network was added to the Class 1A DHOD from *Lactococcus lactis*. A type of hybrid resulted, instead of an active Class 2 DHOD. A 4th residue was mutated and this enzyme has no activity. Red-shifts in the spectra when the mutant was titrated with OA and DHO indicate that the enzyme binds these ligands. The quadruple mutant more closely mimics the Class 2 enzyme in its ligand selectivity. Its active site was intact but it no longer functions. Ultimately, the Class 1A quadruple mutant was not converted to a Class 2 enzyme, which reacts rapidly with DHO.

Mentor(s): Bruce Palfey

POSTER PRESENTATION ABSTRACTS

BEGINNING AT 9:00 AM

KIRKHOF CENTER KC 81

3-Dimensional Interactive Art (3Dna)

Presenter(s): Brie De Graaf, Lauren De Armas, Tea Vranish

Forensic art is art used in support of law enforcement and legal procedures. It traditionally employs a sketch artist, armed with pencil and paper, to create a composite drawing of a suspect's face based on an eyewitness' verbal description. This process has two major limitations: it renders a flat, 2-dimensional image, and its' accuracy depends on the witness' ability to effectively describe the suspect. We propose to use technology in addressing both of these limitations. Our solution will use a dual-ported video card together with polarized dual projectors to create a stereoscopic 3-dimensional image of the suspect. It will use an infrared camera and detectors to enable "fingertracking", a gesture recognition technique that will allow the witness to directly interact with and manipulate the image. Our goal is to modernize the forensic art process by integrating technology, art and criminal justice.

Mentor(s): Greg Wolffe

KIRKHOF CENTER KC 82

Effects of Arousal on Memory

Presenter(s): Kristin Kuczera

Weapon focus theory holds that arousal focuses attention (thereby memory) on central details of arousing events, while Flashbulb theory holds that arousal promotes hyper-vigilance, improving memory for peripheral details of the event, as well. Typically, researchers present an arousing slide story to one group and a neutral story to another group, then assess memory for both types of details. In addition to varying the arousal level between the two groups, however, the material to be remembered is also different for the two groups, creating a material-arousal confound. By using a single, visually ambiguous slide story, with 2 different narratives, one arousing, and the other neutral, we addressed the material-arousal confound. Pupil dilation and heart rate, combined with pre and post administration of the State-Trait Anxiety Inventory, measured arousal. Eye-tracking addressed attention to central and peripheral details and a recognition test assessed memory for both types of details.

Mentor(s): Penney Nichols-Whitehead

KIRKHOF CENTER KC 83

Periodized Strength and Conditioning Program for the Mixed Martial Artist

Presenter(s): Andrew Ferris, Ryan Mott

MMA is quickly becoming one of the most popular sports in the United States and worldwide. Promotional companies such as the UFC, WEC, and Strikeforce have helped turn once obscure barbaric spectacles into a multi-million dollar pay-per-view athletic event. As participation in the sport increases, athletes are searching for safe and effective strength and conditioning programs specifically tailored to the MMA athlete. The goal of this project was to develop a periodized strength and conditioning program to maximize aerobic endurance and anaerobic power. This program should improve performance by conditioning sport specific energy systems and muscle groups through a variety of strength and conditioning exercises. The program was based upon a review of related literature that specifically targets MMA as well as strength and conditioning programs tailored for similar sports. This strength and conditioning program applicable to MMA athletes of a wide range of skill levels.

Mentor(s): Amy Crawley

ORAL PRESENTATION ABSTRACTS

NOTES 9:00 A.M. —3:40 P.M.

ORAL PRESENTATION ABSTRACTS

BEGINNING AT 9:00 AM

9:00 AM

KIRKHOF CENTER 1104

An Adaptive Management Plan for Improving Spring Migrant Bird Species Habitat in Saugatuck Dunes State Park

Presenter(s): Jill Chapman

Habitat degradation occurs all over the world. Developing management strategies to preserve and create habitat is essential for the preservation of biodiversity. I will develop an adaptive management plan to investigate the suitability of the forested dune habitat within Saugatuck Dunes State Park, Allegan County, MI for spring migrant bird species. I hypothesize that the forested dune habitat is more suitable for spring migrations. For bird species to fully use this habitat, forest management strategies are necessary. Forestry measurements will be used to evaluate habitat quality. These results will help us to manage Saugatuck Dunes State Park more effectively.

Mentor(s): Todd Aschenbach

KIRKHOF CENTER 2201

A Statistical Consulting Experience: Mutations in *Drosophila*

Presenter(s): Andrew Richardson, Jordan Jahnke

Professors Sass and Ostrow, of the Grand Valley State University Biology Department, are working on a study of *Drosophila* (more commonly known as the fruit fly) and the differences in wing anatomy based upon genetic mutations. One objective of their study was to determine the effect of the delorean mutation on the fly wing bristles. Our presentation will focus on our roles as statistical consultants in analyzing the data to show if bristle morphology on a wing is a predictor of genetic mutation effect.

Mentor(s): Georgette Sass, Neal Rogness, Bruce Ostrow

Kirkhof Center 2250C

Assessing Stream Health Near an Agricultural and Industrial Site with Indicator Species *Chironomus dilutus* and *Hyallela azteca*

Presenter(s): Erica Bourdon

Industry and agricultural farming have detrimental impacts on nearby freshwater aquatic ecosystems. Runoff leads to eutrophication, toxic sedimentation, and an overall decrease in water quality. I conducted a sedimentation experiment in a lab setting comparing two rivers' bottom sediments by utilizing pollution indicator species midge (*Chironomus dilutus*) and scud (*Hyallela azteca*), and will develop a scientific report showing my findings. I hypothesize that the river experiencing industrial and agricultural runoff will be less healthy than the control river. The results will indicate whether rivers near industry and agriculture are being negatively affected by runoff.

Mentor(s): Todd Aschenbach, Heather Rueth

ORAL PRESENTATION ABSTRACTS

BEGINNING AT 9:00 AM

9:00 AM CONTINUED

KIRKHOF CENTER 2250D

Ovidian Views on Gender During the Early Roman Empire

Presenter(s): Melanie Coughlin

The poet Publius Ovidius Naso composed his works as the Roman Empire first took shape. One of his most famous works, the *Metamorphoses*, calls into question the nature of gender construction in this critical period of political and social re-definition. Stories such as those of Peleus and Thetis interrogate the value placed on women in Roman society—even those women considered divine. Beyond individual worth, what were the daily social roles of men and women, and how were these roles negotiated in literary works meant for public performance? Using poems such as the *Ars Amatoria*, the *Fasti*, the *Heroides*, the *Tristia* and the *Metamorphoses*, I examine the shifting moral tone of these works in the context of the enactment of Augustus' moral reforms. This critical reading indicates that Ovid's writing illustrates his responses to Augustan moral legislation and to shifting gender roles in the complex social landscape of the 1st century BC/AD.

Mentor(s): Melissa Morison

KIRKHOF CENTER 2259

A Statistical Consulting Experience: Reaching Your Potential

Presenter(s): Matthew Malloure, Brittany Shaffer, Mary Leonard

Prof. Rachel Campbell, a Sociology faculty member, was part of an interdisciplinary research team that conducted a pilot study at the University of Alberta to explore the factors that led undergraduates to choose science-related fields. This team was interested in the commitment of students to their initial field choice, school-based experiences that led students to enter these fields, the undergraduate experience while in progress, and the impacts of support mechanisms. We will talk about our roles as statistical consultants, which were to provide assistance in data cleaning and to provide descriptive and inferential statistics related to the study objectives.

Mentor(s): Rachel Campbell, Neal Rogness

KIRKHOF CENTER 2263

The Ramayana and Indian Society

Presenter(s): Uma Mishra

This project seeks to focus on the Ramayana as a base to understand the structures and the interplay between the Ramayana, literature in general, general and Indian mythology and religion, and the modern Indian society, a democracy and one of the fastest growing economies in the world. The importance of this exploration is very prominent in the analysis of the ubiquitous race towards globalization, a phenomenon with potentially many positive and negative outcomes. Indian literature, mythology, and religion(s) "congregating" in the Ramayana invite an interesting interdisciplinary project leading to a better understanding of the functioning of the modern Indian society.

Mentor(s): Ivo Soljani

ORAL PRESENTATION ABSTRACTS

BEGINNING AT 9:20 AM

9:00 AM CONTINUED

KIRKHOF CENTER 2266

Heinrich Heine - the Formative Years

Presenter(s): Kaley Bectel

Like most poets, Heine took some time to develop his poetic identity. In his earliest poems, he had not yet formed an individual poetic voice; he still did not sound like the Heine of his later years. No hint of his negativity emerges in the early poems. He still had not developed his deep, dark, bitter, cynical, political, defeated, resigned, alienated attitudes. So then, what kind of romantic poet was Heine at the beginning? Did he have any originality or did he merely fit into the pan-European paradigm of romanticism? Does he fall into the literary clichés of the time? Yes, but not totally, Early on Heine eschews many romantic subjects like metapoetry, exoticism, pantheism, Messianism, and nationalism; his nature poetry tends to merge so completely with the melancholy, the fantastic, the morbid, the moribund, and even the maidenly that sometimes you cannot tell them apart. But above all he turns to face Eros head-on.

Mentor(s): Christine Rydel

KIRKHOF CENTER 2270

"Knowledge Regarding Human Papillomavirus (HPV), its Transmission, and its Complications in College Freshman (Men and Women) at One Public University in the Midwest."

Presenter(s): Kelly Anthony, Christine Sabin

Human Papillomavirus (HPV) and its associated complications will affect approximately 80-85% of the United States population. The intent of this research project was to explore college freshman's knowledge of HPV and to identify gaps in their current knowledge. Methods: Through an on-line anonymous survey, participants are asked to answer a variety of questions pertaining to their general knowledge of sexually transmitted diseases, primarily HPV. The population being sampled consists of male and female freshman students attending Grand Valley State University (GVSU) during the fall semester of the 2009 academic year. The analyzed responses will help researchers understand: GVSU freshman student's knowledge in regards to HPV, where they gain their knowledge, and if there is any gender specific differences as it relates to the knowledge of transmission and complications of HPV. Results and Conclusions: Pending.

Mentor(s): Charles DuBose

9:20 AM

KIRKHOF CENTER 1104

An Adaptive Management Plan for the Improvement of Mitigated Wetland Quality

Presenter(s): Natalie Sutherland

Although the "no net loss" of wetlands policy has begun to stabilize the acreage of wetlands, there is question about whether there should be more concern towards the loss of wetland function. I hypothesize that wetlands created due to the no net loss policy are reduced in wetland function when compared to a natural wetland. I will be investigating different wetlands throughout Michigan that have been mitigated due to the no net loss policy and building an adaptive management plan to determine new criteria that should be performed under the policy to help improve overall wetland functions.

Mentor(s): Todd Aschenbach

ORAL PRESENTATION ABSTRACTS

BEGINNING AT 9:40 AM

9:20 AM CONTINUED

KIRKHOF CENTER 2250C

A Statistical Consulting Experience: Designing A Sampling Plan for Nordhouse Dunes Wilderness

Presenter(s): Casey Barton

Nordhouse Dunes Wilderness is a 3500 acre, highly protected area, near Manistee. Dr. Carol Griffin, of the GVSU Biology Department, requested assistance in designing a sampling plan for the U.S. Forest Service that would most efficiently sample among 200 Nordhouse Dunes user campsites. I will explain my role as a statistical consultant in developing this sampling plan.

Mentor(s): Neal Rogness, Carol Griffin

KIRKHOF CENTER 2259

Cost-Conscious Voters in Referendum Elections

Presenter(s): Kyle Golenbiewski

Recently, the study of referendum elections and the effectiveness of various voting methods has drawn much interest. In a referendum election, voters simultaneously register YES/NO votes on several proposals. During a time of economic stress, it is reasonable to expect the cost of proposals to influence a voter's preferences. We begin by creating a model for cost-conscious voters, and we use this model to study the structure of preferences of cost-conscious voters. We show that as the number of proposals increases, the percentage of voters whose preferences are consistent with our model approaches zero. Furthermore, while the actual outcome on a set of proposals may be unsatisfactory when it is weighed against individual preferences, a weak Condorcet winner always exists under certain circumstances.

Mentor(s): Jonathan Hodge

KIRKHOF CENTER 2266

The Origins of Adultery in Madame Bovary

Presenter(s): Allison Jennings

Most readers of Gustave Flaubert's *Madame Bovary* condemn Emma Bovary as a wanton adulteress. Usually characterized as merely guilty and self-destructive, she makes deliberate choices that lead to her eventual demise. However, careful reading of *Madame Bovary* suggests that while Emma does not remain totally guilt-free throughout her entire married life, Emma cannot be held completely responsible for her infidelities. She is driven to adultery by the men in her life who overlook her true nature and take advantage of her as she searches for love that echoes the romances of the novels she reads. Madame Bovary's ignorance, upbringing, husband, and lovers lead her down a path of betrayal that eventually ends with her disturbing death. This essay explores Emma's role as a quasi-innocent victim and reveals the true origins of her adultery.

Mentor(s): Christine Rydel

ORAL PRESENTATION ABSTRACTS

BEGINNING AT 9:40 AM

9:40 AM

KIRKHOF CENTER 1104

Hardwood Regeneration Since Red Pine (*Pinus resinosa*) Removal In Ottawa, Co. MI

Presenter(s): Ryan Mellema

Hardwood forests have over the years been a declining commodity in the United States, and have steadily been replaced by plantations of non-native species. Hardwood species are out-competed by non-native species, and need to be replaced here in the U.S. I plan to investigate hardwood regeneration on public land at Pigeon River Park in Ottawa Co., MI. I hypothesize that red pine removal done by the county is enough to enhance hardwood regeneration. I will develop a scientific report and the results will inform us if red pine removal is appropriate for hardwood regeneration at Pigeon River Park.

Mentor(s): Todd Aschenbach

KIRKHOF CENTER 2201

La Femme Patiente: A Project in Translation

Presenter(s): Donna St. Louis

Translation seems to be a simple process: a translator with a strong command of two languages renders a phrase from Language A into Language B for the purpose of wider communication. Given her intimacy with both languages, it should be a relatively easy task to transport meaning from one language to another. Yet difficulties lay in the presentation and reception of this meaning: the translator's interpretation of the text influences how the message appears in the translation, and the translator's goals and audience, as well as her relationship and attitude toward the original text, can determine the nature of her translation. I explore these concerns by translating a French novel, *La femme patiente*, into English. One question in particular concerns a translator's fidelity to the source text. How far may a translator stray from the original text while remaining "faithful"? How does maintaining the original author's literary style contribute to fidelity?

Mentor(s): Janel Pettes-Guikema

KIRKHOF CENTER 2250D

Churches, Congregations, Charitable Choice, and the Struggles in Social Service Provision

Presenter(s): David Miller

In this study, I examine the barriers that churches encounter in social service provision. These barriers include capacity, mission creep, and the cultural differences between congregations and service recipients. I also consider current policies regarding churches and service recipients. It is not clear that these policies have helped churches, or enhanced their involvement in social services. For the study, I examined an Orthodox Cathedral in Detroit, Michigan to illustrate the connections between theories, policies, and real-world practice. I use the 1996 Personal Responsibility and Work Opportunity Reconciliation Act and the 2001 Office of Faith-Based Initiatives as the backdrop for current policy regarding churches and social service provision. Finally, I recommend how the church can best serve the community, and call for scholars to closely monitor the Obama Administration's policies regarding faith-based initiatives.

Mentor(s): Ramya Ramanath

ORAL PRESENTATION ABSTRACTS

BEGINNING AT 10:00 AM

9:40 AM CONTINUED

KIRKHOF CENTER 2259

Investigations in the Geometry of Polynomials

Presenter(s): Neil Biegalle

Because polynomial functions are completely determined by their roots, every property of a polynomial is affected when these roots change. Our research aims to further our understanding of how the distribution of a polynomial's roots affects specific characteristics of the function. We are especially interested in classifying which root distributions maximize or minimize certain properties. We employ recent results on polynomial root dragging and root motion to further explore these issues, including the attempt to explain why many properties are maximized by Bernstein polynomials. This talk will survey some important results and present our investigations into new problems and approaches.

Mentor(s): Matthew Boelkins

KIRKHOF CENTER 2266

Beyond Language: Understanding Cultural Factors to Better Service Hispanic Clients in Healthcare

Presenter(s): Jennifer Friesema

It is the objective of culturally sensitive healthcare practitioners to be aware of the utility as well as the impediments that cultural components play in achieving positive health outcomes. Current projections indicate that Hispanic populations are on the rise, making this the largest racial and ethnic group in the US by 2030. Given these estimates, healthcare providers will continue to see an increase of Hispanic patients in both traditional and non-traditional settings. Given their varying degrees of assimilation to US culture, these clients are likely to approach healthcare with different presumptions and expectations. This presentation will outline the most significant cultural factors affecting healthcare delivery, tying these concepts with clinical examples. The listener will gain an improved awareness of the diversity of our patient populations as well as a better understanding of the strengths and challenges of the general US medical system in regards to Hispanic clients.

Mentor(s): Laura Arcila Villa

KIRKHOF CENTER 2270

Flamenco: Its Origins and Creators

Presenter(s): Erin Kuhn

During my time in Granada I was exposed to Flamenco every day and everywhere, in the streets, cafes and bars, my classes, and at home. I soon came to realize that Flamenco is much more than dancers in pretty polka dotted dresses. It has a deeper meaning/history. The purpose of my presentation is to explain the origins of Flamenco in terms of the people associated with its creation and the area it was created, while countering the stereotypes often associated with the art form. Flamenco originated in the southern province of Spain known today as Andalucía, a region that has been inhabited by several different peoples and cultures throughout history, including the Romans, Visigoths, Jews, and Arabs. Because of this rich history, several types of music were already in existence there when the gitanos entered Spain in the fifteenth century. My presentation will include discussion of gitano culture and the oppression gitanos have endured, along with the meaning of Flamenco in their lives.

Mentor(s): Lisa Feurzeig

ORAL PRESENTATION ABSTRACTS

BEGINNING AT 10:00 AM

10:00 AM

KIRKHOF CENTER 1104

Examining the Predicted Effects of Climate change across the United States with Regards to Electrical Heating and Cooling

Presenter(s): Tyler Patterson

The potential for electric demands to change alongside climate is of interest to citizens and natural resource managers. Coal fired power plants provide much of the electricity in the United States. If demand changes economic and environmental impacts will be evident. I hypothesize a shift in climate will result in increased electrical demand for heating and cooling. I will compare current degree heating days with future degree heating days; predicted by climate models, to examine the potential change in electric demand.

Mentor(s): Todd Aschenbach

KIRKHOF CENTER 2201

Manipulating Site Selection of North American Beaver (*Castor canadensis*) Using Predator Odors to Reduce Impact on Anthropogenic Structures

Presenter(s): Kyle Beaver

The dams built by North American beaver (*Castor canadensis*) often impede water flow through culverts, resulting in washouts. Local governments spend large portions of their budgets on the maintenance, repair and installation of water level control devices that are negatively affected by North American beaver. I hypothesize that by introducing predator odors near the culverts, dam building can be manipulated to reduce impact to anthropogenic structures. I will develop an adaptive management plan that will assist local government by reducing the impact of North American beaver on roads. The results will illustrate the need for increased planning during road construction.

Mentor(s): Paul Keenlance, Todd Aschenbach

KIRKHOF CENTER 2250C

Applying Classroom Concepts to a Magazine Publication

Presenter(s): Jerry Radziwaniuk

My presentation will be dealing with how lessons learned in the pursuit of a professional writing degree were applied when producing articles for a magazine with deadlines and a specific target audience. For my senior internship I worked for the Do Something Guide at the Office of Student Life. It was my job to write articles targeted towards the concerns of new students to GVSU, freshmen and transfers alike. An example article dealt with advising students how to stay on track to graduate in four years. A big part of that article was interviewing students at different points in their academic careers, getting a broad spectrum of perspectives. Organizing and conducting interviews was a large part of the job, and helped to build my abilities to organize and approach tasks and people. This internship not only helped me to develop a rhetorical style to my writing, but also to develop my abilities as both an interviewer and a communicator.

Mentor(s): Michelle Burke

ORAL PRESENTATION ABSTRACTS

BEGINNING AT 10:00 AM

10:00 AM CONTINUED

KIRKHOF CENTER 2263

Carbon Cycling by Production and Respiration in a Drowned River Mouth Lake

Presenter(s): Angela Defore

Quantitative studies of the seasonal cycle of nutrients and carbon (C) by autotrophic and heterotrophic communities by primary production (P) and respiration (R) in the freshwater aquatic environment are seriously lacking, but crucial to our understanding of the C cycle. Beginning in February 2009, discrete and continuous measurements of P and R were made monthly in Muskegon Lake - a coastal Great Lakes ecosystem. Metabolic indices show Muskegon Lake as a highly autotrophic system in the spring-summer with a P/R of 2.4 (C sink), then becoming a heterotrophic system in late fall with a P/R of 0.04 (C source). These seasonal and other nutrient/organic matter addition studies suggest different driving forces control the lake's productivity influencing fisheries and food web dynamics. This study enhances our understanding of the role of lakes in the regional carbon cycle and how lakes may respond to changing environmental conditions in the Great Lakes basin.

Mentor(s): Bopi Biddanda

KIRKHOF CENTER 2266

Rook Polynomials in Three and Higher Dimensions

Presenter(s): Nicholas Krzywonos

A rook polynomial counts the placements of non-attacking rooks on a board. One of the applications of rook polynomials is in matching type problems. Consider for example having three sandwiches and three packets of condiments, each of a different kind. We create a board in such a way that the available sandwiches would correspond to the rows of the board while condiments would correspond to the columns. Each placement of a rook on the board will be interpreted as the corresponding condiment is used for the corresponding sandwich. Hence using the rook polynomial we can count the total number of ways to use one condiment per sandwich. In our research we generalized the definition and properties of the rook polynomials to three dimensions. We also define generalizations of special two dimensional boards to three dimensions.

Mentor(s): Feryal Alayont

KIRKHOF CENTER 2270

Barack Obama: The Face of the Nation

Presenter(s): Patricia Guobadia

Obama is the face of the nation; the image for the United States. His position and image have become the catalyst for U.S. international relations and the social environment. As a president, Obama has several purposes in society. At times he is viewed as a father figure for the country, soothing the nation's concerns. In other situations Obama is the dominant figure that is pulling America and the economy back together. His experiences, background, and public speaking skills are qualities that support him as he attempts to repair and restore the image of the United States. Using the Face Negotiation Theory, I will discuss how Obama is the face of the Nation in more ways than one. With the use of the Speech Acts theory, I will delve into how Obama's voice, verbal, and nonverbal cues enhance his speeches and affect his presidency.

Mentor(s): Ann Byars

ORAL PRESENTATION ABSTRACTS

BEGINNING AT 10:20 AM

10:20 AM

KIRKHOF CENTER 1104

A Geographic Information System Analysis of Land Use affects on the Water Quality of the Plaster Creek Headwaters, Kent County, MI

Presenter(s): Andrew Sisson

Land use is known as a major contributing factor affecting water quality in freshwater streams. In recent decades, the land use of headwaters of the Plaster Creek Watershed has changed from forested to residential and agricultural. I hypothesize that recent poor in stream water quality is directly related to the increased agricultural lands in the area. Through the development of an adaptive management plan, I will look at the land use in Gaines Township and review water quality data to determine the likely causes of the pollution. Results will help target landowners who can most effectively improve the water quality.

Mentor(s): Todd Aschenbach

KIRKHOF CENTER 2201

Under Our Feet: Archaeology, History, and Culture on the Grand River

Presenter(s): Kristina Venlet

Information presented details the exhibit displayed on LOH's Red Wall from February through mid March which invited the community to explore the archaeology, history, and culture on the Grand River in Ottawa, Kent, and Ionia counties of western Michigan. Eight archaeological sites, from 9,000 BCE through the Historic Period, are featured in the exhibit and this presentation including a discussion of the history, excavation, and significance for each location. The participation of faculty, staff, students, and community in collaborative research, presented through artifacts and informative exhibit panels, reveals that the path we walk upon contains more than what we think. This project explores the past in our own neighborhood, with Grand Valley State University's 50 years of archaeology. The objective of the project and presentation is for the community and students to connect with the life ways of the people who once traveled our paths hundreds to thousands of years ago.

Mentor(s): Janet Brashler

KIRKHOF CENTER 2250C

Connectivity in the Off-Campus Community

Presenter(s): Rebecca Seelbach

As Grand Valley State University continues to see an increase with its student population, how the university utilizes the surrounding landscape on and off campus needs to be considered. Each year as new buildings are constructed to help cater to the students' needs, a convenient way to get from place-to-place has been severely overlooked. This study examines how consideration of concepts and metrics of landscape ecology (e.g. connectivity, circuitry, adjacency) can provide sustainable solutions in land-use planning. By implementing a series of sidewalks along the off-campus housing complexes, we could not only provide a safe and convenient way for students and residents of these areas to travel from place to place, but we could also help the needs of the natural green space that is already occupying these areas. Increasing connectivity and maintaining a perspective of the environmental impacts in this area, GVSU could help bring a sense of community to the students living off-campus.

Mentor(s): Elena Lioubimtseva

ORAL PRESENTATION ABSTRACTS

BEGINNING AT 10:20 AM

10:20 AM CONTINUED

KIRKHOF CENTER 2250D

"He hates to have me write a word": Language and Female Oppression in *The Yellow Wallpaper*

Presenter(s): Kristyn Konal

Charlotte Perkins Gilman's striking short story *The Yellow Wallpaper* details an unnamed woman's struggle to overcome the constraints placed upon her by her husband, John, and by a society dominated by male perspective. Oppression occurs through multiple modes in the story, such as the barred windows in the narrator's bedroom and John's lack of sensitivity to the narrator's condition. One of the most prominent mechanisms of oppression, however, is language. In *The Yellow Wallpaper*, Gilman employs language not only to demonstrate the oppression of women in patriarchal society, but also to reflect the internal division and inevitable madness that the narrator experiences as a result of this oppression.

Mentor(s): Dr. D. Ihrman

KIRKHOF CENTER 2259

The Schwarz-Christoffel Transformation

Presenter(s): Kyle Golenbiewski

In physics and mathematics, a typical undergraduate problem is the boundary value problem. While much is known about the types of solutions to this kind of problem, it becomes much harder to solve when the boundary is polygonal. However, it is possible to use a known solution in one domain and map it to a more difficult domain. In the case of a polygonal domain, the Schwarz-Christoffel Transformation allows us to do this. We consider mapping the upper half-plane to a 3-gon and show how Gauss-Jacobi quadrature can be used to numerically approximate the required computations. In addition, we wrote a program in Python implementing Gauss-Jacobi quadrature to map the upper half-plane to a 3-gon and we give some results. While most of our research was on mapping the upper half-plane to a polygonal boundary, we suggest a second domain to use that eliminates the problem of points at infinity.

Mentor(s): David Austin

KIRKHOF CENTER 2263

A Statistical Consulting Experience: Evaluating the Performance of Charter Schools

Presenter(s): Eric Prince, Austin Kirt

As the authorizer of 38 charter schools and their 18,000 students, the GVSU Charter Schools Office must critically evaluate their charter schools' performance. Charter schools are contractually required to add measurable value to their neighborhoods' education opportunities, and metrics for measuring this value-add are not uniformly understood across Michigan and the nation. Along with Rob Kimball, Director of Research and Measurement, GVSU Charter Schools Office, we developed linear statistical models to predict the performance of Michigan public schools on the state standardized assessment (MEAP) using unique variables (e.g. socio-economic status, special needs, minority populations, and total enrollment). Predicted values were then considered relative to realized values to develop a performance ranking for each school.

Mentor(s): Robert Kimball, Neal Rogness

ORAL PRESENTATION ABSTRACTS

BEGINNING AT 10:40 AM

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KIRKHOF CENTER 2266

NSAC State Farm Campaign

Presenter(s): Jessica Mickles, Julia Roeser, Margaret Plaskey, Kati Damerow, Amanda Krieger

As part of the National Student Advertising Competition this campaign was put together for State Farm. Our presentation will highlight the research that went into creating the campaign and how this led us to our strategic ideas. Our campaign theme was executed through a mix of traditional, non traditional and sponsorship tactics. With a 40 million dollar budget our money was spent implementing our tactics that would successfully reach 18-25 year olds across the country. The overall objective of our campaign was to increase brand awareness and promote State Farm auto and renter policies.

Mentor(s): Roy Winegar

KIRKHOF CENTER 2270

Action

Presenter(s): Susanna Skowronek, Casey Key, Ingrid Scheer, Rebecca Nixon, Emily Larson

Last semester, a small group of students learned about genocide as the topic of their junior seminar. Guest speakers and biographies brought the current issues in Sudan to the attention of these students - they could not continue to ignore mass killings while the students had resources to take action. Some of the students came together to form a class titled "ACTION." Throughout the semester, the students have worked to not only increase their own awareness of atrocities around the world, but also to increase campus and community awareness. The students have worked with resources provided through the Genocide Intervention Network to take action and give others sufficient cause to do so, too. This Student Scholarship Day presentation offers an opportunity to see what ACTIONs the students have taken this semester.

Mentor(s): Norman Kravitz

10:40 AM

KIRKHOF CENTER 2263

Modeling Residential Foreclosures in Kent County

Presenter(s): Kaitlyn Ratkowiak

Residential foreclosures in Kent County have become commonplace in the past few years. In this project, we hope to analyze data on foreclosures since 2004 to learn more about the mounting crisis, with the hope that we can identify neighborhoods at risk of foreclosures and its associated consequences.

Mentor(s): Dan Frobish

ORAL PRESENTATION ABSTRACTS

BEGINNING AT 11:00 AM

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KIRKHOF CENTER 2266

Population Genetic Structure of the Invasive Round Goby in Lake Michigan

Presenter(s): Elizabeth LaRue

The round goby rapidly spread across the Great Lakes after its introduction from Eurasia. However, it is unclear whether this spread reflects rapid natural dispersal by fish or high anthropogenic spread by boats. We genotyped seven microsatellite markers from round gobies (11-17 fish/site) at 12 pierheads around Lake Michigan to infer the relative roles of natural/anthropogenic dispersal. Pairwise FST indicated genetic differences among pierheads. Limited natural dispersal was supported by evidence for genetic bottlenecks and a positive correlation between FST and geographic distances at small scales. In contrast, a negative correlation between FST and shipping traffic suggests anthropogenic dispersal plays an important role at larger spatial scales. We posit the rapid spread of gobies across the Great Lakes was facilitated more by anthropogenic than natural dispersal.

Mentor(s): Carl Ruetz

KIRKHOF CENTER 2270

Spatial Correlation Between Pesticide Exposure and the Occurrence of Alzheimer's Disease

Presenter(s): Lucas Seitz

This study will explore the relationship between Alzheimer's disease and pesticide exposure with the goal of finding that areas of high exposure to pesticides are also areas with statistically significant occurrence levels of Alzheimer's. The methods will include the compilation of spatial data from the USDA, CDC, EPA, USGS, and other sources. GIS techniques will be used to analyze data on land use, crop distribution, disease distribution, pesticide input, groundwater contamination, and others to study the spatial distributions of these phenomena. Non-spatial data exploration of prior studies will add supportive evidence. GIS tools such as spatial autocorrelation, geostatistics, cartographic modeling, query, and overlay will demonstrate that a spatial relationship exists, which will lead to better understanding of the dangers of pesticide exposure. It would also be fitting to consider the possibilities for reduction of exposure, education, and plans to implement safer alternatives.

Mentor(s): Wanxiao Sun

11:00 AM

KIRKHOF CENTER 1104

Predator Conflict: Fragmentation Impacts on Bobcats (*Lynx rufus*) and Coyotes (*Canis latrans*) in Central Michigan

Presenter(s): Karen Ickes

Fragmentation leads to overlap of habitat among predators. Bobcats (*Lynx rufus*) and coyotes (*Canis latrans*) are two main predator species in the lower peninsula of Michigan. Both species are nocturnal and frequent the same types of habitats for hunting. I plan to investigate how bobcat behaviors are affected by coyotes in areas of fragmentation throughout central Michigan. I will develop a scientific report that is based on my previously collected data. My original prediction was that bobcats would be more active during the day, which has been a common pattern in data I have collected thus far.

Mentor(s): Todd Aschenbach

ORAL PRESENTATION ABSTRACTS

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KIRKHOF CENTER 2201

Recognizing Rosemarie: Analysis of Mothers' Roles in Incest

Presenter(s): Ashley Ruth

The Austrian Fritzl case was a horrific incest case transgressing the three-decade old master narrative. Fritzl imprisoned his own daughter for 24 years in a cellar, raped her, and fathered her seven children. This study is a content analysis of the coverage of the case by four British newspapers from April 2008 - April 2009. This research focuses on the most mysterious player in the case, Rosemarie Fritzl, wife of the perpetrator and mother of the victim. Using the sociological concept of frames, that is, the cognitive shortcuts that enable readers to make sense, in this case, of the incomprehensible, this research analyzes press speculation about Rosemarie's knowledge of what was occurring in the cellar and her concomitant ability to act on behalf of her daughter. The analysis reveals the predominant press frame was she had no knowledge of the incest and thus was relieved of any responsibility to act. The implications of this finding for the master narrative of incest are discussed.

Mentor(s): Mary deYoung

KIRKHOF CENTER 2250C

The Many Faces of Violence in Griselda Gambaro's Information for Foreigners

Presenter(s): Samantha Crissey

Throughout its history, Argentina has been a country marked by dictatorship and violence which has left its mark in their arts and literature. The 1970's, in particular, were deeply impacted by the Dirty War. Many authors were forced to flee the country to save their lives, and it is through their texts that we are able to examine the impact of the era's violence on its people. With this presentation, I seek to examine the role that violence plays in the playwright Griselda Gambaro's *Information for Foreigners*, not only on a local scale as a result of the Dirty War, but globally as a critique of the inherent violence of mankind.

Mentor(s): Zulema Moret

KIRKHOF CENTER 2250D

A Statistical Consulting Experience: Success in CHM 116 based on CHM 115

Presenter(s): Loren Jordan, Jessica Butler, Derek Bent

Thomas Pentecost, of the Chemistry Department desired to determine whether there is a relationship between the grade a student receives in CHM 115 and the grade a student receives in CHM 116. Pentecost also wanted to see if it is more beneficial to take the two classes consecutively, fall and winter, as opposed to non-consecutive semester, *i.e.*, winter and fall. Our role as statistical consultants was to analyze the data to determine the nature of the relationship between the grades received in both classes and if there is a "lag factor" effect in taking them winter and fall semesters as opposed to fall and winter semesters.

Mentor(s): Neal Rogness, Thomas Pentecost

ORAL PRESENTATION ABSTRACTS

BEGINNING AT 11:00 AM

11:00 AM CONTINUED

KIRKHOF CENTER 2259

Using LiDAR Data to Evaluate Road Runoff on Impermeable Surface Roadways and Identifying Locations to Install Methods for Reducing Runoff on Grand Valley State University's Allendale Campus

Presenter(s): Nicole Geerts, Vernon Richardson, John Martinez, Kendall Gilbert

Terrain influences drainage patterns, and Grand Valley's proximity to the ravines and the Grand River makes it necessary to examine road runoff as an important environmental issue. The purpose of the study was to evaluate the feasibility and effectiveness of reducing runoff by using permeable surfaces in roadways, bioswales or raingardens. We used Desktop GIS and LiDAR (Light Detection and Ranging) data to analyze the drainage pattern and identified most effective locations and control techniques.

Mentor(s): Edwin Joseph

KIRKHOF CENTER 2263

Popular Opinion of Children in Classical Greece: A Holistic Archaeological Approach

Presenter(s): Kelsey Hanson

The question of popular opinion of children in Classical Greek society has received much speculation in recent years. With an abundance of evidence supporting the ancient Greek practice of infanticide, it has been widely assumed that these methods of disposal reflected a widespread belief that children were considered inferior. Véronique Dasen advocates this notion in her article, " 'All Children are Dwarfs'. Medical Discourse and Iconography of Children's Bodies". Dasen argues that ancient medical discourse and Classical vase-painting convey a mainly negative view of children's bodies and mental capabilities that accurately depicts popular opinions of the time. In the following paper, I will refute this argument and I will pursue other interpretations that Dasen failed to address by looking at a wider scope of archaeological evidence that clearly supports the alternative proposition that Greek parents went to great lengths to protect their children.

Mentor(s): Elizabeth Arnold

KIRKHOF CENTER 2266

The Effects of a Throwing Fatigue Protocol on Muscle Latency in Response to Rotational Perturbation of the Glenohumeral Joint in Collegiate Baseball Players.

Presenter(s): Brent Vogel

Objective: To examine the effects of a throwing fatigue protocol (TFP) on muscle recruitment following a rotational perturbation to throwing shoulders of collegiate baseball players. Context: The purpose of this study is to determine the effects of a TFP on trained throwing athlete's muscular activation. Muscular fatigue alters sensorimotor acuity in the shoulder and may contribute to the increased risk of shoulder injuries during activity. Trained throwing athletes have altered muscular recruitment patterns that may be further altered by muscular fatigue. Methods: To examine the effects of muscular fatigue on muscle recruitment, 20 collegiate baseball players will perform a pre /post test assessment of muscle function and between tests will perform the TFP. Results: Data collection is in progress and results are TBD.

Mentor(s): Brian Hatzel

ORAL PRESENTATION ABSTRACTS

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11:00 AM CONTINUED

KIRKHOF CENTER 2270

Obstetrics in the Bible and Talmud

Presenter(s): Amanda Rodriguez

In many civilizations of the past, scientific knowledge was linked closely with religious understanding. It was often seen, therefore, that health care practices had strong religious ties. The study of obstetrics within the Bible and Talmud demonstrates this relationship. Throughout pregnancy, women, their family and friends, and health care providers had to act in concurrence with religious practice and law. This study will examine several Biblical and Talmudic prenatal and postnatal practices and explore their religious connections, along with their tie to the overall health care of the mother and child.

Mentor(s): Sheldon Kopperl

11:20 AM

KIRKHOF CENTER 1104

The Effect of Climate Change on the Abundance of Winter Bird Species in Benzie County, Michigan.

Presenter(s): Emily Cook

Previous studies have shown that global climate change can cause adverse effects on certain avian species throughout the world. Michigan, specifically Benzie County located in the northwest portion of the Lower Peninsula, is no exception. I hypothesize that as average December temperatures have increased, the abundance of various bird populations have changed dramatically. A scientific report will be developed by researching past Christmas Count data released by the National Audubon Society. This data will then be compared to climatic patterns to determine if bird populations are, in fact, changing due to climate change.

Mentor(s): Todd Aschenbach

KIRKHOF CENTER 2201

The Effectiveness of High Fidelity Simulation in Health Professions Education

Presenter(s): Leslie Crowley, Steve Ladd, Brad Trompen

Objective: This project assessed the use of high fidelity simulation (HFS) to determine if it leads to increased learning and better prepared medical providers, which remains unclear in the current literature. Methods: A secondary analysis of survey responses was performed. The survey contained 36 Likert scale questions and six short answer questions. Demographics and frequencies were analyzed. Factor analysis was performed on the 36 Likert scale questions. Results: A total of 220 surveys were analyzed. GVSU students comprised 90% of participants, with 68.2% being physician assistant students. The most frequently awarded response was agree at 50.4% and 80.5% of questions were answered agree or strongly agree. Conclusion: Results indicate participants find HFS effective because it provides increased learning opportunities. Factor analysis revealed nine components for evaluating HFS experiences, which can greatly improve the survey for future use.

Mentor(s): Andrew Booth, Theresa Bacon-Baguley, Gerald Shoultz

ORAL PRESENTATION ABSTRACTS

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KIRKHOF CENTER 2250C

Anarchy and Revolution: The Marxist-Anarchist Debate, 1864-1921

Presenter(s): Patrick Anderson

In late 19th century Europe, Marxism appeared as a powerful political movement. The formation of the International Workingmen's Association (or the First International) symbolized the impact of international socialism in the 1860's, but Marx and his followers had not created an unchallengeable force. When the First International made its way into Italy, Mikhail Bakunin, leader of the newly forming anarchist movement, was waiting. Bakunin joined the First International and, after the Paris Commune, used anti-statist rhetoric to turn the socialists against Marx, destroying the organization. The Marxist-Anarchist feud centered over a disagreement about political power. The former favored its utilization, while the latter favored its destruction. The quarrel persisted until the Russian Revolution, during which Lenin and the Bolsheviks were willing (and able) to use state power and central authority to eliminate the challenge of anarchism as a viable, organized movement.

Mentor(s): Frances Kelleher

KIRKHOF CENTER 2250D

Hip-Hop on Loan: A Renewed Purpose in the Islamic World

Presenter(s): Ashley Wiseman

Palestinian American literary critic Edward Said meticulously documents how Western power structures have situated people of the Middle East as the quintessential Other in order for the West to maintain their status vis-à-vis the region. To confront the monolithic discourse in Western society about the Orient, which perpetuates simplistic negative stereotypes (particularly of Islam and Muslims), Said urges Middle Easterners to make what he calls the "voyage in." This voyage in consists of injecting their own narrative into Western culture in order to "write back" to the Empire. This paper examines three examples of Arab hip-hop to show how this originally Western art form is used to reveal a more complex representation of Islam. The lyrics of these pieces echo messages delivered in Said's work, ultimately "mixing with" and transforming Western culture. They show how voyaging in is used to help Muslims reclaim their identities in the West.

Mentor(s): Coeli Fitzpatrick

ORAL PRESENTATION ABSTRACTS

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KIRKHOF CENTER 2263

Interpreting Sums

Presenter(s): Samantha Dahlberg

Sigma, the fancy capital E, is the shorthand for representing long addition problems. In this talk we will look at those long summations and give them real meaning. Including a method called D.I.E. (Description Involution Exception) used for alternating sums.

Mentor(s): Akalu Tefera

KIRKHOF CENTER 2266

Genetics in The Cloud

Presenter(s): Tammy Weeks

Cloud computing refers to a type of distributed system where virtualized and elastic services, originating at a centralized location, are made available over a network. Cloud services such as computation and storage can be purchased on an "as needed" basis. This is an attractive option for businesses with fluctuating needs as it is more cost-efficient than internally maintaining the infrastructure necessary to meet their highest demand. For this project, we chose Microsoft's Windows Azure as our platform due to its integration with Visual Studio. We assessed the system for usability, and conducted a performance evaluation of the Azure fabric. As our application test case, we used cloud computing to perform microarray analysis, a computationally and data intensive method for gene-expression profiling. The ability to perform this analysis efficiently can improve prognosis and diagnosis of certain diseases, and can help enable a future based on personalized medicine.

Mentor(s): Greg Wolffe

KIRKHOF CENTER 2270

Vegetation Community Response to Long Term Experimental Warming in Northern Alaska

Presenter(s): Jeremy May

Warming in the Arctic and its effects on plant communities has been documented and is expected to continue. This study investigates the effects long term experimental warming on four plant communities in northern Alaska. Vegetation surveys were done using a point frame method on two communities in Atkasuk, Alaska and two communities in Barrow, Alaska. Warming was shown to reduce diversity, between 0.58-2.92 species per plot depending on the site. There were also changes in plant community structure with a decrease in small stature plants and an overall increase in taller plants, such as graminoids and shrubs, resulting in an overall increase in canopy height (0.1-2.6cm) depending on the site. Nonvascular plants decreased in cover as taller vascular plants increased in abundance. The changes in vegetation structure have the potential to lead to shifts in plant community function and may ultimately result in changing the habitat quality, energy balance, and carbon exchange.

Mentor(s): Robert Hollister

ORAL PRESENTATION ABSTRACTS

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KIRKHOF CENTER 1104

Assessment of Paper Waste Between Students and Faculty at Grand Valley State University

Presenter(s): Elizabeth Brandt

In spite of Grand Valley State University's sustainability attempts, students and faculty still waste a great deal of paper. I hypothesize that students use more paper on average than faculty do, and that departmental junk mailings use more paper yet. A scientific report will be developed with survey data taken on a sample of the students and faculty, as well as with collected junk mailings. Results will be used to determine the extent of paper use and the main contributors. Educating students and faculty on the issue in the future may help to reduce the waste and further improve sustainability.

Mentor(s): Todd Aschenbach

KIRKHOF CENTER 2250C

Utilizing Graphical Processing Units to Accelerate the Computation and Verification of Molecular Collision Models

Presenter(s): Kurt O'Hearn

Understanding the energy transfer rates resulting from small molecule collisions promises to benefit astrophysics in many ways; e.g., in the interpretation of molecular rotational spectra obtained from space telescope observations. Currently, differential cross sections of crossed-beam collision experiments are determined using velocity map imaging. Analysis of the resulting data by simulation is straightforward, assuming the experiments are performed with mono-velocity beams and a fixed crossing angle. However, most practical experiments are less restrictive, implying many more models must be evaluated. We propose to address this increased complexity by parallelizing the image simulation and offloading it to graphical processing units (GPUs). The GPUs that populate today's video cards are effectively multiprocessors, with their own memory hierarchy and communication bus. Our goal is to exploit massive multi-threading to attain dramatic speedups in execution time.

Mentor(s): Christian Trefftz, Greg Wolffe

KIRKHOF CENTER 2250D

To the Lighthouse

Presenter(s): Allison Staley

As time elapses through Virginia Woolf's novel, *To the Lighthouse*, the characters transform from detached individuals into emotionally involved human beings. The first section of Virginia Woolf's novel, *The Window*, is aptly named. All of the characters take a window-like approach to life; they simply observe it through Mrs. Ramsay's perspective. In the second section, *Time Passes*, we learn that everyone has left the beach house, Mrs. Ramsey has died, and others have ventured into grim reality; the general mood changes from anxious inconsistency to destructive emptiness. The final section, *To the Lighthouse*, is also appropriately named. The lighthouse, both figuratively and literally, represents the characters' sense of security in the novel. When the characters return to the beach house after a number of years, they become able to overcome the negative aspects of their personalities and connect with one another; they have finally arrived at the lighthouse.

Mentor(s): Christine Rydel

ORAL PRESENTATION ABSTRACTS

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KIRKHOF CENTER 2259

Narrator Credibility in Pawel Huelle's "Who was David Weiser?"

Presenter(s): Amanda Jurczak

In Pawel Huelle's mysterious novel, "Who was David Weiser?" the narrator--a certain Pawel Heller, tells an almost unbelievable tale of a young boy with miraculous powers: he can levitate, tame wild animals, shoot like a trained sniper, and attract the devotion of one loyal girl and three "apostolic" boys. One of these "apostles," Heller, at first tries to answer the question of the title of the novel, but the task proves too difficult for him. Even with the best intentions, Heller becomes one of the most unreliable narrators of post-modern fiction thanks to his lack of veracity in general, his sexual innocence, his vacillating intentions, and his blind adoration of David Weiser. The deficiencies of Heller as a narrator undermine his entire account of a special summer in a seaport town in Poland in 1957.

Mentor(s): Christine Rydel

KIRKHOF CENTER 2266

Entrepreneurship/Small Business Programming Within Correctional Facilities

Presenter(s): Nikki Powers

Incarceration rates for U.S. residents nearly tripled between 1987 and 2007. At present, there are upwards of 2.1 million individuals being held in federal or state prisons or in local jails; it is estimated that over 93 percent of these offenders will one day return to their local communities. One of the greatest challenges they face is finding and securing employment, which is often mandated by a court as a condition of their probation or parole. This difficulty is due to a combination of factors, including a declining number of manufacturing jobs, lower skills and educational levels, and research findings that two-thirds of employers would not knowingly hire ex-felons. Yet, reports of post-release outcomes indicate that the greater the educational opportunities offered to those in prison, the higher their desistance (and reduced recidivism).

Mentor(s): Nancy Levenburg

KIRKHOF CENTER 2270

Predicting Responses of Arctic Plants to Warming with Species Distribution Maps

Presenter(s): Jennifer Liebig

A warming treatment was established and absolute cover was measured using a point frame method at each of four sites in northern Alaska. Plant community data were collected in 2007 and 2008 and analyzed using distribution data from the botanist Eric Hulten. The range of the species was found to be an accurate predictor of species response to warming at the wet meadow site in Barrow, but not at the other three sites. At the Barrow wet site species present as far south as 45°N experienced a 24.6% increase in cover in response to warming, while species present only north of 60°N experienced a 44.8% decrease. These classifications give insight to the overall increase in cover observed as a result of the warming treatment.

Mentor(s): Robert Hollister

ORAL PRESENTATION ABSTRACTS

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KIRKHOF CENTER 1104

An Adaptive Management Plan for Improving the Howard Christensen Nature Center Trail System

Presenter(s): Paul Bethke

Recreation in our natural areas has important social and environmental impacts in Michigan. The Howard Christensen Nature Center (HCNC) is a nature center in northern Kent County that provides recreation and education opportunities to the public. I hypothesize that with proper mapping techniques and trail planning HCNC can improve ways to provide education and create new recreation opportunities. An adaptive management plan will be developed that includes using Geographic Information System (GIS) mapping and user survey data. Results will be used to create a trail system management plan to improve the trails and to develop criteria that will promote trail use.

Mentor(s): Todd Aschenbach

KIRKHOF CENTER 2250D

Mediating the Streets: Exploring the Intersections of Common Policing and Common Mediation Practices

Presenter(s): Matthew Ferre

Managing and resolving interpersonal conflicts reflect a common and recurring responsibility for law enforcement officers. Research suggests that resolving these responsibilities through traditional policing methods may have situational limitations. Other policing philosophies, including community policing and problem-oriented policing, have also been implemented in law enforcement, but evaluations of their effectiveness have produced mixed results in addressing dispute resolution needs. Notwithstanding attempts to transform policing through more relational policing approaches (e.g. community policing), mediation has been proffered as a viable skill set beneficial to law enforcement officers. However, little research exists exploring the compatibility of common policing practices and the management of conflict through mediation in the field. This research proposal outlines an exploratory case study examining mediation and conflict resolution practices of officers in the field.

Mentor(s): Christine Yalda

KIRKHOF CENTER 2259

Mirror, Mirror, on the Wall Who is the Most Attractive Politician of Them All?

Presenter(s): Friederike Habbel

Attractiveness of a face can have an effect on politicians during their electoral campaigns and may help them persuade more voters to vote for them (Efran and Patterson). Angela Merkel, the chancellor of Germany, changed her looks during her first campaign which resulted in a growth in her popularity. In my paper I discuss and analyze the various theories behind what makes a face seem more attractive and how this can affect others' perceptions. Merkel made her face seem younger, more symmetrical, and more average, all three being things that have been shown to result in a more attractive face, as rated by others. She also seemed to change her clothing style which can have an effect on the perceptions of attractiveness as well. Although her looks had an influence on the outcome of the 2005 German election, her qualifications had an influence as well and should not be overlooked. Keywords: Nonverbal Communications, Facial Attractiveness, Angela Merkel, Elections, Popularity, Politician

Mentor(s): Danielle Wiese

ORAL PRESENTATION ABSTRACTS

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KIRKHOF CENTER 2263

Variables That Influence Cervical Cancer Screening Behavior Among African American Women

Presenter(s): Julie Grech

African American women are more frequently diagnosed with cervical cancer, have higher mortality rates, and are diagnosed at later stages than Caucasian women. The purpose of this literature review was to identify variables including demographic factors, psychosocial beliefs, attitudes, and knowledge that influence cervical cancer screening among African American women. Eligibility criteria for the literature review included research articles published between 1999 to 2009, 10% of the participants were African American, and cervical cancer screening was the primary health promoting behavior being studied. Demographic variables that influence cervical cancer screening behaviors among African American women include level of education, cost, insurance status, usual source of healthcare, and age. Psychosocial factors include fatalistic health beliefs, misconceptions about cervical cancer, physician recommendation, family or social support, and previous experiences with pelvic exams.

Mentor(s): Linda Scott

KIRKHOF CENTER 2266

Mapping Sidewalks for Handicap Accessibility on the GVSU Allendale Campus Using GIS

Presenter(s): Rebecca Brittain, Jessica Miller, Kheran Joseph

The primary objective of this project was to map the sidewalk system on the Grand Valley State University Allendale campus to evaluate the strengths and weaknesses of handicap accessibility to buildings. Determining handicap accessibility is not only important for handicapped individuals, but also for the GVSU facilities department and any students interested in identifying optimal routes on campus. Data collection was accomplished through the use of GIS and GPS technologies. Analysis was conducted to evaluate the effectiveness and convenience of GVSU's Americans with Disabilities Act (ADA) compliant access points, and to highlight the shortest distance routes between buildings.

Mentor(s): Edwin Joseph

ORAL PRESENTATION ABSTRACTS

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KIRKHOF CENTER 2201

A Comparison of the Prevalence of Depression Between African Americans and Whites with Type II Diabetes Mellitus

Presenter(s): Sarah Appold, Kirra Sheremet, David Klungle

Diabetes mellitus is the sixth leading cause of death and affects more than 23.6 million Americans. Several recent studies have shown a strong association between diabetes and depression. These studies reveal that the rates of depression in patients with diabetes is double that compared to those without diabetes. Unfortunately, few studies have investigated the actual prevalence rates of depression in diabetic patients based on their ethnicity. African Americans have higher prevalence rates of diabetes and higher diabetes-related mortality, and therefore are a population of interest. The purpose of this study is to determine the rate of depression among African American and White diabetic patients within the Grand Rapids metropolitan area. Method: Specific zip codes in the area were chosen to target densely populated African American and White regions. The 2,253 diabetic patients selected from these zip codes were mailed a depression survey. Results and conclusion are pending.

Mentor(s): Charles DuBose

KIRKHOF CENTER 2250D

Understanding Female Ex-Offender Re-Entry into the Workforce

Presenter(s): Brittany Dernberger

Female ex-offenders face unique challenges in finding employment as they transition from prison to the community. This study utilizes focus groups and interviews to understand the unique barriers female ex-offenders face in finding employment. The focus groups were conducted with female ex-offenders about to be released and those currently transitioning back into society; the goal was to give these women a voice to discuss their barriers, needs, expectations, and goals in regard to finding employment. This study also aims to understand employer expectations and attitudes about hiring ex-offenders. Ten interviews were conducted with local employers from a variety of industries to understand their policies and opinions when considering employment of ex-offenders. The results of the focus groups and interviews will be used for existing ex-offender program evaluation, policy formation, and will add to the limited amount of research on the process of female ex-offenders finding employment.

Mentor(s): Danielle DeMuth

KIRKHOF CENTER 2266

Into the Unknown: The Search for Identity in Paul Auster's "City of Glass"

Presenter(s): Holly Kaupa

The search for identity is common in literature, both classic and contemporary. Paul Auster's "City of Glass" takes this phenomenon to a new level, prompting questions of identity for both the characters within the work and the author himself. This paper seeks to essentially probe these questions. The text's existential quality is explored, as well as its larger implications for the post-modern era it is written in.

Mentor(s): Dr. D. Ihrman

ORAL PRESENTATION ABSTRACTS

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KIRKHOF CENTER 2270

Sacred Threads

Presenter(s): Caitlin Kelly

This paper analyzes the function of spinning, weaving and sewing implements in the construction of Etruscan religious belief. Textile-related artifacts recovered in ritual contexts at key archaeological sites in ancient Etruria (including Poggio Colla, Poggio Civitate and the Tarquinia necropolis) reveal the significant role of these items in the performance of religious ritual in sacred spaces. Spindle whorls, rochetti, loom weights, bone and bronze needles, and metallic threads were carefully mapped and studied in terms of their depositional context. The spatial patterning of these objects, when considered in light of the depiction of textiles in Etruscan funerary art and the role of women in textile production, indicates that the performance of textile production served a significant function in the negotiation of Etruscan conceptions of the sacred and the role of women in that process.

Mentor(s): Melissa Morison

12:40 PM

KIRKHOF CENTER 2259

Indian Landing: An Archaeological Analysis of Glass Artifacts

Presenter(s): Brittany Gray

Indian Landing is Located in Charlton Park of Hastings, Barry County, and has been dated to the early to mid 19th century. The site has been identified as a mission and habitation location possibly associated with Americans of European descent and Native Americans. This report will analyze the unit and level concentration of glass, as well as spatial provenience in the structure. Glass artifacts include medicine bottles, flat glass, lamp glass, and other miscellaneous types which are representative of functional and spatial use. With additional analyses including both ceramic and metal done by other researchers, researching glass artifacts will present a more holistic perspective of the early Michigan frontier and how it impacted the economic status of its inhabitants.

Mentor(s): Dale Borders

KIRKHOF CENTER 2263

Expression, Purification and Characterization of the Asn152Thr Mutant P99 Cephalosporinase

Presenter(s): Amanda Hanks

Resistance to β -lactam antibiotics has emerged as a major public health issue due to the over-prescription and widespread use of these drugs. β -Lactamase enzymes are the most common bacterial resistance mechanism to these antibiotics and a major concern is evolution of extended β -lactamase enzymes. Several mutants of the class C β -lactamase P99 have been identified that exhibit a substrate selectivity switch due to a mutation of the conserved Asn152 residue. The Asn152Thr mutant was expressed and purified using nickel affinity column chromatography, and pure protein was reproducibly obtained at a concentration of 5 mg/mL. Crystallization attempts are underway. Structural determination of this extended spectrum enzyme may aid in the design of more effective β -lactam antibiotics.

Mentor(s): Rachel Powers

ORAL PRESENTATION ABSTRACTS

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1:00 PM

KIRKHOF CENTER 2201

The Fractal Beauty of Byzantine Music

Presenter(s): Jessica Sears

The songs found in Byzantine music possess both audible and mathematical beauty. In this talk we study one representative song from one of the eight tones in Byzantine music and demonstrate that each one exhibits a fractal relation between the Musical Instrument Digital Interface (MIDI) frequencies of successive notes for a given note interval. The same method was applied to 7 other pieces from the other tones and similar results were obtained.

Mentor(s): Firas Hindeleh

KIRKHOF CENTER 2250D

A Dark Revelation: Hidden Criticism in Lord Byron's Darkness

Presenter(s): Alison Haney

In the poem "Darkness" by Lord Byron--a gruesome, apocalyptic vision of the world to come--the lyrical narrator describes a dying sun and a bloodied and fading moon thanks to Man, who must burn the earth to light the way to his own destruction. However, this interpretation of the end of times is hardly original; it dates back to the book of Revelation. Upon closer examination, one can see that the two are implicitly connected, especially in the similarities of dual symbolism of the elements and the hidden messages, as well as the opposition of their conclusions. Byron echoes the visions of the prophet John to promote his own agenda: to criticize the philosophes of the Enlightenment. Using the authority and familiarity of the biblical text, Byron deals the philosophy of the Enlightenment a deadly blow when he compares its doctrine to the ultimate destruction of mankind. In "Darkness," Byron criticizes the movement with apocalyptic severity.

Mentor(s): Christine Rydel

KIRKHOF CENTER 2263

Student Professional Development

Presenter(s): Merradith Doyen

This was a study of student professional development programs and their role in a business management education, with the information gathered to be used in the expansion of the Student Professional Development Program at the Seidman College of Business. Contacts were made with several schools around the United States to learn more about already existing professional development programs. Additionally, participants made presentations at the Tri-State Academy of Legal Studies in Business, held in Ann Arbor, Michigan. Topics discussed included the Seidman College of Business's current program and a comparison of this program to similar programs at other universities.

Mentor(s): Catherine Jones-Ridders

ORAL PRESENTATION ABSTRACTS

BEGINNING AT 1:20 PM

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KIRKHOF CENTER 2266

Perfection is Possible, yet Unwanted.

Presenter(s): Bryan Kimball

When teams have the same win/loss record in a round-robin tournament, how do you fairly break the tie between these teams? An accepted method is to rank teams based on the strength of the teams they beat. When this fails we are left with ties between an odd number of teams presented in the form of a Eulerian circuit. These ties can be classified as "perfect" because without criteria other than the win or loss, they are impossible to break. I will explain our definition of a "perfect" tie and how the Kendall-Wei ranking method can be used to locate these perfect ties. Based on the occurrence of these ties, we will also take a closer look at the likelihood that various tie sizes occur within tournaments.

Mentor(s): Brian Drake

KIRKHOF CENTER 2270

"On, Lusty Gentlemen!" The Queer Ways the Boys Play in Baz Luhrmann's Romeo + Juliet

Presenter(s): Cassey Stank

Critically film director Baz Luhrmann has been chastised for the bold direction he took in Romeo+Juliet. Some have defended the liberal interpretation but examination of uncharted analysis, such as queer theory, are necessary. Luhrmann's film does an excellent job of reworking the Bard for a new generation but by also going back to the creativity essential to the original text. To glaze over and ignore the heavy presence of homosocial and homoerotic relationships among the film's men undermines Luhrmann's achievement in adapting the sexuality of desire concept for a new audience. Points of interest are Mercutio as drag queen and misogynist, expressions of unrequited love between Romeo and Mercutio and casting and prop choices to support a queer theory within the film. Film stills will assist in supporting these claims and how Luhrmann's blending of modernity and Shakespearian theatre roots makes his adaptation significant to contemporary discussion of Shakespeare's great love story.

Mentor(s): Rachel Anderson

1:20 PM

KIRKHOF CENTER 2201

Tessellations of the Hyperbolic Plane using KBMAG

Presenter(s): Clifford Taylor

This talk will outline the creation of a program designed to generate hyperbolic tessellations by utilizing their underlying group structure. In the process, we will run into the infamous and inherently interesting word problem over groups. This will lead into a discussion about automatic group structures and finite state algorithms which can be utilized by the KBMAG program to solve the word problem. Along the way, we will survey some of the intricately beautiful tessellations that were produced.

Mentor(s): David Austin

ORAL PRESENTATION ABSTRACTS

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KIRKHOF CENTER 2250D

"The Ahistorical Fallacy" - How Americans Ignore History in Contemporary Analysis of Racial Disparities

Presenter(s): Marcus Bell

While it is common to think of America's historical legacy of overt, individual, and institutional racial oppression as being relegated to the past, social science data routinely identifies past racial oppression as meaningful and relevant to contemporary racial disparities. In at least two areas, wealth inequality, and residential segregation, the etiology can be found not only in contemporaneous practices, but also by tracing its origins by looking at history. This research examines the gap in the accumulation of wealth between whites and blacks, traces the origins of the urban ghetto, and documents how racial oppression contributed, and still contributes to, both. It also explains how ignoring history in the analysis of racial inequality today makes analysis incomplete and presents an inaccurate picture.

Mentor(s): Richard Yidana

KIRKHOF CENTER 2259

The Relationship between Maternal Periodontal Status and Pregnancy Outcome

Presenter(s): Stephanie Misco

Over the past decade periodontal disease (PD) and its correlation to systems throughout the body have become more evident. The most recently explored connection is the relationship between maternal periodontal status and pregnancy outcome (PO), such as preterm birth (PTB) and low birth weight. By using the research performed in this area as a basis, this paper will discuss if this correlation truly exists. Some studies have shown that the relationship between PD and PTB is statistically insignificant, suggesting lower socioeconomic status and environmental factors as alternative explanations. Conversely, other researchers suggest that certain types of bacteria associated with PD, or the immune responses to those microbes, disrupt the fetus's balanced environment. Cultural, ethnic, and racial differences in the bacteria of subgingival plaque may also contribute to variations in PO. Periodontal therapy may be the solution, though research suggests its effectiveness varies by individual.

Mentor(s): Bruce Ostrow

KIRKHOF CENTER 2270

Association Between Employment and GPA for Students

Presenter(s): Ferris Jumah

As the economy fluctuates during its recovery from the recent crisis, many families and individuals are losing sources of income. To help offset this many students take up employment during their undergraduate education. It is necessary for students to evaluate what effect employment will have on that education. One measure for evaluating performance in students' studies is the grade point average. In this study we examined the relationship between students' GPA and the level of employment. Voluntary surveys containing questions about Fall 2009 were given to GVSU students in school Fall 2009 & Winter 2010. Data collected included related demographic variables, GPA, and level/type of employment. Multiple Regression analysis was then used to model the relationship between GPA and level of employment controlling for the other variables in the survey. This information has shed light on the association and will allow students' to make informed decisions regarding working while in school.

Mentor(s): Gerald Shoultz

ORAL PRESENTATION ABSTRACTS

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KIRKHOF CENTER 2201

Transparency in Michigan Organizations

Presenter(s): Leandro Robles, Steve Peterson, Jessica Brautigam

Government transparency is vital to a successful democracy. The Freedom of Information Act (FOIA) was established as a legal vehicle for individuals to gain access to government information. This study evaluates the effectiveness of the Freedom of Information Act as a means to access information by looking at local government's implementation of and compliance to the act. A selection of 300 local government entities including school districts, intermediate school districts, county, city, village, and township governments, and colleges and universities were sent a total of 900 FOIA requests. The responses to these requests were tracked and classified to evaluate compliance levels. The result will be used to generate report cards to inform sampled government entities of their level of compliance with the Freedom of Information Act.

Mentor(s): Peter Letzmann

KIRKHOF CENTER 2250C

How the Readymade Will Save the World: Marcel Duchamp's Art in a Modern Context

Presenter(s): Dani Willcutt

Marcel Duchamp's presentation of the readymade, firstly with the display of La Fontaine, was a watershed in the art world, showing the direction art would take in the ensuing century. The readymade is particularly important, as it has proved to be one of the most memorable parts of the artist's repertoire. Today we see artists using found goods in the form of post-consumer waste, breathing new context into recently made useless objects. Consumerism began its rampage through the Western world in the post-World War I years in which Duchamp began his ascent into notoriety. Since then consumerism has become a large part of Western culture, bringing with it the unavoidable problem of pollution and all around environmental detriment. Beginning as a radical artist, Duchamp created lasting art that moved outside of the retinal, which is how the world is viewing art now: on a conceptual basis.

Mentor(s): Frances Kelleher

KIRKHOF CENTER 2259

Examining the Potential Placement of Rain Gardens Using GIS Technology: Reallocating Rooftop Run-off

Presenter(s): Amanda Moore, Mathew Kapteyn, Mathew Carson, Dolly Catlin, Lindsey Upchurch, Andrew Reinhardt

Grand Valley State University's Allendale Campus is located at the top of a ravine system. Due to the ravine's close proximity to the Grand River, storm water runoff has a noteworthy environmental impact on the Grand River watershed. Soil erosion, pollution, and drainage are problems caused by storm water runoff derived from the substantial storm weather that occurs in West Michigan. This study utilized Geographic Information Systems (GIS) tools to determine suitable locations for rain gardens on GVSU's Allendale Campus. Computer Aided Design drawings (CAD), Light Detection and Radar (LiDaR), and Orthophotos were utilized to collect data on rooftop dimensions, garden dimensions, and discharge zones. Based on rooftop dimensions and location of downspouts, the most effective locations for rain gardens have been determined and if implemented will create a natural biofiltration system as well as a reservoir to ease stress placed on drainage sewers during storms.

Mentor(s): Edwin Joseph

ORAL PRESENTATION ABSTRACTS

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KIRKHOF CENTER 2266

Cultural Diversity in Therapeutic Recreation

Presenter(s): Danielle Taylor, Emily Foster, Shelby Abramson, Jess Sporte

Using qualitative research methods, this session explores the role of cultural diversity in the therapeutic recreation profession.

Mentor(s): Kari Kensinger

2:00 PM

KIRKHOF CENTER 2201

Quasicrystals, Tilings, and Diffraction Patterns

Presenter(s): Wyatt Brege

Interest in the mathematics of tilings and crystals has been consistently growing since the discovery of Penrose tilings and quasicrystals in the 70's and 80's, having us call into question what a crystal actually is. In this talk, we consider those aperiodic tilings which are quasicrystals and define a crystal as that which admits a diffraction pattern (i.e., the diffraction condition). As tilings can be generated by matrix operations, we will explore the Pisot criterion which relates the eigenvalues of these matrices to the countability of the Bragg peaks in their diffraction patterns, and conjecture a new but necessary and sufficient condition for binary tilings in one-dimension to be crystals.

Mentor(s): David Austin

KIRKHOF CENTER 2250C

Portia's Ring: The Capacity for Power in 'The Merchant of Venice'

Presenter(s): Mary Hancock

There are a number of ways to interpret the symbolism of Portia's ring in William Shakespeare's play, *The Merchant of Venice*, but no matter the interpretation there is always a significant amount of power behind the symbol. The "ring episode", as it is often called, is an important component to the play not only because it lends a comedic element and conclusion but because it has the capacity to present a strong argument for feminine power. This capacity can be added to or subtracted from depending on individual interpretation therefore, the complexity and importance of the play is contingent upon the type of power one believes the ring symbolizes.

Mentor(s): Dr. D. Ihrman

ORAL PRESENTATION ABSTRACTS

BEGINNING AT 2:00 PM

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KIRKHOF CENTER 2250D

Site Preparation and Hand Pulling Effects on Spotted Knapweed Control and Native Plant Establishment in the Bass River Recreation Area, Ottawa County, Michigan

Presenter(s): Corey Kapolka

Establishment of native plants on knapweed-infested sites requires effective control measures. We studied the effect of site preparation treatments and hand pulling on knapweed persistence and native plant establishment on such a site. Mowing and herbicide treatments were applied to 48 plots in 2008, and we seeded these plots with a mixture of native plants in spring, 2009. In July, 2009, we pulled knapweed from selected plots and determined residual knapweed densities and native plant presence on all plots. All site preparation treatments began to reduce the knapweed seedbank, while both herbicides reduced adult knapweed densities. Hand pulling reduced adult knapweed densities to less than 0.5/m² on both mowed and glyphosate-treated plots; hand pulling was unnecessary on clopyralid plots because adult knapweed were totally absent in 2009. Planted native grasses were present on all plots, but full development of a diverse native plant community is expected to take several years.

Mentor(s): Neil MacDonald

KIRKHOF CENTER 2259

Globalization and Therapeutic Recreation

Presenter(s): Emily West, Ashley Wall, Jill Ellison, Christina Kintopf, Aubrie Meunier, Kayleen Perry

Using qualitative research methods, this session explores the role of globalization in the therapeutic recreation profession.

Mentor(s): Kari Kensinger

KIRKHOF CENTER 2263

Sports and the Public Sphere

Presenter(s): Michael Saldana

Year after year, season after season, there is one constant in the sports world. It isn't the way the games are played, the rules of the games, or even the champions. No, the one constant in the sports world every year is coaches being "on the hot seat" or being fired. My research led me to also reach the conclusion that there is a sports public sphere. The sports public sphere encompasses all athletes, coaches, owners, and teams themselves. Any actions taken by these groups, so long as they affect sports in some way, are a part of the sports public sphere. That means that coach firings and the reasons behind them are a part of the sports public sphere. I will focus on three people. Tyrone Willingham the former head football coach at Notre Dame, Bobby Knight, the former head basketball coach at Indiana University and ESPN analyst and former Yankee manager Joe Torre. I will prove that the sports public sphere influenced the decision to fire each of these coaches.

Mentor(s): Danielle Wiese

ORAL PRESENTATION ABSTRACTS

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KIRKHOF CENTER 2266

The International Criminal Court: A New Era in International Criminal Justice or Another Dead End?

Presenter(s): Anne VanderBroek

In the International Community, organizations exist to govern all areas of International Law and International Relations except for International Criminal Law. Thus, the International Criminal Court (ICC) was created to fill this void. The creation of the ICC has caused many controversies, which have in turn created a number of difficulties, leaving it inoperative. Some of the difficulties now facing the ICC are political in nature, such as the difficulties of state ratification and issues of sovereignty. The greatest difficulties facing the ICC, however, are the lack of International Criminal law, both in codified and ratified law and in enforceability. This work will focus on these problems, and others, and discuss possible solutions. Additionally, this work will look at the ICC as it relates to the International Community and the United Nations to attempt to discover if there is a future and a place for the ICC among the governing bodies of the International Community.

Mentor(s): Christine Yalda

KIRKHOF CENTER 2270

Will the Internet-Based Replacement of Ann Arbor's Daily Newspaper Become the New Model for Local Journalism?

Presenter(s): Nancie Hudson

When the Ann Arbor News closed on July 23, 2009, Ann Arbor, Michigan became the first mid-sized city in America to lose its daily newspaper. This case study examines the closing of Ann Arbor's only newspaper, the newspaper's Web-based replacement, AnnArbor.com, and issues regarding citizen journalism. Secondary research included news articles in local and national newspapers, news articles in online and print magazines, Web sites for media outlets, and research findings from the Pew Research Center for the People and the Press. Falling advertising revenues were a factor in the newspaper's closing, but Ann Arbor was selected for the new venture because it is an Internet-savvy community. The news industry is watching this journalism experiment, because if a hybrid of daily Internet news and semiweekly print editions proves commercially successful in Ann Arbor, it will be hailed as a legacy and a model which struggling local newspapers across the nation can adopt to stay in business.

Mentor(s): Timothy Bulson, Danielle Wiese

ORAL PRESENTATION ABSTRACTS

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KIRKHOF CENTER 2201

Testing for Normality

Presenter(s): Eric Prince

Most classical statistical techniques are based on the assumption that data were obtained from the normally distributed population. If actual data show significant departure from the normality, the test result may not be reliable. As a result, researchers may end up with wrong conclusions about the true state of the population. There are hundreds of statistical tests for the normality in the literature. Several of those are practically used by the practitioners for various reasons. Professor Soon Hong and I are looking for the most reliable test through computer simulation. More practically, we will show which test is the most powerful when sample sizes are ranged from 10 to 30. We are considering the tests using moments and goodness of fit tests in this study.

Mentor(s): Soon Hong

KIRKHOF CENTER 2250C

Parteras and Choice of Birth Practitioners in a Tourism Community of Yucatan, Mexico

Presenter(s): Linsey Cory

Maya Yucatec women have given birth to their children with midwives for many generations. With the introduction of Western medical technology, midwifery has begun to lose prominence in many rural and semi-rural areas of the Yucatan. This presentation explores the various reasons women living in a tourism community of Yucatan choose one set of birth practitioners over the other. The analysis explores questions of safety, quality of care, personal comfort, and available social networks during birth. The results focus on the ways women view their decisions with birth practitioners in Yucatan, Mexico. The ethnographic research was conducted in conjunction with a study abroad field school program in Mexico.

Mentor(s): Russell Rhoads

KIRKHOF CENTER 2250D

The 1573 Lutheran/Orthodox Dialogue as a Coda to the Divergence of Eastern and Western Christianity

Presenter(s): Timothy Flanders

The Protestants split from the Roman Catholic Church with the intention of restoring Christianity to its original form: the early Church. Many Protestant ideas could find precedent in earlier western Catholic reformers, but perhaps most interestingly Luther, in his polemics against the Catholics, often cited the Eastern Orthodox Church as an example of the early Church. The Orthodox, he pointed out, had long rejected papal authority and other grievances that the Lutherans were trying to resolve themselves. In 1573 a group of Lutherans engaged in a theological dialogue with the Orthodox Patriarch of Constantinople. Both churches rejected Roman Catholicism, and had much in common. But they came from two separate Christian cultures which had been in development and divergence for centuries. This presentation will examine this divergence, and using the example of the filioque controversy to explain the differing worldviews, attempt to explain the reasons for the failure of the dialogue.

Mentor(s): James Smither

ORAL PRESENTATION ABSTRACTS

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KIRKHOF CENTER 2259

Health and Medical Pluralism in Rural Nepal: Studying One's Own Community

Presenter(s): Sweta Basnet

This presentation describes the health issues faced by rural Nepalese, as people negotiate between the use of traditional practices and biomedical outreach. This talk describes research on a "medical pluralism" approach that can help bridge the two medical systems. In addition, as this approach is applied to the author's home region in Nepal, key factors are illuminated through the author's own recent experiences with life and people, and discussed in the presentation. A medical pluralism approach, combined with an insider's cultural knowledge and participant observation, opens up new possibilities for engaging the issue of health care delivery on the ground, and to promote sustainable practices appropriate to a local population's resources and needs.

Mentor(s): Russell Rhoads

KIRKHOF CENTER 2263

Freezing as a Possible Means of Prehistoric Sugar Production

Presenter(s): Wesley Jackson

The economic importance of maple sugar in North America's history has been well documented. However, its possible role in the prehistory and importance to the Natives is more contested. Did Native Americans make Maple sugar prior to European contact? What is known is that they could not have employed the use of metal kettles to boil the sap. Other methods that have been proposed are the use of rock boiling, clay pots, and an interesting idea of freezing. This paper describes experiments to concentrate sugar in maple sap by freezing and casting off ice. Using statistical algorithms, optimal ice concentrations were calculated and tested in controlled environments at Blanchford Nature Center. Results suggest different models of syrup/sugar production that can be tested with archaeological data.

Mentor(s): Janet Brashler

KIRKHOF CENTER 2266

Therapeutic Relationships in Therapeutic Recreation

Presenter(s): Denise Brooks, Marilynn Ellenberger, Lindsay Johnson, Christa Schwarz

Using qualitative research methods, this session explores the role of therapeutic relationships in therapeutic recreation.

Mentor(s): Kari Kensinger

KIRKHOF CENTER 2270

Exploring Operation of a Theremin

Presenter(s): Doug Coleman

Invented by Russian physicist Leon Theremin in 1920, the theremin is an electronic musical instrument that is played without physical contact from the musician. A pitch-only theremin adapted from Art Harrison's "2006 Minimum Theremin" design has been constructed and heterodyning is observed with a digital oscilloscope. Three antenna geometries were explored and we report on their effects on circuit capacitance. Tone and playability were found to agree with Art Harrison's results. A demonstration is planned.

Mentor(s): Ross Reynolds

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KIRKHOF CENTER 2250D

An Archaeological Analysis of Metal Artifacts at Indian Landing

Presenter(s): Melissa Ludke

Indian Landing is located in Hastings, Barry County dated to the early to middle 19th century. This site has been identified as a mission and habitation location. This report analyzes metal in correlation with unit and level concentration, as well as spatial provenience. These artifacts include nails, hinges, tools, coins, metal clothing articles and miscellaneous metal. Through this analysis in coordination with the ceramics and glass also excavated at the site, it may be possible to achieve a better understanding of the resources and economic standing during the time period associated with Indian Landing.

Mentor(s): Dale Borders

KIRKHOF CENTER 2266

Mosaic Collaboration Project Between Grand Valley Ceramics

Department and East Kentwood High School

Presenter(s): Rebecca Bloem, Jessica Schultz, Lisa Maleski

In a three month collaborative project the GVSU ceramics department participated with an after school multicultural art club at East Kentwood High School to complete a ceramic mosaic project. Students were also invited to spend a day on the campus of Grand Valley in the ceramics department learning and experiencing first hand alternative firing methods. The project provided hands on learning experience working in a k-12 school for three of Grand Valley's art education majors who emphasize in ceramics. This is Grand Valley's seventh time participating in a k-12 ceramic project and has since expanded into other art emphasis areas. This project sought to celebrate the diverse student body at East Kentwood High consisting of over fifty nationalities. This presentation will provide insights into the planning and preparation needed to complete a project of this size working side by side with over twenty participants.

Mentor(s): Hoon Lee

KIRKHOF CENTER 2270

Standardization in Therapeutic Recreation Academic Programs

Presenter(s): Kayla McGuire, Laura Clark, Krystal McNaughton, Rebecca Wickens, Laura Svihra, Kim Palasek

Using qualitative research methods this session explores the role of standardization in Therapeutic Recreation academic programs.

Mentor(s): Kari Kensing

ORAL PRESENTATION ABSTRACTS

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KIRKHOF CENTER 2201

A Study of Native Language Use in Classroom Contexts: Policy and Practice in the United States and the Netherlands

Presenter(s): Jillian Crockett

After studying abroad in the Netherlands I decided to research the ways that the United States and the Netherlands taught second language learners. My research focused on how these two nations incorporated students' native languages into their second language instruction. In addition to exploring many journal articles, I had the opportunity to observe second language instruction in classrooms in both countries. I first examined research others had conducted regarding the efficacy of including students' native languages. I then studied the language policies of both countries. Finally I investigated the way each country implemented these policies. I discovered that the policies and practices of neither nation align with the research literature on inclusion of mother tongue in second language learning and teaching.

Mentor(s): Laura Vander Broek

KIRKHOF CENTER 2250C

Writing and Design for the Modern Craft Brewing Market

Presenter(s): Conor Bardallis

The centuries-old art of craft brewing is driven by a passion for unique, flavorful beers free of adjunct ingredients and full of attitude. Though the U.S. is dotted with hundreds of craft breweries that produce thousands of beers, only 2 to 3 percent of all American beer produced annually is worthy of the craft brew distinction. I created the hypothetical Crossroads Brewing Co. to demonstrate to GVSU's Honors College that skills gained in my professional writing coursework have prepared me to meet this marketing challenge in a bold way. Using a predetermined rhetorical situation, as though I were hired as writer and designer for a real brewery, I created colorful bottle labels, eye-catching storefront posters, and a user-friendly Web site to market Crossroads' line of four distinctive ales.

Mentor(s): Charlie Lowe

KIRKHOF CENTER 2250D

Religious Illiteracy in the United States

Presenter(s): Whitney Belprez

The United States is increasingly becoming a global crossroads of religious traditions that impact the culture, politics, and education of its citizens. But even though the U.S. is one of the most religious nations in the world, its citizens are shockingly illiterate about the world's religions. As religious scholar Stephen Prothero states, this creates "a major civic problem" in America. My intention in this paper is to explore the growing problem of religious illiteracy and to argue that religion should be taught in public high schools and universities. I also explain the foundational interdisciplinary approach used in Religious Studies, and why this is the best way to teach religion to secular students. I write from my personal experience teaching a World Religions course in an alternative high school program, but I also draw upon recent scholarly research as well as current issues and discussions regarding religion.

Mentor(s): Kevin den Dulk

ORAL PRESENTATION ABSTRACTS

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KIRKHOF CENTER 2259

Customer Database Marketing: Advancements in Marketing Techniques

Presenter(s): Rachelle Timmer

We're rapidly entering a world where everything can be monitored and measured. This advancement in data collection has many marketing implications for Meijer's Customer Database Marketing (CDM) team. The objective of the Meijer CDM team, in collaboration with the Meijer marketing team, is to explore newly available customer data and spending trends to engineer marketing campaigns tailored to individual shoppers. As an intern and member of the CDM analyst team, I helped develop personalized marketing campaigns. I will discuss the process utilized for building and implementing these campaigns, outline key projects I contributed to, and explore the influence the campaigns have on Meijer customers and Meijer sales.

Mentor(s): Phyllis Curtiss

KIRKHOF CENTER 2263

Resurrection Machines: An Analysis of Burial Sites in Ancient Egypt's Valley of the Kings as Catalysts for Spiritual Rebirth

Presenter(s): Jarrett Zeman

In Ancient Egyptian tombs, processes associated with sympathetic magic acted as a direct catalyst for resurrection. Sympathetic magic, defined as an action, object or depiction whose effect resembles its cause, is reflected in royal tombs constructed during Egypt's New Kingdom (1550-1069 BCE) in the Valley of the Kings. However, sympathetic magic has been rarely applied to Ancient Egyptian topics in an explicit fashion. As a result, the tombs of Amenhotep III (KV22), Seti I (KV17) and Ramesses IX (KV6) are analyzed as case studies of this phenomenon. Change and continuity evident in each tomb's architectural structure, decoration and physical burial are linked to change and continuity in Egyptian religious beliefs in the New Kingdom. Further, the case studies show how the Egyptians designed their burial practices to gain control over their immortality. Such case studies allow for narrowly focused research in a discipline which often emphasizes a broad overview of the Valley.

Mentor(s): Gwyn Madden

ORAL PRESENTATION ABSTRACTS

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KIRKHOF CENTER 2270

Czech Out Study Abroad and The Gilman Scholarship

Presenter(s): Katie Booms

Study abroad can seem intimidating, but it is an amazing chance to take part in another culture. Come learn from the presenter's experiences exploring the Czech Republic last fall semester. She will read a few pieces of creative writing inspired by Prague, then share her advice and answer any questions. Key topics include options, planning specifics, the Benjamin A. Gilman Scholarship and other funding ideas, and what to expect abroad. If you are curious about study abroad but can't attend, please contact the presenter or visit the Padnos International Center in Lake Ontario Hall.

Mentor(s): Mark Schaub

3:20 PM

KIRKHOF CENTER 2250C

"Ek er ekki bastardr nema auk-nefini": Manipulation of William the Conqueror's Bastardy in Játvarðar Saga

Presenter(s): Benjamin Knight

Arguably, in the *Gesta Normannorum Ducum* there seems to be little more to William's mother, Helvia. She existed, merely giving birth to William out of wedlock. With this background, William's story is that of the bastard-child, eschewing the details of his birth to rise to power. There is another literary tradition surrounding William's parentage, though. *Játvarðar Saga* quite plainly says that his mother was called Gunnhild, and the tension between the two textual accounts is exacerbated when *Játvarðar Saga* uses this maternal lineage to state that William "was called a bastard, even though he was legitimately born son." While there is no reason to take the claims in *Játvarðar Saga* as true, it follows that what the *Gesta* takes as fact the *Saga* seeks to correct. This need to correct the history surrounding William shows a great deal of anxiety about William's character and overall status; moreover, all of these corrections are also attempts at legitimizing William as a proper ruler.

Mentor(s): Rachel Anderson

ORAL PRESENTATION ABSTRACTS

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KIRKHOF CENTER 2250D

Assessing the Utility of Genetic Data as a Monitoring Tool: A Case Study of Eastern Red Bats (Chiroptera: Vespertilionidae: *Lasiurus borealis*)

Presenter(s): Anne McNeely

Increased bat mortality has been documented at wind energy facilities; particularly hard-hit among bats are the tree-roosting migratory species. Traditional demographic methods have proven ineffective for monitoring these species, so it is hard to tell what effect these deaths are having on population numbers. We used coalescent simulations to determine the utility of genetic data as a monitoring tool for short-term population declines. Simulations were run using mitochondrial DNA sequence data from *Lasiurus borealis*. DNA sequence data and microsatellite genotypes were simulated using ms, and summary statistics were used to assess decline in genetic diversity. We found that direct measures of diversity are much more informative for detecting population declines than neutrality tests, but genetic information was only useful over a timescale of hundreds of generations. Genetic information does not seem to be a useful metric for monitoring population declines due to wind turbines.

Mentor(s): Amy Russell

KIRKHOF CENTER 2259

Application of Reminiscence Therapy in the Analysis of Gilligan's Psychological Development of Women's Moral Decision Making Theory: A Case Study

Presenter(s): Lindsey Gugel

This research was conducted with the intent of exploring Carol Gilligan's moral development theory through one woman's life story. Reminiscence therapy was used because it has benefits for older adults and is a way of learning life stories. Gilligan's moral development theory is based upon her research on women and their difference in moral decision making when compared to men. A qualitative case study was used to explore the topic through three 1½ hour interviews between the participant and researcher. Using qualitative analysis, the researcher was able to find evidence of each of Gilligan's stages of moral development with less importance placed upon religion when compared to the participant. The participant benefited from this research by sharing her life story through the practice of reminiscence. Nurses can also benefit when they understand the importance of determining the reasoning behind a client's decision-making and of learning each patient's life story.

Mentor(s): Cindy Beel-Bates

KIRKHOF CENTER 2263

Mapping Manhole Utilities: GVSU Allendale Campus

Presenter(s): Diane Miller, Kaitlyn Lemon

Manholes are holes in the ground used to access the sewers or other underground vaults and installations. The purpose of this study was to describe a process we used to identify, map and classify existing and new manhole components at Grand Valley State University Allendale campus. The ability to effectively manage large infrastructure network facilities depends heavily on tools designed to support regular service and maintenance. There are more than 700 manholes located across the Allendale campus. GIS technology was used to extract and organize thematic manhole data from digital Computer Design Drawings (CADs) to improve facilities management.

Mentor(s): Edwin Joseph

FILMS AND PERFORMANCES

NOTES 12:00 P.M. —3:40 P.M.

FILMS AND PERFORMANCES

12:00 PM–3:40 PM

12:00 PM

KIRKHOF CENTER 0051

Art Education Students Service-Based Practice Through Community Collaboration in an Art Museum Setting

Presenter(s): Lindsay Rose, Timothy Holstad, Kevin Becker, Mitch Moore

In 2009-2010, GVSU Art Education students offered two service-based workshops through Frederick Meijer Gardens, collaborating with exhibiting shows by Lynn Chadwick and Michele Oka Doner. Museum visitors were welcomed to participate in a series of projects that incorporated the artists' practices into their own. Because of the non-traditional museum setting where visitors could participate up to 2 hours, art education students learned to apply practice for emerging curricular issues, in addition to the original lesson planning. Art education students reflected on classroom set-up based on station popularity and further emphasis of the exhibiting artists' work. Combining documentation medias, art education students gained insight on initiating, collaborating, planning and executing a teaching practice in a museum. Participating in Student Scholarship Day, we would like to advocate for community-based art education and working with intergenerational population and ability levels.

Sponsor(s): Katalin Zaszlavik

2:00 PM

KIRKHOF CENTER 0051

Embracing Indigenous Cosmovision; Understanding Indigenous Land Rights Crisis

Presenter(s): Paris Conwell

In December, 2009, I traveled to the San Martin region of Peru where I studied under a program entitled "Ecology, Community and Indigenous Spirituality in the High Amazon" offered by Living Routes, a study abroad in Eco-villages program. During the program we studied Indigenous spirituality, namely cosmovision and shamanism. We participated in two rituals with a local shaman as well as several other, smaller and less elaborate rituals with the local people. We also studied the land rights crisis facing the indigenous communities in Peru. The Peruvian government has been unlawfully selling indigenous territories to multinational corporations as a result of the free trade agreement signed between the Peruvian government and the United States under the Bush Administration. Understanding indigenous spirituality and their highly localized sense of cosmovision is critical to understanding the breadth and depth of the land rights crisis, and particularly what it means to native Peruvians. In this presentation, I will have participants engage in a simple ritual to help facilitate an understanding of cosmovision. The ritual was put together with two other classmates as a final project in Peru, and incorporates elements of ritual and cosmovision that we learned about during the program. After the ritual, I will present a power point that relates some basic information about the land rights crisis that draws upon the historical, cultural, political, and social contexts of the crisis. Understanding and embracing the experience of the indigenous Peruvians is critical to examining ourselves and the role U.S citizens play in the lives of others. This presentation is designed to, in the spirit of Liberal Education, broaden and deepen our understandings of ourselves and others, as well as global systems of trade and politics, through cross cultural study and experience.

Sponsor(s): Stephen Rowe

FILMS AND PERFORMANCES

12:00 PM–3:40 PM

3:40 PM

KIRKHOF CENTER 2204

Tracing the Stylistic Elements of Jazz: From Bossa Nova to Fusion

Presenter(s): David James

The study of music is comparable to learning a language and synthesizing cohesive, functional sentences for conversation. This methodology consists of interplay between learning class material, applying it, developing a voice on your instrument, performing in public settings, listening, practicing, and the refinement of all of the aforementioned skills. In this concert, I and my fellow musicians will present our versions of several songs, including Chega De Saudade by Antonio Carlos Jobim, Solitude and In a Sentimental Mood by Duke Ellington, Autumn Leaves by Joseph Kosma, and Proto Cosmos by Alban Pasqua, to reflect our continuing work to master various jazz-related styles, the improvisatory process, and the nuances of good ensemble playing.

Sponsor(s): Lisa Feurzeig

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Anthony, Kelly

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Appold, Sarah

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Armstrong, Kyle

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Benton, Charles

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McNaughton, Krystal
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10:00 a.m. - Kirkhof Center KC27

Mott, Ryan
9:00 a.m. - Kirkhof Center KC 83

Mulbrecht, Andrew
9:00 a.m. - Henry Hall Atrium 51

Mulling, Adam
2:00 p.m. - Henry Hall Atrium 30

[N]

Nadvar, Negin
3:00 p.m. - Henry Hall Atrium 33

Necci, Ashley
9:00 a.m. - Kirkhof Center KC24

Nelson, Ryan
11:00 a.m. - Kirkhof Center KC39

Nettle, Bradley
1:00 p.m. - Henry Hall Atrium 4

Nguyen, Luan
9:00 a.m. - Henry Hall Atrium 2
1:00 p.m. - Henry Hall Atrium 53

Niedzwiecki, Mindy
9:00 a.m. - Kirkhof Center KC24

Nisenbaum, Jennifer
11:00 a.m. - Kirkhof Center KC56

Nixon, Rebecca
10:20 a.m. - Kirkhof Center 2270

[O]

O'Hearn, Kurt
11:40 a.m. - Kirkhof Center 2250C
12:00 p.m. - Kirkhof Center KC33

Offringa, Christie
9:00 a.m. - Henry Hall Atrium 45

Olney, Tyler
12:40 p.m. - Kirkhof Center 1142

Ondersma, Seth
1:00 p.m. - Henry Hall Atrium 4

Ortega, Caleb
12:00 p.m. - Henry Hall Atrium 34

Ostach, Michael
2:00 p.m. - Kirkhof Center KC9

Ostby, Kristine
11:00 a.m. - Henry Hall Atrium 50

Otman, Haley
11:00 a.m. - Henry Hall Atrium 54

[P]

Padron, Joshue
3:00 p.m. - Henry Hall Atrium 27

Palasek, Kim
2:40 p.m. - Kirkhof Center 2270

Papranec, Mike
10:00 a.m. - Henry Hall Atrium 63

Pashnick, Jeffrey
1:00 p.m. - Henry Hall Atrium 98

Patten, Greg
9:00 a.m. - Henry Hall Atrium 45

Patterson, Tyler
10:00 a.m. Kirkhof Center 1104

Penfold, Kali
3:00 p.m. - Kirkhof Center KC1

Perry, Alex
9:00 a.m. - Henry Hall Atrium 46

Perry, Kayleen
2:00 p.m. - Kirkhof Center 2259

Peters, Meghan
10:00 a.m. - Kirkhof Center KC 78

Peterson, Steve
1:40 p.m. - Kirkhof Center 2201

Pickett, Joshua
12:00 p.m. - Henry Hall Atrium 56

Plaskey, Margaret
10:20 a.m. - Kirkhof Center 2266

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Pohler, Callan

3:00 p.m. - Kirkhof Center KC52

Potvin, Jonathan

11:00 a.m. - Kirkhof Center KC 77

Powell, Raymond

12:00 p.m. - Henry Hall Atrium 69

Powers, Nikki

11:40 a.m. - Kirkhof Center 2266

Prince, Eric

10:20 a.m. - Kirkhof Center 2263

2:20 p.m. - Kirkhof Center 2201

Proctor, Kevin

11:00 a.m. - Kirkhof Center KC 77

[Q]

Qureshi, Alvina

9:00 a.m. - Kirkhof Center KC29

Qureshi, Muhammad

10:00 a.m. - Kirkhof Center KC 75

[R]

Radziwaniuk, Jerry

10:00 a.m. - Kirkhof Center 2250C

Ramer, Lauren

11:00 a.m. - Kirkhof Center KC28

Rango, Juan

12:00 p.m. - Kirkhof Center KC46

Ratkowiak, Kaitlyn

10:40 a.m. - Kirkhof Center 2263

Reinhardt, Andrew

1:40 p.m. - Kirkhof Center 2259

Rich, Kiely

9:00 a.m. - Henry Hall Atrium 73

Richardson, Andrew

9:00 a.m. - Kirkhof Center 2201

Richardson, Tyler

12:00 p.m. - Henry Hall Atrium 44

12:00 p.m. - Henry Hall Atrium 65

Richardson, Vernon

11:00 a.m. - Kirkhof Center 2259

Ringerwole, Neal

1:00 p.m. - Henry Hall Atrium 9

Roach, Patrick

2:00 p.m. - Kirkhof Center KC6

Robles, Leandro

1:40 p.m. - Kirkhof Center 2201

Rodriguez, Amanda

11:00 a.m. - Kirkhof Center 2270

Roeser, Julia

10:20 a.m. - Kirkhof Center 2266

Rogers, Thomas

2:00 p.m. - Henry Hall Atrium 23

Rollins, Anthony

12:00 p.m. - Kirkhof Center KC 76

Romeyn, Matthew

9:00 a.m. - Henry Hall Atrium 38

10:00 a.m. - Henry Hall Atrium

Rose, Lindsay

12:00 p.m. - Kirkhof Center 0051

Ruble, James

12:00 p.m. - Henry Hall Atrium 28

Russo, Mary

3:00 p.m. - Kirkhof Center KC13

Ruth, Ashley

11:00 a.m. - Kirkhof Center 2201

[S]

Sabin, Christine

9:00 a.m. - Kirkhof Center 2270

Saldana, Michael

2:00 p.m. - Kirkhof Center 2263

Sarah, Sarala

11:00 a.m. - Kirkhof Center KC17

Schaefer, Lillian

2:00 p.m. - Kirkhof Center KC21

Scheer, Ingrid

10:20 a.m. - Kirkhof Center 2270

Schillaci-Schofield, Michael

3:00 p.m. - Henry Hall Atrium 20

Schipper, Stacia

1:00 p.m. - Kirkhof Center KC5

Schneider, Amberjane

2:00 p.m. - Henry Hall Atrium 76

3:00 p.m. - Kirkhof Center KC13

Schnotala, Tony

10:00 a.m. - Henry Hall Atrium 80

Schrader, Stephanie

10:00 a.m. - Kirkhof Center KC 69

Schultz, Jessica

2:40 p.m. - Kirkhof Center 2266

Schwarz, Christa

2:20 p.m. - Kirkhof Center 2266

Seaberg, Samantha

3:00 p.m. - Kirkhof Center KC18

Sears, Jessica

1:00 p.m. - Kirkhof Center 2201

Seelbach, Rebecca

10:20 a.m. - Kirkhof Center 2250C

Seitz, Lucas

10:40 a.m. - Kirkhof Center 2270

Sepulveda, Sandra

9:00 a.m. - Kirkhof Center KC24

Shaffer, Brittany

9:00 a.m. - Kirkhof Center 2259

Shamilov, Timothy

11:00 a.m. - Kirkhof Center KC26

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SORTED BY LAST NAME

Sharma, Charu
10:00 a.m. - Kirkhof Center KC 70

Sheffer, Bethany
9:00 a.m. - Kirkhof Center KC50

Sheremet, Kirra
12:20 p.m. - Kirkhof Center 2201

Shoemaker, Philip
12:00 p.m. - Henry Hall Atrium 6

Siemer, Kyle
3:00 p.m. - Kirkhof Center KC16
2:00 p.m. - Kirkhof Center KC36

Sinclair, Jerod
9:00 a.m. - Henry Hall Atrium 77

Singapati, Ravi
10:00 a.m. - Kirkhof Center KC 75

Sisson, Andrew
10:20 a.m. - Kirkhof Center 1104

Skowronek, Susanna
10:20 a.m. - Kirkhof Center 2270

Slider, Robert
9:00 a.m. - Henry Hall Atrium 93

Smith, Brandt
10:00 a.m. - Henry Hall Atrium 58

Smith, Laura
2:00 p.m. - Kirkhof Center KC22

Smith, Melanie
2:00 p.m. - Kirkhof Center KC21

Socks, Kendra
9:00 a.m. - Kirkhof Center KC 79

Spiegoski, Christine
10:00 a.m. - Henry Hall Atrium 8

Sporte, Jess
1:40 p.m. - Kirkhof Center 2266

Spring, Katherine
9:00 a.m. - Henry Hall Atrium 77

St. Louis, Donna
9:40 a.m. - Kirkhof Center 2201

Staley, Allison
11:40 a.m. - Kirkhof Center 2250D

Stambaugh, Tammy
11:00 a.m. - Henry Hall Atrium 55

Stank, Cassey
1:00 p.m. - Kirkhof Center 2270

Starr, Andy
9:00 a.m. - Henry Hall Atrium 73

Stauber, Josh
10:00 a.m. - Henry Hall Atrium 63

Stawasz, Meaghann
9:00 a.m. - Kirkhof Center KC51

Steinbach, Tracy
11:00 a.m. - Henry Hall Atrium 13

Stepanovich, Denise
9:00 a.m. - Henry Hall Atrium 77

Stepnitz, Allison
10:00 a.m. - Henry Hall Atrium 10

Stone, Stacy
1:00 p.m. - Henry Hall Atrium 4

Strong, Nathaniel
11:00 a.m. - Henry Hall Atrium 94

Stuckey, Amanda
9:00 a.m. - Kirkhof Center KC51

Sutherland, Natalie
9:20 a.m. - Kirkhof Center 1104

Sutton, Joshua
9:00 a.m. - Henry Hall Atrium 11

Svihra, Laura
2:40 p.m. - Kirkhof Center 2270

Swiderski, Katie
9:00 a.m. - Kirkhof Center KC51

[T]

Taff, Brian
10:00 a.m. - Kirkhof Center KC59

Takacs, Rebecca
10:00 a.m. - Henry Hall Atrium 37

Tanner, Shawna
3:00 p.m. - Kirkhof Center KC35

Taylor, Amanda
10:00 a.m. - Henry Hall Atrium 80

Taylor, Andrew
10:00 a.m. - Henry Hall Atrium 100
3:00 p.m. - Kirkhof Center KC35

Taylor, Clifford
1:20 p.m. - Kirkhof Center 2201

Taylor, Danielle
1:40 p.m. - Kirkhof Center 2266

TenBrink, Gerald
9:00 a.m. - Henry Hall Atrium 77

Thome, Ben
10:00 a.m. - Henry Hall Atrium 83

Thull, Ben
10:00 a.m. - Kirkhof Center KC27

Timmer, Rachelle
3:00 p.m. - Kirkhof Center 2259

Trombka, Autumn
2:00 p.m. - Henry Hall Atrium 59

Trompen, Brad
11:20 a.m. - Kirkhof Center 2201

Tucker, Michelle
10:00 a.m. - Kirkhof Center KC32

[U]

Ulstad, Carolyn
9:00 a.m. - Kirkhof Center KC 68

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SORTED BY LAST NAME

Upchurch, Lindsey
1:40 p.m. - Kirkhof Center 2259

[V]

Vallier, Beth
9:00 a.m. - Henry Hall Atrium 73

Van De Car, William
10:00 a.m. - Kirkhof Center KC10

Van Houten, Heidi
10:00 a.m. - Henry Hall Atrium 8

Van Oostenbrugge, Brad
10:00 a.m. - Kirkhof Center KC 78

Vander Boon, Calvin
3:00 p.m. - Kirkhof Center KC38

Vander Wal, Laura
10:00 a.m. - Henry Hall Atrium 8

VanderBroek, Anne
2:00 p.m. - Kirkhof Center 2266

Veltman, Kelley
9:00 a.m. - Henry Hall Atrium 77

Venlet, Kristina
10:20 a.m. - Kirkhof Center 2201

Verellen, Michele
3:00 p.m. - Kirkhof Center KC43

Villhauer, Alexander
12:00 p.m. - Henry Hall Atrium 69
2:00 p.m. - Henry Hall Atrium 7

Vogel, Brent
9:00 a.m. - Henry Hall Atrium 51
11:00 a.m. - Kirkhof Center 2266

Vranish, Tea
3:00 p.m. - Kirkhof Center KC 81

Vyverberg, Jill
9:00 a.m. - Henry Hall Atrium 102

[W]

Walker, Rachel
8:00 a.m. - Henry Hall Atrium 101

Wall, Ashley
2:00 p.m. - Kirkhof Center 2259

Walters, Kent
1:00 p.m. - Henry Hall Atrium 9
2:00 p.m. - Henry Hall Atrium 86

Warren, Marilyn
9:00 a.m. - Kirkhof Center KC15

Weeks, Tammy
11:20 a.m. - Kirkhof Center 2266

Weir, Kate
10:00 a.m. - Kirkhof Center KC10

West, Emily
2:00 p.m. - Kirkhof Center 2259

Westhuis, Austin
3:00 p.m. - Kirkhof Center KC48

Wheaton, Kristyn
1:00 p.m. - Henry Hall Atrium 4

White, Emily
12:00 p.m. - Kirkhof Center KC49

White, Olivia
9:00 a.m. - Henry Hall Atrium 45

Whiteford, Nikki
2:00 p.m. - Henry Hall Atrium 97

Wickens, Rebecca
2:40 p.m. - Kirkhof Center 2270

Wicker, Michael
12:00 p.m. - Henry Hall Atrium 96
3:00 p.m. - Kirkhof Center KC13

Wilkinson, Lisa
9:00 a.m. - Henry Hall Atrium 66

Willcutt, Dani
1:40 p.m. - Kirkhof Center 2250C

Willis, Amanda
12:00 p.m. - Kirkhof Center KC42

Wiseman, Ashley
11:20 a.m. - Kirkhof Center 2250D

Wittbrodt, Matthew
12:00 p.m. - Kirkhof Center KC66

Woityra, Nichole
9:00 a.m. - Kirkhof Center KC15

Wolbert, Christopher
12:00 p.m. - Kirkhof Center KC49

Wolf, Erik
9:00 a.m. - Henry Hall Atrium 45

Wolf, Jamie
3:00 p.m. - Henry Hall Atrium 16

Wood, Karlene
10:00 a.m. - Henry Hall Atrium 8

Wood, Sarah
9:00 a.m. - Kirkhof Center KC24

Woodhull, Josh
3:00 p.m. - Kirkhof Center KC31

Worm, Anna
3:00 p.m. - Kirkhof Center KC7

Wyatt, Kirk
10:00 a.m. - Kirkhof Center KC60

Wycech, Jody
11:00 a.m. - Henry Hall Atrium 90

Wylie, Anna
1:00 p.m. - Henry Hall Atrium 98

Wyn, Bradley
9:00 a.m. - Henry Hall Atrium 81

[Y]

Young, Anna
12:00 p.m. - Henry Hall Atrium 29

Yusten, Aaron
9:00 a.m. - Henry Hall Atrium 73

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[Z]

Zavitz, Greg

10:00 a.m. - Kirkhof Center KC 75

Zeman, Jarrett

3:00 p.m. - Kirkhof Center 2263

Zhuang, Richard

10:00 a.m. - Kirkhof Center KC 75

Zimmer, Mike

3:00 p.m. - Henry Hall Atrium 68

Zlotnicki, Sarah

10:00 a.m. - Henry Hall Atrium 8

Zuiderveen, Grady

9:00 a.m. - Kirkhof Center KC25

12:00 p.m. - Henry Hall Atrium 56

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SORTED BY LAST NAME

[A]

Alayont, Feryal
Mathematics

Ambrose, Bradley
Physics

Anderson, Rachel
English

Arcila Villa, Laura
Latin American Studies

Arnold, Elizabeth
Anthropology

Aschenbach, Todd
Biology

Austin, David
Mathematics

[B]

Bacon-Baguley, Theresa
Physician Assistant Studies

Baker-Boosamra, Melissa
Liberal Studies

Barrows, Nathan
Chemistry

Baum, Edward
Chemistry

Baxter, M. Aaron
Biomedical Sciences

Beaudoin, Christina
Movement Science

Beel-Bates, Cindy
Nursing

Bender, John
Chemistry

Benjamin, Craig
History

Bergman, Daniel
Biomedical Sciences

Biddanda, Bopi
Annis Water Resources Institute

Biros, Shannon
Chemistry

Boelkins, Matthew
Mathematics

Bolen, Brett
Physics

Booth, Andrew
Physician Assistant Studies

Borders, Dale
Anthropology

Brashler, Janet
Anthropology

Bulson, Timothy
Communications

Burg, Debra
Biomedical Sciences

Burg, Martin
Biomedical Sciences

Burke, Michelle
Student Life

Byars, Ann
Communications

[C]

Campbell, Rachel
Sociology

Capodilupo, John
Biomedical Sciences

Caskey, Gregory
Physics

Colgan, Patrick
Geology

Cornelius, Tara
Psychology

Corr, Judith
Anthropology

Crawley, Amy
Movement Science

Curtiss, Phyllis
Statistics

[D]

Davis, Linda
Geology

Deaner, Robert
Psychology

DeMuth, Danielle
Women and Gender Studies

Den Dulk, Kevin
Political Science

DeYoung, Mary
Sociology

Drake, Brian
Mathematics

DuBose, Charles
Physician Assistant Studies

[E]

Engelsma, Jonathan
Computer Information Systems

Evans, Timothy
Biology

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[F]

Ferguson, Roger
Computer Information Systems

Feurzeig, Lisa
Music

Fitzpatrick, Coeli
Philosophy

Frobish, Dan
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Furton, Douglas
Physics

[G]

Galen, Luke
Psychology

Gendler, Phyllis
Nursing

Gerkin, Patrick
Criminal Justice

Gipson, Karen
Physics

Gopalakrishnan, Chitra
Art & Design

Griffin, Carol
Biology

[H]

Hart, Matthew
Chemistry

Hatzel, Brian
Movement Science

Hecht, Steven
Biomedical Sciences

Henderson-King, Donna
Psychology

Henshaw, Michael
Biology

Hindeleh, Firas
Mathematics

Hodge, Jonathan
Mathematics

Hollister, Robert
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Hong, Soon
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[I]

Ihrman, Dr. D.
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[J]

Jones-Rikkers, Catherine
Management

Joseph, Edwin
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[K]

Karpen, Mary
Chemistry

Keenlance, Paul
Biology

Kelleher, Frances
History

Kensinger, Kari
Therapeutic Recreation

Kimball, Robert
Charter Schools

Kipp, Brian
Biomedical Sciences

Kopperl, Sheldon
Biomedical Sciences

Kovacs, Dalila
Chemistry

Kravitz, Norman
Honors College

Krikke, Jim
Chemistry

[L]

Lantz, Andrew
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Lawrence, Christopher
Chemistry

Lee, Hoon
Art & Design

Leiras-Laubach, Claudia
Nursing

Leonard, Dave
Chemistry

Letzmann, Peter
Public, Nonprofit &
Health Administration

Levenburg, Nancy
Management

Lewis, Colleen
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Linn, David
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Lioubimtseva, Elena
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Llerandi-Román, Pablo
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Lombardo, Michael
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Lowe, Charlie
Writing

Lown, Deborah
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[M]

MacDonald, Neil
Biology

Madden, Gwyn
Anthropology

Mattox, Steve
Geology

McBane, George
Chemistry

Mekik, Figen
Geology

Mlynarczyk, Sue
Nursing

Moon, Seong
Public, Nonprofit &
Health Administration

Moret, Zulema
Modern Languages & Literatures

Morgan, Rod
Biology

Morison, Melissa
Classics

Morris, Bradley
Psychology

[N]

Ngassa, Felix
Chemistry

Nichols-Whitehead, Penney
Psychology

Nikitin, Alexey
Biology

[O]

Ostrow, Bruce
Biology

Owen-DeSchryver, Jamie
Psychology

[P]

Penn, Jim
Geography

Pentecost, Thomas
Chemistry

Pettes-Guikema, Janel
Modern Languages & Literatures

Powers, Rachel
Chemistry

[Q]

Qi, Min
Chemistry

[R]

Rakovic, Milun
Physics Department

Ramanath, Ramya
Public, Nonprofit &
Health Administration

RediskeAnnis, Richard
Water Resources Institute

Reed, James
Biomedical Sciences

Reynolds, Ross
Physics Department

Rhoads, Russell
Anthropology

Rhodes, Samhita
Engineering

Rice, Toni
Chemistry

Rogness, Neal
Statistics

Rowe, Stephen
Philosophy Department

Rueth, Heather
Biology

Ruetz, Carl
Annis Water Resources Institute

Russell, Amy
Biology

Rydel, Christine
Russian Studies

[S]

Sass, Georgette
Biology

Schaertel, Stephanie
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Schaub, Mark
Padnos International Center

Schendel, Ellen
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Scott, Jim
Movement Science

Scott, Linda
Nursing

Shontz, Nancy
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Shoultz, Gerald
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Smart, Robert
Chemistry

Smith, Christine
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Smither, James
History

Snyder, Eric
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Soljani, Ivo
English

Sridhar, Suganthi
Biomedical Sciences

Stark, David
History

Sun, Wanxiao
Geography

Swanson, Karel
Advising Resources & Special Prog.

Swift, Maris Stella
Management

Sylvester, Francis
Biomedical Sciences

[T]

Taylor, Merritt
Biomedical Sciences

Tefera, Akalu
Mathematics

Thorpe, Patrick
Biology

Trefftz, Christian
Computer Information Systems

[V]

Vallery, Richard
Physics Department

Van Doren, Elaine
Nursing

Vander Broek, Laura
English

Veiga, Alberto
Modern Languages and Literatures

Videtich, Patricia
Geology

[W]

Wallar, Brad
Chemistry

Wampler, Peter
Geology

Washburn, Joy
Nursing

Weber, John
Geology

Wiese, Danielle
Communications

Williams, Todd
Psychology

Winchester, Randy
Chemistry

Winegar, Roy
Communications

Witucki, Laurie
Chemistry

Wolfe, Michael
Psychology

Wolffe, Greg
Computer Science

Wu, Shinian
English

[X]

Xu, Xandra
Psychology

[Y]

Yalda, Christine
Criminal Justice

Yidana, Richard
Sociology

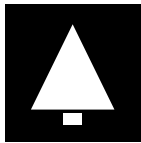
[Z]

Zaszlavik, Katalin
Art & Design

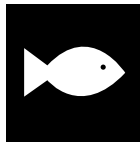
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not cut down



(12) lbs of waterborne
waste not created



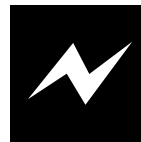
(1,698) gal. wastewater
flow saved



(188) lbs solid waste
not generated



(370) lbs net greenhouse
gasses prevented



(2,831,520 BTUs) energy
not consumed