



GRADUATE RESEARCH CONFERENCE



BUILDING BLOCKS: LAYING A FOUNDATION FOR COLLABORATION

MARCH 22, 2019



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Welcome to the 2019 Graduate Research Conference!

On behalf of the Office of Graduate Studies and Research, I welcome you to the 2019 Graduate Research Conference.

The GRC is an event that combines two primary missions of the Office of Graduate Studies and Research. The Office of Research Development and Administration supports and promotes all research activities at EMU, including the GRC. Meanwhile, the Graduate School supports academic programs that emphasize the highest forms of intellectual development in each discipline, which includes the creation of the new knowledge that you see at the GRC.

This year's GRC is EMU's 20th annual celebration and showcase of graduate student scholarly and creative activities. 166 students will deliver formal accounts of their work by way of 152 oral presentations, posters presentations, and artistic displays and performances. The activities they describe took significant investments of time and were performed over countless hours outside the traditional classroom. These students and their work are sponsored by 84 faculty members who wisely guided the students' activities and, in many cases, gave students access to their laboratories, studios, and specialized equipment.

This year Heidi Rice will be our luncheon keynote speaker. Dr. Rice is a veterinarian at Broad Ripple Animal Clinic in Indianapolis. Before beginning her practice, she participated in the 2003 GRC and graduated from EMU with a Master's degree in Biology, where she studied the ecology of bat species on the islands of Lake Michigan at Sleeping Bear Dunes National Lakeshore.

I wish to thank the students and faculty mentors for their hard work in carrying out their projects and in preparing the presentations. I thank everyone who had a role in planning, promoting, and facilitating today's activities. We thank Dr. Rice for her message. And, of course, we thank those who are attending today's event who wish to support our students and to learn and experience something new.

Wade Tornquist, Ph.D.
Interim Associate Provost, and
Associate VP for Graduate Studies & Research



Schedule of Events

8:00 AM Check In

8:30 - 9:30 AM
Three Minute
Thesis Competition*

Thesis Competition
will take place in the
Auditorium

9:00 - 10:15 AM
Oral Presentation
Session #1

9:00 - 11:00 AM

Poster Presentation
Session A

10:30 - 11:45 AM
Oral Presentation
Session #2

11:00 - 11:45 AM
Poster Presentation
Set Up/Tear Down

12:00 to 1:00 PM Lunch Reception & Keynote Speaker

1:15 - 2:30 PM
Oral Presentation
Session #3

1:15 - 2:30 PM
Arts Front

1:15 - 3:15 PM

Poster Presentation
Session B

2:45 - 4:00 PM
Oral Presentation
Session #4

3:15 - 4:00 PM
Poster Presentation
Tear Down

-Each oral presentation will run approximately 15 minutes

*Students designated with a * will also be participating in the Three Minute Thesis competition

POSTER

Presentation Schedule

Session A		9:00-11:00AM Room 310 A/B
Oksana	Balaban	Brain Imaging Findings Applied in Therapy Techniques for Post-Traumatic Stress Disorder Clients
Megan	Beisser	An Augmented Reality-Based Hand Tracking App for Upper Extremity Amputees and Patients with Neuromuscular Pathologies
Jake	Bonello	Impacts of Herbicide Management on Coastal Wetland Floristic Quality and Diversity
Morgan	Brace	Kinematic Effects of Heel-Sole Differentials
Hannah	Callison	The Impact of Animal-Assisted Therapy on the Mental Health of College Students
Carly	El-Zoghby	Biomechanical Analysis of Different Pes Planus Modification Techniques in Fabricating Foot Orthoses
Mary McKenna	Emmert	Strength Evaluation of Basalt Fiber vs. Carbon Fiber and Spectracarb Laminating Materials
Mackenzie Rahn	Gilmore Mathison	The Utility of a Virtual Reality Application in Orthotics and Prosthetics
Paul	Heeder	Comparing the Material Properties and Strength of 3D-Printed and Conventional Sockets
Alison	Hertweck	Understanding Research Methodologies in the Realm of Museum Management
Erica	Lathers	How Does Herbicide Treatment Alter Soil Fungal Communities and Decomposition?
Meghan	Ludwick	Comparison of Methods used to Disinfect the Inner Foam Liners of Plagiocephaly Helmets
Katelyn	Mackie	What Would You Do? Factors Affecting Patients' Decision-Making after NIPT Failure Results
Courtney	Marshall	Sensory-Friendly Performances: What Has Been Discovered and What Can We Do Next
Richard	May	Creating a More Dynamic and Multi-Functional Upper Extremity Prosthetic Terminal Device Designed for Strength Training
Emily Doug	Nelson Peterson	Inter- and Intra-Reliability Test of the Global Visual Gait Assessment
Chrishelle Jack	Patterson Willeman	Mobile-Based Application for Orthotic Management of the Diabetic Foot
Hannah	Redigan	Disordered Eating and Negative Body Image Among Sorority Women

Poster Presentation Schedule Cont'd

Elizabeth	Rock	Effect of Urbanization on Stress Response in Eastern Garter Snakes (<i>Thamnophis sirtalis</i>)
Kathleen	Seeley	The Problem with Floating Quantifiers: An Updated Case Study & Analysis
Elizabeth	Stover	The Effects of Emergent Pollutant Pharmaceuticals on Stream Biofilm Function Across a Land-Use Gradient
Emily	Theisen	Differences in Plantar Pressure Using Different Durometer Foam Pads in Young Adults with Pes Planus
Adam	Watson	Proposed AFO Retention and Adjustment Design
Autumn	Wright	3D Anatomically Correct Model Fabrication and the Opportunity to Enhance Healthcare Education - an IPE Collaboration
Dorothy	Zahor	Species, Age, and Foraging-Niche Variation in Blood Lead Levels in Urban and Rural Songbirds
Megan	Zarem	The Effectiveness of Trauma-Focused Cognitive-Behavioral Therapy with Abused Children

Session B

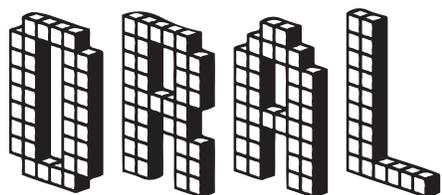
1:15 – 3:15PM Room 310 A/B

Brooke	Antenen	Benefits of Peer Mentoring for the Quality of Life of Amputee Mentors
Hamidreza	Asemani*	Hybrid Non-Isocyanate Polyurethanes: An Advancement Toward Formulation of Sustainable and Solvent-Free Industrial Coatings
Joel	Bonney	The Effects of Light and Temperature on Freshwater Microbial Biomass, Production, Composition and Interactions
Jennifer	Campos Ayala	Ambient Ionization Mass Spectrometric Approaches for Analyses of Ancient Textiles
Morgan Alyssa	Daugherty Buthman	Adverse Childhood Experiences, Current Stress and Anxiety Among Low-income, African American Parents
Nycole	Downing	Statistical Analysis of Solar Storms
Travis	Draud	Seasonal Changes in Energy Expenditure in Free-Living Red Crossbills, (<i>Loxia curvirostra</i>)
Amanda	Ducharme	Common Stressors and Successful Coping Strategies Among Working Graduate Students
Lindsey	Erdmann	Unsymmetrical Subphthalocyanine and Subnaphthalocyanine Derivatives
Joseph T.	Galbreath III	Online Graduate Application Processing System
Bailey	Hazen	Accuracy and Reliability of a Mobile Gait Analysis App
Susanna	Long	Resilience-Based Counseling with College Students: How Does it Impact Academic Persistence and Academic Success?

Poster Presentation Schedule Cont'd

Jingjing	Lu	Development of High-Performance Coatings from Bio-Renewable Based Materials
Lin	Luo	Development of Bio-Based Resins for Asphalt Sealer Application
Wei	Luo	Concept Analysis of Language Barrier Among Nursing Home Residents
Negar H. Forough Z.	Matin Shahraki	Smart Window Technology: A Novel Platform for Energy Efficiency and Users' Comforts
Katherine	McEwen	Chronic Pain and Academic Performance: Does Chronic Pain Negatively Impact Academic Performance in College Students?
Christopher	Phanord	The Moderating Effect of Impostorism on Mindset and Negative Affect in College Students
NJ Christine Alissa	Phillips Moellering Raschid	Effectiveness of Non-Pharmacological Interventions for Adolescents with Chronic Pain
Deanna	Price	Examining the Binding Kinetics of Acetylcholinesterase and Humanin with Amyloid-Beta
Ladd	Rutledge	An Examination of the Guiding Criteria Used by Midwestern Men in Selecting a Dress Shirt
Marilena Allison	Soberal Boone Green	The Effects of Success Coaching in College Students
Parth	Vagholkar	Interior Automotive Coatings: Study of Effect of Cross Link Density and Film Thickness on the Performance
Yixuan Aishwarya	Wang Gadekar	Design of Non-Isocyanate Polyurethanes for Advanced Aerospace Coating Applications
Shiyin	Yu	Thermoset Coatings Based on Bio-Renewable Materials: Synthesis and Characterization
Forough	Zarean	Radiation-Curable Sustainable Coatings for Aerospace Applications





Presentation Schedule

Session #1 9:00 – 10:15 AM

Room 300

Eric	Ferris	Fortifying the Boundaries: Understanding the Lived Realities of Those Confined in the Digital Penitentiary
Ann	Remp	Girolamo Savonarola (1452-1498): The Fashioning of a Prophet in Fifteenth Century Florence
Daniel	Bowlin Jr.	The American Phantasmagoria: The Rise of Spiritualism Within Antebellum America
Evgenia	Chrysochoou	The Authentic Self as Anticipatory Resoluteness

Room 302

Orlando	Kamaj	Steps to Identify and Avoid Fraudulent Investment Schemes
Risyaf	Fahreza	Measuring the Financial Deficit Sustainability of the Indonesian National Health Insurance
Colleen	Klus	Oversight of Project-Based Section 8 Rental Assistance in Washtenaw County
Steven	Munn	A Comprehensive Analysis on Gun Violence and School Shootings in the United States

Room 320

Maaz Ahmed	Syed	Comparison of Economic Crisis Between Detroit and Cleveland
Carl	Wauer	Intuition and Game AI
Diane	Guevara	Interior Design Students' Perceptions of Virtual Reality

Room 330

Keely	Wagner	Chronic Headaches in Children and Adolescents: Systematic Review of the Literature and Pilot Study
Alyssa Michelle	Williams	Queen Nanny Revisited: A Narrative on Race, Gender, and Resistance
Aiden	Zamzow	Is it Ever Morally Permissible to Out a Closeted Gay Person?
Dewi	Lumban Toruan	Parents of Individuals with Autism Spectrum Disorders' Perceptions of Current and Past Public Services

Oral Presentation Schedule Cont'd

Room 350

Grace	Williams	The Value and Limitations of Queer Readings for Historical Texts
Jaclyn	Hall	Masculine Haircut Versus Feminine Hairstyle: Hair as a Symbol of Coming of Age in Teen Novels
Vee	Kennedy	Self-Assessment in First Year Composition Classrooms
Janet Rachael Shelby Mae	Leppala Crain Taylor Bower	Northern Cities Vowel Style Shifting: Evidence from Jewish Women in Metro Detroit

Room 352

Teona	Thompson	Detroit: Adapting Mass Transportation to a Limited City
Mike	Lehman	Sustainable Transportation Alternatives in Metro Detroit
Aishwarya	Thatikonda	Smart City Concept for Detroit Case
Qadri	Shaheen	Impact of Highway Work Zones on Traffic Crashes: A Case Study in Michigan

Session #2 10:30 - 11:45 AM

Student Center Auditorium

Nefeesah	Symonette	Cultivating Creative Educators in the 21 st Century
Vanessa	Kestner	Millennials and Classical Music Culture
Karina	Guadiana	Stereotypes in the Media: Effects of Media Representation on Young Latina Women
Meagan	Winkelseth	Power Dynamics Within Dementia Caregiver Communication: A Comprehensive Literature Review

Room 300

Jennifer	Harper*	Potential Mechanisms for Algal Stimulation of Bacterial and Fungal Production in Periphyton
Willow	Newman	Nitrogen-Fixing Diatoms as Indicators of Historical Nitrogen Limitation in Laurentian Great Lakes Coastal Wetlands
Raymond	Kostlan	Evaluating the Impact of Hypoxia on the Frequency of mmBIR vs. BIR in (<i>Saccharomyces cerevisiae</i>)
Kelsey	Mitchell	Climate Change Effects on Body Size and Population Composition of Ambystoma Salamanders

Oral Presentation Schedule Cont'd

Room 302

Jim	Pellerin	Combating the Opioid Crisis in Middle America: How Dayton, OH Reduced Overdoses by Fifty Percent
Jordan	Dann*	The Perspectives of Speech-Language Pathologists on the Development of Self-Advocacy in High-School Learners with Autism Spectrum Disorder
Sara Lynne	Schultz	Political Activities of Manhattan Project Physicists, 1930 – 1945
Joel	Seewald	An Examination of the Old Lutheran Emigration from Prussia (1835-1854) Using GIS

Room 320

Michelle Elana	Gardiner Segev	Information Overload: A Concept Analysis
Najae	Bolden	MEG Investigation of Visual Evoked Responses in Schizophrenia
Michael	Bourgoise	Web-Based Interventions for Adolescent Opioid Use: A Research Study Proposal Utilizing Therapeutic Education System

Room 330

Alina	Korshunova	The Syntax of Genitive of Negation in Russian Under the Minimalism Theory
M. John	McAndrews	Expanding Feminist Pedagogy in TESOL by Degenderizing English
Rachael	Crain	The Problem with Floating Quantifiers: An Updated Case Study & Analysis
Melody	Wilson	Pre-Service Teachers' Emerging Views on Educational Equity

Room 350

Priyanka	Raosaheb Dhurpat	Development of a New Airfoil for Small Horizontal Axis Wind Turbine
Roopkatha	Pallye*	Development of Super Hydrophobic Finish and its Application Technology on Acrylonitrile (Vinyl Cyanide) Textile Fabric
Jad	Imseitif	Effects Analysis of Internal Buffers in Serial Manufacturing Systems for Optimal Throughput
Tong	Jing	Development of an Odor Blocking Textile for Apparel and Other Applications

Room 352

Brian	Ziamba	The Impact of Detroit's Biggest Investors on the City's Economic Growth
Timothy	Niethold	Demolition of Detroit

Oral Presentation Schedule Cont'd

Shariq Ishtiaq	Mohammed	Economic Crisis Hit Detroit and After
Nikhil Sai	Yekollu	Social and Environmental Issues for Detroit

Lunch: 12:00-1:00 p.m. Student Center Ballroom

Keynote Speaker: Dr. Heidi Rice 2003 GRC Alumni, Veterinarian at Broad Ripple Animal Clinic in Indianapolis, IN

Session #3 1:15 - 2:30 PM

Room 300

Eshan	Zarshenas*	Self-Assembled Smart Block Copolymers Used for Drug Delivery Systems
Patrick	McCombs	Insulin-Like Growth Factor Binding Protein Interact with Cell Surface Glycosaminoglycans Heparan Sulfate and Hyaluronan, Affecting Cell Survival and Proliferation
Mariah	Brito	Characterization of Acetylcholinesterase and Humanin Interactions Using Computational Methods
Robert	Muterspaugh	Regulation of Lung Cancer Cell Growth by Insulin-Like Growth Factor Binding Protein-3

Room 302

Scott	Bullock	Proxy Marriages and Sake Marriages: U.S. Law and the Japanese Marriage Cases, 1950-1956
Veronica	Konglim*	Educator Perceptions on the Use of Gardening as a Tool for Teaching and a Space for Nurturing School and Community Collaboration
Lacey	Opdycke	"Glorified Glamour Girls:" Militarization of the Women Airforce Service Pilots of World War II
Jesse	Yaeger	Arsenal of Domesticity: Women, Relationships, and Gender Roles at Home During World War II

Room 320

Josiah	Pankiewicz	C.S. Lewis & Mary Martha Sherwood: Christian Authors Constructing Children who Require Authority
Adam	Malinowski	Abjection and Communal Love in Danielle Pafunda's <i>The Dead Girls Speak in Unison</i>
Kristine	Gatchel	Instruction or Delight? Scholarly Approaches to 'Sense' in Edward Lear's and Lewis Carroll's Nonsense Poetry
Mona	Beydoun	Guidance in the Kitchen: A Rhetorical Analysis of Cooking Documents

Oral Presentation Schedule Cont'd

Room 330

Hamza Nada	Al Jundi Madkour	Reducing Anxiety and Cortisol Levels of Pediatric Chemotherapy Patients Using Virtual Reality Psychological Intervention
Tasfia	Bari	Evaluating User Readiness Towards Digital Society: Determinants of Technology Acceptance
Matthew	DeMoss	Relative Survival for Patients with Cancer
Leo	Nofs	Designing a Modified Zeeman Slower for the Paschen Back Strong Magnetic Regime

Room 350

Naveena	Pitta	Business Opportunities and Sustainable Developments in Detroit
Sai Jashwanth	Panuganti	Investments and Investors in Detroit
Mohit	Patel	Transit-Oriented Development (TOD) in Detroit City
Dicle	Arslan	Implementation of Sustainable Urban Drainage Systems in Detroit and a Comparison with Conventional Drainage Systems

Room 352

Joshua	Kaminski	The Path to Our Past: Creating Heritage Trails for Our Communities
Matt	Goldberg	The Persistence of the Outhouse
Christopher	Yelonek	One of a Kind: Dexter's Gordon Hall
Hunter	Magrum	"Modishly Swinging Manor for the Modern Man:" Rise of the Bachelor Pad, 1953-1973

Auditorium Arts Front (1:15-2:30PM)

Vee	Kennedy	Failure Story: A Lyric Essay on Cultural Mishap
Yma	Johnson	Daughters of the Machine: Coloniality and the Rise of the Female Revolutionary
Jenny	Rogers	Prototyping and Adapting a Story to Puppet Theatre: Process and Development Through an Artist Residency

Session #4 2:45 - 4:00 PM

Room 300

Joyce	Goik	A Smart Match
Morgen	Barroso	Passion: The Catalyst for the Realization (or Lack Thereof) of Justice in Society
Yang	Ge	Designing Net-Zero Energy Buildings for the Future

Oral Presentation Schedule Cont'd

Candice	Tudor	Exploring the Impact of Solitary Confinement on Life After Prison
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Room 302

Isaac Lee	Klooster	Liberia: Creation of a Failed State
Maha	Casey	African Women and UN Conferences on Women's Rights
Alex	Logan	Negritude: An Intellectual Dynamic in Francophone African Colonial Experience
Lawyer	Vaughn	Shortage in Work Flow in Construction Projects in Detroit

Room 320

Shane	Ginnard	Characterization of the Unmodified H3 and H3K9me3 Binding of the UHRF2 Tandem Tudor Domain
Justin	Feiler	Histone 4 Trimethylated Lysine 20 (H4K20me3) as a Novel Epigenetic Binding Partner for UHRF Proteins
Victoria	Hill	Polymer Education to Increase Student Awareness About the Effects of Plastic on the Environment
Mary	Engfelt	Student Engagement in a Climate Change Learning Community Across the Disciplines

Room 330

Mariam	Alkhalidi	Wellness: Designing for Children with Autism Spectrum
Patricia	Werner Tschoeke	An Assessment of Passive Design Efficiency
Na	Han	A Study on Simulation of Building Performance: The Effects of Air Distribution Systems and Building Envelope Design
Stephanie	Legg	Couplet Care Combined Neonatal Intensive Care: Analysis Advancing Hospital Experiences for Families of Newborns Through Design

Room 350

Kate	Curley	Debunking the False Dichotomy: Exploring Trans/Non-Binary Ally Development in Relation to Religious, Secular, Spiritual Engagement
LaMarcus	Howard	African American Male Success: An Analysis of Contributing Factors that Determine College Persistence Towards Degree Attainment in Relation to Geographic Location
Christine	Lancaster	Sense of Belonging and Its Influence on College Student Success Factors
Clyde	Barnett III	"So, What Do You Do?" A Qualitative Exploration of the Role of Student Government Advisors at Selected Universities in the Midwest

Room 352

Devin	Berghorst*	Fraternity and Sorority Life at the University of Michigan: An Organizational Analysis
Emily	Boerman	Impact of Organizational Structure and Design on the Relationships of International Education Offices
Julia	Heck	Examining the Scope of the Academic Ombuds Role in Higher Education in the United States
Beth	Grzelak	Promoting Meaningful Student Voice in High Schools: The Role of the Building Leader

Abstracts:

Arranged alphabetically by
presenter last name

Al Jundi, Hamza; Madour, Nada

PhD, Technology (PHD-TC)

Technology & Professional Services Management

Dr. Pamela Becker

Reducing Anxiety and Cortisol Levels of Pediatric Chemotherapy Patients Using Virtual Reality Psychological Intervention

The proposed research aims to develop effective treatment sessions for pediatric cancer patients undergoing chemotherapy using a virtual reality psychological intervention application (VRPI). The VRPI sessions are meant to prepare pediatric oncology patients undergoing chemotherapy sessions for the first time. A reduction in anxiety levels is expected to produce decreased cortisol levels, improving the chance of cancer treatment success and patient compliance. A mixed-methods-convergent design for a selective sample of participants will be used for data collection. Pediatric cancer patient and caregiver anxiety levels will be assessed using validated questionnaires. Anxiety levels will be compared to salivary cortisol levels of the patients. The results of this research are expected to provide insight into a method that may improve the quality of life of the patients and their guardians, as well as increase the rate of cancer survival.

Oral Presentation Session #3: 1:15-2:30PM Room 330

Alkhalidi, Mariam

MS, Interior Design (IDE)

Visual & Built Environments

Dr. Shinming Shyu

Wellness: Designing for Children with Autism Spectrum

Autism is a neurobiological disorder that individuals live with throughout their lifetime. Autism has increased dramatically since the term was first used in 1940s describing children showing the symptoms of autism spectrum. This increasing number has been challenged with the lack of medical care and proper educational opportunities in some parts of the world. Proper education and training are keys to improving the quality of life for individuals with autism. Trained interior designers might be able to provide inclusive and successful learning environment for children with autism in American classrooms, using some elements of design, such as acoustics, lighting, colors, and texture to make positive change in the environment that have been known to be beneficial for children with autism. The same design measures can potentially be applied to facilities for autistic children in other countries. This research will compare two schools that cater to autistic children to see the effects of using interior design on perception and behavior levels of the children. The comparison will help identify successful measures used in American schools applicable to Saudi schools.

Oral Presentation Session #4: 2:45-4:00PM Room 330

Antenen, Brooke

MS, Orthotics and Prosthetics (ORPR)

Health Promotion and Human Performance

Dr. Nate Kearns

Benefits of Peer Mentoring for the Quality of Life of Amputee Mentors

Mentoring describes a supportive, professional association that

aims to develop someone through their relationship with another, more experienced person. Peer mentoring is seen across many disciplines, sharing the same goal of fostering the mentee's personal development by sharing specific experiences and knowledge. The benefits of peer mentoring for the mentee are clear throughout many studies, but there is a lack of research into the benefits that the mentor gains from being involved in the peer mentoring program. Understanding the mentors' experiences can contribute to the success of the program and lead to strong self-efficacy for the mentors. The hypothesis is that being a peer mentor for a new amputee will improve the mentor's quality of life especially in the areas of happiness, mental health, and self-worth. Subjects from local amputee support groups who had been a mentors in a peer mentorship program for at least five years were interviewed. The interviews were analyzed for common themes, specifically, in relation to common benefits that the mentors have found in their involvement with peer mentoring.

Poster Presentation Session B: 1:15-3:15PM Room 310A/B

Arslan, Dicle

MS, Construction Management (CM)

Visual & Built Environments

Dr. Kasim Korkmaz

Implementation of Sustainable Urban Drainage Systems in Detroit and a Comparison with Conventional Drainage Systems

Stormwater management helps reduce runoff rainwater or melted snow into streets, lawns, and other sites by improving water quality. During extreme weather conditions, transport infrastructure can be directly or indirectly destructed, be a threat to human safety, and cause critical disruption and related economic and social impacts. As sustainability practices grow, communities, large or small, look to adopt sustainable solutions to develop their cities, such as sustainable drainage systems. Green Infrastructures have gained growing public interest in recent years as a result of its positive effects on water quality and quantity issues and additional recreational amenities perceived in the urban landscape. In 2013, the Michigan Department of Environmental Quality issued the Detroit Water and Sewerage Department to develop and apply a Green Stormwater Infrastructure (GSI) Plan for 17 specific outfalls along Upper Rouge Tributary. While there are examples of green infrastructure practices in Detroit, there might be constraints to its being adopted as a routine aspect of development and redevelopment. The purpose of this study to find out what difficulties have been faced with during implementation of GSI by conducting a survey among respondents.

Oral Presentation Session #3: 1:15-2:30PM Room 350

Asemani, Hamidreza

PhD, Technology (PHD-TC)

Engineering Technology

Dr. Vijay Mannari

Hybrid Non-Isocyanate Polyurethanes: An Advancement Towards Formulation of Sustainable and Solvent-Free Industrial Coatings

Polyurethane (PU) thermoset coatings are currently the undisputed op-

Abstracts Cont'd

tion for various industrial applications, such as automotive and household paints, for providing desired mechanical properties and protecting the substrate from degradation by aggressive chemicals. However, application of these coatings is associated with significant environmental challenges, including the use of highly toxic isocyanates in production as well as a high percentage of organic solvents in the paint formulation. According to the latest reports of environmental protection agency (EPA), solvents contribute approximately 30 percent to volatile organic compound (VOC) emissions. We have demonstrated efficient synthesis of multi-functional non-isocyanate polyurethanes (NIPU), which can be used as the main building block of thermosetting PU coatings, along with an appropriate curing agent. Moreover, further reaction of the NIPU polymers with acetoacetate functional compounds led to significant reduction in their viscosity which could minimize the solvent usage in the coating formulation. What makes this hybrid chemistry unique is that the resulting coatings exhibit superior performance compared to currently used systems in addition to environmental benefits and address the challenges of industrial coatings.

Poster Presentation Session B: 1:15-3:15PM Room 310A/B

Balaban, Oksana

MA, Clinical Mental Health Counseling (CMHC)
Leadership & Counseling
Dr. Perry Francis

Brain Imaging Findings Applied in Therapy Techniques for Post-Traumatic Stress Disorder Clients

The purpose of this literature review is to inform mental health professionals about how brain-imaging procedures (e.g., Functional Magnetic Resonance Imaging, Magnetic Resonance Imaging, Electroencephalography, and Single-Photon Emission Computed Tomography) can be used to track changes in various regions of the brain as various counseling techniques are used to treat post-traumatic stress disorder (PTSD). Research has shown that exposure therapy and cognitive behavioral therapy frequently used to treat PTSD impact brain chemistry. With the help of brain scans, patterns, comparisons, and activity before, during, or after a therapy session(s) can be seen. These brain scans can assist mental health professionals by informing them about alternatively efficient treatment routes for their client. This review will present what brain imaging has shown us thus far in monitoring change during the therapy process.

Poster Presentation Session A: 9:00-11:00AM Room 310A/B

Bari, Tasfia

Cert., Information Assurance Management (IAM)
Information Security & Applied Computing
Dr. Bilquis Ferdousi

Evaluating User Readiness Towards Digital Society: Determinants of Technology Acceptance

Research on acceptance of technology has received considerable attention to explain people's acceptance of technology in an increasingly digitalized society. A variety of theoretical models have been developed to explain people's intentions to adopt technology, with each garnering varying levels of theoretical and empirical support. Research in this area has resulted in several theoretical models, with roots in information technology, psychology, and sociology that routinely explain over 40% of the variance

in people's adoption of new digital technology (Venkatesh et al., 2003). The purpose of this study was to review existing research findings to investigate the effects of individual factors on people's intention to accept and continue to use digital technology. The research findings show that individual factors such as computer self-efficacy, computer anxiety, and attitude toward computers play a significant role on people's decision to accept new digital technology. The effect of cognitive instrumental processes on people's intention to accept technology was also found. These results suggest the importance of human factors in explaining new digital technology acceptance and continued use.

Oral Presentation Session #3: 1:15-2:30PM Room 330

Barnett III, Clyde

PhD, Educational Leadership
Leadership & Counseling
Dr. Ronald Williamson

"So, What Do You Do?" A Qualitative Exploration of the Role of Student Government Advisors at Selected Universities in the Midwest

There is an ongoing need to understand and conceptualize the role of the student government advisor on university campuses. While exploration of relationships between student government advisors and student leaders have been researched, there is considerably limited understanding of the relationship between advisors and their institution, and ways to create selection, training, evaluation, and support processes in a way that acknowledges the unique nature of the job. Such approaches are critical to ensuring positive performance outcomes for advisors and, by proxy, positive outcomes for students. Student government advisors play an integral role in both formal and informal student responses amidst contention, providing much-needed guidance, training, and support. However, throughout all of these contributions, the efforts of the student government advisor remain unnoticed, misunderstood, or often a mystery to members of the campus community at large. This study aims to understand the student government advisor's role on campus through a transformative leadership lens by highlighting wide understanding regarding the role and providing a framework for assessing and evaluating various roles in any organization.

Oral Presentation Session #4: 2:30-4:00PM Room 350

Barroso, Morgen Leigh

MA, Philosophy
History & Philosophy
Dr. Michael Scoville

Passion: The Catalyst for the Realization (or Lack Thereof) of Justice in Society

Thomas Hobbes' *Leviathan*, J. S. Mill's *Utilitarianism* and Plato's *Republic* are three of philosophy's most monumental works. Though they were written over a two-thousand-year span, they all share the aim of delineating a theory of justice. This paper will explore the impact that aspects of human nature, as defined in these works, can have on the materialization of justice in society. I will first establish an understanding of human nature. I will proceed by defining key components required for justice to emerge in society using textual support from Plato, Hobbes and Mill. I will then identify a challenge for the actualization of justice in human society. I argue that passion as a motivating force from human nature is the greatest threat to the realization of justice in society. Behaviors

resulting from the passion of human nature are irrationality, misconception, ignorance, or lack of self-awareness. The most expedient method of establishing control of this appetite and promoting justice would be through developing the Platonic conception of the rationally calculating element of the soul or acquisition of knowledge. Ultimately, I argue that the cultivation of rationality requires motivation from passion and, therefore, passion is not only a threat to justice but a necessity for its materialization within society.

Oral Presentation Session #4: 2:45-4:00PM Room 300

Beisser, Megan

MS, Orthotics and Prosthetics (ORPR)

Health Sciences

Assoc. Professor Frank Fedel

An Augmented Reality-Based Hand Tracking App for Upper Extremity Amputees and Patients with Neuromuscular Pathologies

The immediate use of virtual or augmented reality software after amputation surgery has exhibited great potential to mitigate issues related to negative self-image, phantom limb pain or sensation, and device adoption (Li, 2014, Anderson, 2014). The goal of this project was to create a smartphone application (app) for patient use to 1) train for myoelectric prosthesis use, and 2) aid in reducing phantom limb sensation. If shown to be effective, the software could potentially be used for neuromuscular retraining in other pathologies as well. A workflow was created for the development of a smartphone app in collaboration with a software developer. The proposed app would track the motion of a patient's unaffected limb. The current user interface was designed to include a motion prompt. This motion would be mirrored and flipped to be viewed using augmented reality at a set distance from the unaffected limb, resulting in a virtual contralateral hand appearing and performing the given task. The perceived realism of movements displayed will be assessed through a user survey after the app has been created. The survey will also include questions from the Technology Acceptance Model (TAM). This model evaluates perceived usefulness and ease of use. These factors will help to determine the viability of the augmented reality software for patient use. Progress has been made towards developing this smartphone app that will be accessible for at-home upper extremity prosthetic training. Increased accessibility to effective augmented reality training through the use of this smartphone app could increase upper extremity prosthetic device acceptance rates. The augmented reality software may also be useful in addressing phantom limb sensation, which can be explored with future research.

Poster Presentation Session A: 9:00-11:00AM Room 310A/B

Berghorst, Devin

PhD, Educational Leadership

Leadership & Counseling

Dr. Elizabeth Broughton, Dr. James Barrot

Fraternity and Sorority Life at the University of Michigan: An Organizational Analysis

Since 1776, fraternities and sororities have been part of college campuses. In recent years, however, the behaviors of fraternal organizations have called their purpose into question. An examination of the history of fraternities and sororities indicates that much of this behavior, as well as the resulting calls for change, are not new. For a long time, fraternities and

sororities have created conflicts at colleges and universities. As a result of these conflicts, institutions have created new policies and structures to mitigate and prevent future conflict. This study attempts to analyze certain conflicts related to fraternities and sororities that occurred at the University of Michigan to understand how they have shaped the institution. The analysis of these conflicts was accomplished by gathering data from the archive library at U-M and applying concepts like organizational theory, conflict and privatization/socialization, and political organizations, within the context of history. Analysis of these critical incidents indicates that conflict is cyclical and leads to alternating periods of politicization and quiescence. During periods of politicization, significant change to the structure of the institution occurred. In some instances, the change was forced, and in others was created by educational leaders responding to the turmoil. This study explains the role for student affairs professionals in managing conflict during periods of politicization, gives insight into the role of student affairs professionals as conflict managers, and contributes knowledge to student affairs practice and the literature pertaining to conflict and organizational theory.

Oral Presentation Session #4: 2:45-4:00PM Room 352

Beydoun, Mona

MA, Written Communication (WRCM)

English Language & Literature

Dr. John Dunn Jr.

Guidance in the Kitchen: A Rhetorical Analysis of Cooking Documents

This research project was a genre analysis of cooking documents through the lens of technical and professional writing. Cooking documents are not universally accepted as a form of technical writing, opening the door for a systematic analysis of different genres within the field of cooking. This analysis traces the rhetorical tendencies within eight cooking genres, noting the alignment with the practices and considerations of technical writers. As my analysis shows, the world of cooking and cooking documents is becoming multimodal, making use of words, pictures, videos, tips, comments sections, and links to relevant recipes. This is a major change from the first cooking document, a cookbook with words and pictures. The sheer amount of production that can go into producing a single recipe for a well-funded cooking website is surprising. Writers work with chefs, photographers, videographers, editors, and copy editors. The level of involvement required from the team demands the training technical writers undergo. This analysis ties cooking documentation to the field of technical writing, making the case that technical writers should put more energy into the field of cooking, researching best-practices. The implications of this project suggest that the field of technical writing is far more ingrained in the life of the average person than previously acknowledged. This perspective offers technical writers the opportunity to produce high-quality communications in more fields, making professional workspaces just one space in which they can work.

Oral Presentation Session #3: 1:15-2:30PM Room 320

Boerman, Emily

PhD, Educational Leadership

Leadership & Counseling

Dr. Ronald Williamson

Impact of Organizational Structure and Design on the Relationships of International Education Offices

Abstracts Cont'd

International education has been growing in higher education in the United States. More than 300,000 students study abroad, and more than one million students are coming from overseas to study in the United States. Limited research has been done examining how international education offices (education abroad, international enrollment management, international students and scholar services, and English as a second language) are organized within universities. While there are some anecdotal reports of successful organizational practices in higher education, there is not a widely used "best practice" for organizing international departments in colleges and universities. Two staff members from each area of international education offices will be interviewed at five midwestern universities. Each staff member will be interviewed individually through a multi case study approach to learn about the benefits and challenges of the organizational structure at the selected institutions.

Oral Presentation Session #4: 2:45-4:00PM Room 352

Bolden, Najae

MS, Psychology (General Clinical) (PSYC)

Psychology

Dr. Renee Lajiness-O'Neill

MEG Investigation of Visual Evoked Responses in Schizophrenia

Impaired auditory sensory gating has been found in schizophrenia and is suggested to be related to clinical symptoms (e.g. hallucinations, delusions, apathy). However, little is known about visual sensory gating and its effect on clinical symptoms in schizophrenia. Moreover, the use of magnetoencephalography (MEG) to assess sensory gating is limited. The present study examined differences in the M50 visual sensory response in schizophrenia as well as its relationship with symptom severity. A visual paired-flash paradigm was used to examine visually evoked MEG responses in 18 adults with schizophrenia (9 with predominant negative symptoms, 9 with positive symptoms), and 9 healthy matched controls. Participants were administered The Structured Clinical Interview for Diagnostic and Statistical Manual-Text Revisions, and The Positive and Negative Syndrome Scale. Response latency, amplitude, and gating ratio of the M50 were investigated as well as their correlation with clinical symptoms. Results indicated neither latency, amplitude, nor gating ratio differed statistically between schizophrenia and matched controls. Moreover, within schizophrenic participants, there were no statistical differences in visual sensory responses between those with greater positive compared to negative symptoms. However, between the schizophrenia subgroups, the S1 latency accounted for a large effect size difference, Cohen's $d = .96$, with those with negative symptoms displaying a longer latency. Additionally, higher negative symptoms correlated with longer S1 response latency ($p = .04$), higher S2 amplitudes ($p = .02$), and higher S2/S1 gating ratios ($p = .03$). Although statistically significant between group differences in the M50 visual sensory response were not found, there was a large effect size for S1 latency between clinical symptoms— suggesting less efficient fundamental visual sensory processing in schizophrenia. A significant relationship between visual sensory processing in individuals with schizophrenia and clinical symptoms was also noted, particularly in those with negative symptoms.

Oral Presentation Session #2: 10:30-11:45AM Room 320

Bonello, Jake

MS, Biology - General (BIOG)

Biology

Dr. Kristi Judd

Impacts of Herbicide Management on Coastal Wetland Floristic Quality and Diversity

Invasive species, like *Phragmites australis*, are a threat to plant diversity and are recognized as one of the leading causes of global change. Herbicide management is commonly used to restore native plant communities. However, it is unclear how native plant communities respond to long term management and herbicide exposure. To determine the impacts of herbicide treatment on species richness, diversity, and floristic quality, vegetation surveys were conducted in nine herbicide-treated and four untreated *Phragmites*-dominated Great Lakes coastal wetlands. Species richness, the Shannon-Weiner diversity, and the Floristic Quality Index were all significantly higher in herbicide-treated wetlands than in untreated *Phragmites*-dominated wetlands. Treating *Phragmites* with herbicide increased the floristic quality index (FQI) from 2.4 in untreated wetlands to 10.9 in herbicide-treated wetlands ($p < 0.01$), however this value is still indicative of a "low quality" plant community. The Shannon-Weiner diversity index was greater in herbicide-treated wetlands than untreated wetlands (1.76 vs. 0.31; $p < 0.0001$). FQI ($p < 0.05$) was highest for sites that received prescribed fire in addition to herbicide. Herbicide treatment also resulted in a shift from invasive grass dominance to native and nonnative forbs dominance. The results of this study highlight that it is possible to increase floristic quality and diversity of *Phragmites* dominated wetlands through herbicide management, but continued spot-treatment and management of reinvading species is required to boost FQI values.

Poster Presentation Session A: 9:00-11:00AM Room 310A/B

Bonney, Joel

MS, Ecology Evolution and Organismal Biology (EEOB)

Biology

Dr. Steven Fancoeur, Dr. Kristi Judd, Dr. Daniel Clemans

The Effects of Light and Temperature on Freshwater Microbial Biomass, Production, Composition and Interactions

Decaying plant litter in aquatic ecosystems harbors autotrophic and heterotrophic microorganisms, as algae, bacteria, and fungi often form complex litter-associated biofilms. We hypothesized that microbial groups would differ in their overall responses to temperature manipulation, which could have implications upon microbial communities via seasonal temperature shifts and as global warming continues. We used wetland mesocosms at the University of Alabama to assess the effects of light and temperature on freshwater microbial communities colonizing submerged *Typha domingensis* litter. Biomass and production of algae, bacteria, and fungi, as well as algal community composition, were measured after 78 and 127 days of growth. Initial results indicate that all groups grew best when exposed to light, suggesting positive stimulation of heterotrophs by algal photosynthesis. Algal, bacterial, and fungal communities displayed different temperature optima, suggesting that temperature may influence autotrophic/heterotrophic balance in litter-associated microbial communities. Analysis of a potential interaction between temperature and algal photosynthetic stimulation of heterotrophs is ongoing.

Poster Presentation Session B: 1:15-3:15PM Room 310A/B

Bourgoise, Michael

MSW, Social Work (M.S.W.)

Social Work

Dr. Kennedy Saldanha

Web-Based Interventions for Adolescent Opioid Use: A Research Study Proposal Utilizing Therapeutic Education System

The opioid epidemic was recently declared a public emergency.; research suggests that the opioid epidemic is also a pediatric epidemic. Many of those addicted to opioids initiate risky use in adolescence. This study proposes to investigate the use of web-based technological interventions as an adjuvant to compliment primary treatment modalities in adolescent opioid use disorders. Although web-based technology has been used for assessment and referral purposes with this age-group, few studies document its use as an intervention. Research shows promise when used with adults. However, adolescent comfort using technology to communicate and consume information may increase the likelihood of success in the delivery of treatment interventions as demonstrated by the following outcomes: abstinence, treatment retention, program attendance, risk factors associated with substance use, and client commitment to treatment goals. This quasi-experimental study proposes to follow two concurrent adolescent cohorts receiving treatment for opioid use disorder in an intensive outpatient program: the first receives treatment as usual (TAU) and the second receives a modified TAU plus intervention (the regular psycho-educational group replaced by web-based programming) for 16 weeks. Urine drug screens and validated clinical assessment tools will measure baselines and outcomes. This research proposal hopes to encourage awareness of the research gap concerning the use of technology-based interventions for opioid use disorder in adolescents, a population likely to respond positively to this medium of treatment delivery.

Oral Presentation Session #2: 10:30-11:45AM Room 320

Bowlin Jr., Daniel W.

MA, History (HST)

History & Philosophy

Dr. John McCurdy

The American Phantasmagoria: The Rise of Spiritualism Within Antebellum America

“Modern” spiritualism, or the belief that one can contact the dead through mediums, began in America in Rochester, New York, in 1848, when the Fox sisters were able to communicate with a spirit who still resided in their home. Why were Americans attracted to spiritualism and why did it gain such a massive following in the nineteenth century? Scholars, such as R. Lawrence Moore and Brett Carroll, have often placed the rise of spiritualism within the realm of political reform while focusing on public mediums and leaders of the religion to prove their arguments. However, the correspondence and writings of ordinary citizens who practiced spiritualism indicate that this was not always the case. This essay argues that to rightfully determine the cause and rise of spiritualism, more factors must be considered. By examining the Brownell family, I will demonstrate that Americans were attracted to spiritualism for more reasons than just political. Lucia Brownell’s struggles with death, mainly the death of her son, Clarence, who was in Egypt at the time, led Lucia to explore spiritualism to provide not just answers, but closure to a relationship that she thought she lost with the death of her son which orthodox Christianity could not provide. What she found, however, was that spiritualism actually provided a continuation of her relationship with

Clarence rather than closure.

Oral Presentation Session #1: 9:00-10:15AM Room 300

Brace, Morgan

MS, Orthotics and Prosthetics (ORPR)

Health Promotion and Human Performance

Dr. Sun Hae Jang

Kinematic Effects of Heel Sole Differentials

The purpose of the study is to evaluate the effects of heel heights on gait using imaging and video analysis. This studying will change the heel heights on sneakers to determine if the ankle, knee, and hip joints are affected. By influencing the joint angles of the ankle, knee, and hip the movement of the lower leg and thigh may also be affected during gait. It is hypothesized that the ankle and knee will have a greater degree of change than the hip when heel height is increased. Secondly, the degrees of change experienced at the ankle and the knee will result in no change in the movement of the lower leg and thigh as they progress through gait. Video analysis and imaging will be used to measure the kinematic effects of heel heights differentials on the ankle, knee, and hip joints. This study will create a greater understanding of how heel heights affect the ankle, knee, and hip during gait.

Poster Presentation Session A: 9:00-11:00AM Room 310A/B

Brito, Mariah

MS, Chemistry (CHM)

Chemistry

Dr. Maria Milletti

Characterization of Acetylcholinesterase and Humanin Interactions Using Computational Methods

Amyloid-beta (AB) plaques are responsible for a number of diseases in the body and are suspected as the cause of the neural atrophy associated with Alzheimer’s disease. Acetylcholinesterase (AChE), an enzyme critical for neurotransmission, has been found to be present in AB plaques in patients with Alzheimer’s disease. Humanin, a neuroprotective peptide, is also known to bind to the predominant AB isoform in the brain. Employing molecular dynamics and quantum mechanics computational methods, we have identified locations on the enzyme where humanin binds and the residues involved in these interactions. The results can inform how humanin may affect the intermolecular interactions involved in the deposition of AB on AChE.

Oral Presentation Session #3: 1:15-2:30PM Room 300

Bullock, Scott

MA, History (HST)

History & Philosophy

Dr. Mary-Elizabeth Murphy

Proxy Marriages and Sake Marriages: U.S. Law and the Japanese Marriage Cases, 1950-1956

In the late 1940s and early 1950s, the Allied occupation of Japan provided a space in which U.S. and Japanese citizens developed intimate relationships with each other. When these U.S. citizens returned to the United States, many men wanted to do so as members of families, seeking authorization under U.S. laws for their fiancées, wives, and children to immigrate to the United States. Recently passed federal legislation allowed some of them to do this; it offered a window of time during which racial bars on the immigration of Japanese spouses and children would

Abstracts Cont'd

be waived for U.S. citizen petitioners who were veterans of World War II. However, from 1950 through 1956, a series of cases became the site of disputes over the meaning of marriage, identity, and the ability of the U.S. government to regulate and police the lives of both U.S. citizens and non-citizens through U.S. laws. My presentation will discuss these disputes, explore their implications for state policing through law, and consider how such regulations served to make not only U.S. citizens but non-citizens governable by U.S. laws.

Oral Presentation Session #3 1:15-2:30PM Room 302

Callison, Hannah

MA, College Counseling (CLCL)

Leadership & Counseling

Dr. Perry Francis

The Impact of Animal-Assisted Therapy on the Mental Health of College Students

Animal-assisted therapy (AST) is becoming an increasingly common form of therapeutic intervention. AST is used with a variety of populations (e.g. older adults, children, homeless people, people suffering from substance abuse, and prisoners) for a variety of mental health issues (e.g. PTSD, anxiety, depression, etc.). One of the more common populations being targeted is young adults, specifically young adults in college. Many universities are using therapy animals, most commonly dogs, to help students with ongoing stress, anxiety, and depression. Several studies have shown how interaction with therapy animals lowers level of stress, anxiety and depression for this population. This presentation will review the existing literature about college students and the use of AST. Does AST decrease the symptoms of anxiety and depression in college students? Are there any other positive outcomes of AST on college students?

Poster Presentation Session A: 9:00-11:00AM Room 310A/B

Campos Ayala, Jennifer

MS, Chemistry (CHM)

Chemistry

Dr. Ruth Ann Armitage

Ambient Ionization Mass Spectrometric Approaches for Analyses of Ancient Textiles

Among the rarest of archaeological materials, ancient textiles can reveal significant cultural and technological information through scientific studies. Chemical analysis of textiles is often used to determine the nature of dyes and to develop an understanding of the dyeing process through identification of mordants and other additives. High performance liquid chromatography (HPLC) is the most widely used method for identifying dyes, though in some cases it requires significant amounts of sample as well as long sample preparation and analysis times. Direct mass spectrometry with a variety of ambient ionization methods makes dye identification in small samples possible in a matter of minutes rather than hours. We present here applications of direct analysis in real time (DART) and filter spray (FS) mass spectrometry for analysis of red, blue and purple natural dyes relevant to our studies of ancient Peruvian textiles. DART-MS is capable of rapidly identifying anthraquinone reds derived from *Relbunium* plant roots, while FS-MS either directly applied to yarns or with solvent extracts works best for carminic acid from cochineal insects. Indigoids are readily ionized with DART-MS, but solubility issues have precluded their analysis with FS-MS to date. Overdyed purple yarns consisting of mixtures of anthraquinones and indigoids can be rap-

idly identified with these methods as well. Cochineal can yield a variety of colors in the presence of different inorganic salts used as mordants, which increase the fastness of the dyes. FS-MS shows potential for identifying the presence of mordant elements (including Al, Fe, and Cu) in reference materials, though studies of ancient mordants are complicated by the textiles' burial history.

Poster Presentation Session B: 1:15-3:15PM Room 310A/B

Casey, Maha

MA, Social Science (SOCS)

History & Philosophy

Dr. Joseph Engwenyu

African Women and UN Conferences on Women's Rights

It is well known that African women earned and held influential positions in authority during pre-colonial times, bestowed upon them by tradition, often under matriarchal umbrellas. It is also well documented that once those powers were eroded or stripped by patriarchal colonial and post-colonial states, African women have fought and are still fighting relentlessly to end their discrimination, marginalization, and oppression. However, African women became the voice they had been longing for, to be heard and counted; this occurred when they became part of the beginning of the four United Nations Conferences on Women. The Conferences addressed many critical issues that African women have been struggling with and enduring for decades. This paper will investigate and discuss some of the critical issues that affected the women against the background of what was put forward in the United Nations Women's Conferences from 1975 to 1995 at Mexico City (1975), Copenhagen (1980), Nairobi (1985), and Beijing (1995). Special attention is devoted to inequalities against women in the formal and informal sectors of the economy, all forms of violence against women, the rapid spread of AIDS/HIV, and women's general plight for better living conditions. The paper concludes that the comprehensive rights guaranteed to African women, as embedded in the Maputo Protocol effective November 25, 2005, is the most optimistic road going forward.

Oral Presentation Session #4: 2:45-4:00PM Room 302

Chrysochoou, Evgenia

MA, Philosophy

History & Philosophy

Dr. Laura McMahan

The Authentic Self as Anticipatory Resoluteness

The structure of our experience is fundamentally ambiguous, always involving an interplay between our facticity of belonging in the world, and our transcendence of meaningfully disclosing a world. However, being absorbed in the things and concerns of our everyday lives, we often fail to recognize the inherent ambiguity that underlies our experience and linger in perpetual inauthenticity. In this paper, I draw on the philosophical works of Martin Heidegger, Maurice Merleau-Ponty, and John Russon in order to explore the role of art in one's passage from inauthenticity to authenticity—to the state of anticipatory resoluteness. As I argue, art captures the original strife of ambiguity, as a tension between the confinement to—and transgression of—its own materiality. In that manner, it holds up a mirror to us, and lets us see our own essential ambiguity unfold. This is why art has the potential to inspire a moment of vision, in which we experience the imperative to transcend the available actuality of our world, and express our iteration of possibility in it. Recognizing

ourselves as unresolved beings—towards—death, in this aesthetic moment of revelation, we authentically dwell in an infinitely swelling present: the fullest here and now. Only from this heightened sense of “nowness” does the past manifest itself as an open question—a historical “call,” and only from that conscious releasing of possibilities can an original future commence. The commitment to anticipatory resoluteness, then, greets us with a great imperative: that of remaining authentic selves, not merely alongside others, but in a fundamental political togetherness, which offers its expressions as finite testimonies to the infinitely possible.

Oral Presentation Session #1: 9:00-10:15AM Room 300

Crain, Rachael

MA, English Linguistics (LING)
English Language & Literature
Dr. Daniel Seely

The Problem with Floating Quantifiers: An Updated Case Study & Analysis

Floating quantifiers are quantifying determiners, including all and each, which adopt a specifier (i.e. a high, left) position within a noun phrase, or NP. Standard quantifiers have only one canonical position; thus, we have “Some dogs will fetch frisbees,” but it is ungrammatical to have “Dogs will some fetch frisbees.” Floating quantifiers function differently. These quantifiers can be floated to different positions (in a variety of constructions) while remaining grammatical; thus we get both “All dogs will fetch Frisbees” and “Dogs will all fetch frisbees.” In this presentation I will provide evidence for how the demands of deep syntactic structure determine where these quantifiers can float. I will examine a wide range of diverse constructions as I explore what affects this float. The concluding analysis considers such factors as VP, or verb phrase, fronting and elision to create a more comprehensive understanding of why floating quantifiers follow the observed patterns of grammaticality. We then consider the relevance of our findings for current syntactic theory.

Oral Presentation Session #2: 10:30-11:45AM Room 330

Curley, Kate

PhD, Educational Leadership
Leadership & Counseling
Dr. Carmen McCallum

Debunking the False Dichotomy: Exploring Trans/Non-Binary Ally Development in Relation to Religious, Secular, Spiritual Engagement

Discussions on religious, secular, or spiritual belief systems and trans/gender non-binary (NB) identities are often fraught with difficult conflicts between the two. This session will present original research on religious, secular, and spiritual campus climate influences one's attitudes towards trans/NB people as a precursor to allyship. Findings from a structural equation model across different RSS groups will be presented and implications for praxis within higher education and beyond will be discussed.

Oral Presentation Session #4: 2:45-4:00PM Room 350

Dann, Jordan

MA, Speech-Language Pathology (SPLP)
Special Education
Dr. Sarah Ginsberg

The Perspectives of Speech-Language Pathologists on the

Development of Self-Advocacy in High-School Learners with Autism Spectrum Disorder

This qualitative research study described how speech-language pathologists (SLPs) view the development of self-advocacy in learners with autism spectrum disorder (ASD). There is little research on self-advocacy in the community of individuals with disabilities, and even less research about learners with autism, specifically, especially within the field of speech-language pathology. Practicing SLPs who have worked with high school students with autism were interviewed. Results suggest a need to collaborate with other disciplines and entities, such as school administration, psychologists, social workers, teachers, the student with ASD, and the student's peers, when helping students on the spectrum self-advocate. It also emerged that SLPs pull influence from various aspects of professional literature, which informs their education. Lastly, various educational targets were identified by the SLPs for working with students on the spectrum.

Oral Presentation Session #2: 10:30-11:45AM Room 302

Daugherty, Morgan; Buthman, Alyssa

MS, Psychology (General Clinical) (PSYC)
Psychology
Dr. Heather Janisse

Adverse Childhood Experiences, Current Stress and Anxiety among Low-income, African American Parents

Adverse events experienced during childhood (ACEs) have been linked to a number of adverse outcomes across the lifespan, including the development of anxiety disorders. Furthermore, ACEs can have an impact on education, employment, and income, which could exacerbate negative outcomes. Individuals living in poverty are more likely to suffer from ACEs, but are also at increased risk for current stressful life events. Understanding the relative impact of childhood and current events is important for understanding mental health outcomes. Therefore, the goal of the current study was to simultaneously examine the relationship between ACEs, current stress and current anxiety in low-income, African American parents. The sample consisted of 52 low-income, African American parents of preschool age children. Parents completed the Adverse Childhood Experience questionnaire, the PROMIS Anxiety Scale, and the Perceived Stress Scale. A correlation analysis showed that total number of ACEs ($r = .30, p < .05$) and current stress ($r = .43, p < .01$) were positively associated with anxiety. Multiple regression was run to determine whether the number of ACEs or current stress was more predictive of current anxiety. Results indicated that the two predictors explained a significant amount of the variance in anxiety ($R^2 = .24, F(2, 46) = 7.44, p = .002$). Total number of ACEs ($\beta = .25, t(48) = 2.0, p = .057$) and current stress ($\beta = .40, t(48) = 3.1, p < .01$) significantly predicted current anxiety. This study suggests that childhood ACEs and current stress may contribute to the development or presence of anxiety. These results highlight the impact of past and present adversity on anxiety. Prevention and intervention effort should focus on both.

Poster Presentation Session B: 1:15-3:15PM Room 310A/B

DeMoss, Matthew

MA, Applied Statistics
Mathematics
Dr. Khairul Islam

Relative Survival for Patients with Cancer

Abstracts Cont'd

Survival among patients with cancer is of great interest to medical researchers in clinical studies due to different treatment options, stages of diagnosis, gender and other cancer characteristics. SEER data provides an opportunity of investigating survival differentials among cancer patients. In this study, we utilize SEER data for comparing relative survival of patients with common cancer characteristics. This study provides a better understanding of survival differentials of various cancer patients.

Oral Presentation Session #3: 1:15-2:30PM Room 330

Downing, Nycole

MA, Mathematics (MTH)

Mathematics & Statistics

Dr. Roxanne Katus

Statistical Analysis of Solar Storms

Solar activity transports highly energized plasma towards the Earth. This plasma can cause cancer, damage satellites, and destroy power grids. Of particular interest is the equatorial magnetospheric ion temperature in the near-Earth space. Data containing temperature information for this project was obtained from energetic neutral atom (ENA) measurements taken during solar storms of interest between 2009 and 2017. Measurements were made using Two Wide-angle Imaging Neutral-atom Spectrometers (TWINS). The aim of this study is to perform statistical analysis on the discrete data provided by R. M. Katus to verify their physical interpretations of temperature variations during storm events.

Poster Presentation Session B: 1:15-3:15PM Room 310A/B

Draud, Travis

MS, Biology - General (BIOG)

Biology

Dr. Jamie Cornelius

Seasonal Changes in Energy Expenditure in Free-Living Red Crossbills, *Loxia curvirostra*

Energy is the currency of life, where a surplus allows survival and reproduction, and a long-standing debt leads to death. Yet, monitoring energy expenditures in free-living animals has been relatively limited by available technology. Radio transmitters that have been specially modified to detect heart rate, however, allow for real-time estimation of energy expense in free-living, behaving animals. Red crossbills live at northern latitudes year-round and breed opportunistically throughout much of the year. They therefore offer a unique opportunity to examine the eco-physiology of different life cycle stages under drastically variable seasonal conditions. Here we present heart rate data of free-living, non-breeding and breeding red crossbills in the summer and winter. We discuss these variables in the context of red crossbills' unique opportunistic and nomadic annual schedules and the highly seasonal conditions of our field site in Grand Teton National Park.

Poster Presentation Session B: 1:15-3:15PM Room 310A/B

Ducharme, Amanda

MA, Clinical Mental Health Counseling (CMHC)

Leadership & Counseling

Dr. Devika Choudhuri

Common Stressors and Successful Coping Strategies Among Working Graduate Students

In the 21st century, the traditional image of a graduate student has evolved, and to meet the needs of such demographic profiles effectively,

programs and services must keep pace. What was once a full-time, admitted directly after undergraduate, young adult, is now a part-time adult learner and full-time professional student returning to school after working in the field. The average age of a graduate student at EMU is 32 years of age, and a staggering 71.5% of students are taking classes part-time (Eastern Michigan University, 2017). Nationally, 76% of graduate students are working 30-hours or more per week (Georgetown University, 2015). These statistics are important to understand so as to grasp the current profile of a typical graduate student, but also to best support and encourage students throughout their graduate student experience.

The intersection of student and professional and its concomitant stressors is one that many graduate students experience. The constant balancing act of managing both school and career often causes stress and anxiety for working students in ways that potentially interfere with academic retention, persistence, and success. This study will explore the reported stressors, challenges, coping strategies, and interventions used by graduate students today to be successful. A survey will be completed among graduate students at a Midwestern university to answer the following questions:

Is the student currently working a full- or part-time job outside of their graduate studies?

Is the student experiencing stress or anxiety related to balancing both career and academic coursework?

What is the student doing to cope with this stress and/or anxiety?

What programs, services, or interventions from the department or university have been most helpful and which issues have been challenging? Eastern Michigan University True Facts. (2017). The Georgetown University Center on Education and the Workforce. (October 28, 2015).

Poster Presentation Session B: 1:15-3:15PM Room 310A/B

El-Zoghby, Carly

MS, Orthotics and Prosthetics (ORPR)

Health Sciences

Dr. Sun Hae Jang

Biomechanical Analysis of Different Pes Planus Modification Techniques in Fabricating Foot Orthoses

Flexible pes planus is a condition where the medial longitudinal arch of the foot flattens during weight bearing and returns when body weight is removed. This causes the foot to be excessively pronated during weight bearing. Pronation and supination are important for efficient gait. According to Banwell et al., "Flexible pes planus affects between 2-23% of the U.S adult population" (Banwell et al. 2014). Foot orthoses are a common treatment for pes planus. Foot orthoses are used to alter the alignment of the feet in order to promote a more natural foot structure and decrease abnormal stresses with the aim of decreasing further deformity while increasing foot function and stability. Symptoms of flexible pes planus include lower limb fatigue, Achilles tendinopathy, osteoarthritis, patellofemoral disorders and hip pain. Usually only those with symptomatic pes planus receive orthotic treatment and the effectiveness of orthotic treatment has been disputed. Most insurance companies do not cover foot orthoses for pes planus feet. This may be due to the lack of evidence that proves their effectiveness. This study will try to provide information that will focus on the question of whether foot orthoses are an effective treatment of pes planus and which modification method for custom foot orthoses are most effective. There is a lack of studies comparing modification methods or wedging used in creating custom foot orthoses, therefore

this capstone project will be important for further research as well as the treatment of further patients with pes planus. This research study will use outcome measures to analyze the foot with the aid of different custom foot orthoses. Different degrees of hindfoot and forefoot posting will be tested to determine the optimal amount when treating flexible pes planus.

Poster Presentation Session A: 9:00-11:00AM Room 310A/B

Emmert, Mary McKenna

MS, Orthotics and Prosthetics (ORPR)

Health Sciences

Dr. Jacob Lindquist

Strength Evaluation of Basalt Fiber vs. Carbon Fiber and Spectracarb™ Laminating Materials

Composites are defined as a combination of two or more materials that results in better properties than those of the individual components used alone and are often used in the field of orthotics and prosthetics. Carbon fiber composites are most commonly used, but recently basalt fibers have been introduced as a more flexible, more eco-friendly alternative. The goal of this study is to recreate a previous study evaluating and comparing the strength of carbon fiber and Spectracarb™, but also include basalt fiber composites. Three sockets of each composite will be fabricated from a mold that represents a smaller scale prosthesis. A stamp out of each socket will be tested for its tensile strength and then compared to its cross-sectional area to derive a relative value for each stamp. The results will then be compared to one another, along with the results of the previous study to evaluate the quality of recreation. It is hypothesized that carbon fiber and basalt fiber will not be significantly different from one another, but will both be significantly stronger than Spectracarb™. The study should conclude if basalt fibers are reliable enough to be an adequate alternative to carbon fiber. More studies should be conducted to evaluate other properties that are desirable in a prosthesis to further understand options of composites for fabrication.

Poster Presentation Session A: 9:00-11:00AM Room 310A/B

Engfelt, Mary

MS, Chemistry (CHM)

Chemistry

Dr. Amy Flanagan Johnson

Student Engagement in a Climate Change Learning Community Across the Disciplines

Chemical education engages with how students interact with chemical information and scientific concepts. In the case of our research, the pop-up learning community prompts interdisciplinary discussion about climate change. We will share student responses from before and after engagement with climate change arguments, revealing how opinions and attitudes of students from different academic majors and beliefs shift after productive dialogue. The outcomes from this learning community grant some insight into the ability of students to form arguments through the benefit of interdisciplinary discussion, in addition to their use of disciplinary knowledge in the arguments they form. Climate change has become a topic of political controversy and it is essential to provide all students with the tools necessary to utilize scientific evidence and valid argumentation to support their own claims. College students should enter into their respective fields well-equipped to support their positions with sound arguments, valid evidence, and a willingness to discuss.

Oral Presentation Session #4: 2:45-4:00PM Room 320

Erdmann, Linsley

MS, Chemistry (CHM)

Chemistry

Dr. Vance Kennedy

Unsymmetrical Subphthalocyanine and Subnaphthalocyanine Derivatives

In this work, we begin the investigation of the synthesis, separation, and characterization of chloro[subphthalocyanine]boron (III) derivatives. The overall goal of the project is to separate and characterize the derivatives that have different caps oriented above the molecule. These molecules are useful for pigments, dyes, catalysts, and light-based devices due to their large absorptivities and non-linear optical behavior. This project is novel due to having identified the separation of the four ring structure derivatives that have a chlorine cap through Direct Analysis in Real Time Mass Spectrometry.

Poster Presentation Session B: 1:15-3:15PM Room 310A/B

Fahreza, Risyaf

MA, Health Economics (ECNH)

Economics

Dr. Amanda Stype

Measuring the Financial Deficit Sustainability of the Indonesian National Health Insurance

This paper will measure the deficit sustainability of the Indonesian National Health Insurance Program (the JKN program). The JKN program was implemented in 2014 to provide affordable health insurance for all Indonesian people. This program has had a financial deficit since implementation. Because of this deficit, there is a risk of default. By testing the cointegration using the Engle-Granger method, this paper examines the long-run relationship between premium revenues and claim expenditures to evaluate whether the financial deficit is sustainable in the long-run. Furthermore, cointegration regression with Fully Modified Least Square (FMOLS) is used to determine the version of sustainability, whether strong or weak form. The results show that premium revenues and claim expenditures are cointegrated in a weak form. In other words, the financial deficit will probably continue in the long run. Prolonged financial deficits will trigger a financial crisis in the JKN program. Therefore, the Government of Indonesia (GoI) must consider some policies, such as adjusting premium rates and promoting expenditures efficiency.

Oral Presentation Session #1: 9:00-10:15AM Room 302

Feiler, Justin

MS, Chemistry (CHM)

Chemistry

Dr. Brittany Albaugh

Histone 4 Trimethylated Lysine 20 (H4K20me3) as a Novel Epigenetic Binding Partner for UHRF Proteins

Epigenetics is the study of biochemical structures and mechanisms that regulate gene expression without direct changes to the DNA sequence. The mis-regulation of epigenetic proteins has been shown to lead to various human disease, the most prominent being the development of cancer. Thus, the development of drugs that target these epigenetic proteins represents novel anticancer therapeutic treatments. This study focuses on the epigenetic reader proteins UHRF1 and UHRF2.

Abstracts Cont'd

Both proteins are multidomain proteins whose function is maintaining epigenetic modifications on DNA and nuclear proteins called histones. While both UHRF proteins have been shown to bind H3K9me3 to mediate gene repression, whether UHRF1 and UHRF2 can bind other epigenetic modifications has not been characterized. The binding interactions between UHRF proteins and H3K27me3 and H4K20me3 were measured by fluorescence polarization. The data showed that while UHRF1 and UHRF2 weakly bound to H3K27me3, both proteins displayed similar K_d's towards H4K20me3 as they did with H3K9me3. This study uncovers H4K20me3 as a novel epigenetic modification bound by UHRF1 and UHRF2. Biological implications for this binding event will be discussed.

Oral Presentation Session #4: 2:45-4:00PM Room 320

Ferris, Eric

PhD, Educational Studies (EDST)

Teacher Education

Dr. Christopher Robbins

Fortifying the Boundaries: Understanding the Lived Realities of Those Confined in the Digital Penitentiary

Primarily drawing from the works of Edin and Shaefer (2016) and Eubanks (2017), this essay uses their descriptions of the realities of people living in poverty as well as the structural and technological fortifications that are used to sort and confine them to a status of second-class citizen to show that poverty is a condition that limits the possibility of democratic interactions. While people living in poverty actively exercise their voice and agency in their everyday interactions, such representations of agency often go unnoticed or are unrecognized, are criminalized, and/or are completely disregarded. Instead of being recognized as experts of their own experiences and as sources of valuable knowledge, people living in poverty are spoken for and legislated against to the point where outside of their own respective communities, their voice is virtually non-existent. However, understanding that the elimination of voice limits democratic possibility by enclosing the plurality of possible futures, we can see how silencing a subset of the population forecloses the manifestation of citizenship. Indeed, the authentic experiences of people living in poverty effectively map out structures and outcomes that should be rallied against if we wish to chart a course toward inclusive active citizenship.

Oral Presentation Session #1: 9:00-10:15AM Room 300

Galbreath III, Joseph T.

MS, Computer Science (CSC)

Computer Science

Dr. Krish Narayanan

Online Graduate Application Processing System

This project was undertaken to modernize the processing of graduate applications for Eastern Michigan University's Department of Computer Science. The current process involves significant paperwork and physical filing which is both time consuming and spatially inefficient. The goal of this project was to design and develop an online system to replace the current system. A number of technologies were used to build the system, such as, PHP, MySQL, Foundation, JavaScript, and jQuery. The website is currently hosted on a LAMP server on Amazon Web Services (AWS). The complexity of software development does not only involve the technologies incorporated. There is a human aspect to it. Meetings with the department's Graduate Coordinators to understand the current process were also required to ensure that the system not only worked, but

it was the system that they needed. A functional prototype of the system has been evaluated by them and received good feedback. In addition to improving the efficiency of application processing, this system includes features, such as, reporting, security, multi-user access, accountability and centralized data management.

Poster Presentation Session B: 1:15-3:15PM Room 310A/B

Gardiner, Michelle; Segev, Elana

MSN, Nursing - Nursing Education

Nursing

Dr. Meriam Caboral-Stevens

Information Overload: A Concept Analysis

With the advent of the internet, access and exposure to information is growing at an exponential rate within just the last five decades. Getting information off the internet has been metaphorically compared to drinking from a fire hydrant. The term information overload (IO) has commonly been used throughout various literature to describe this phenomenon. Healthcare and nursing are not shrouded from IO, but little has been put forth to describe IO specifically in this setting. The purpose of this paper is to explore the concept of IO by performing a concept analysis using Walker and Avant's eight-step approach. A literature review was conducted across 5 databases yielding 16 articles, which were used to identify the defining attributes of IO, antecedents, consequences, and empirical referents. The two defining characteristics of IO identified were difficulty in processing information, and information as a burden. Model, borderline, and illegitimate cases were developed. This concept analysis may add to the body of nursing knowledge particularly in nursing informatics. Further exploration of the concept in nursing practice is needed due to the importance of preventing IO in the healthcare setting to improve outcomes.

Oral Presentation Session #2: 10:30-11:45AM Room 320

Gatchel, Kristine

MA, Children's Literature (CHL)

English Language & Literature

Dr. Amanda Allen

Instruction or Delight? Scholarly Approaches to 'Sense' in Edward Lear's and Lewis Carroll's Nonsense Poetry

"From instruction to delight" is perhaps the most ubiquitous phrase associated with the Golden Age of Children's Literature. Notable strides away from texts steeped in instructions, morals and religious overtones towards those primarily intended to entertain became hallmark of the approximate seventy-year span from the 1850s to the early 1920s. Canonical texts from the period, such as *Alice's Adventures in Wonderland* and *Peter Pan* have yielded a rich depth of children's literature scholarship, yet study related to Golden Age nonsense poetry has been notably limited within the field. Mindful of this gap, I use case studies of four scholarly essays on Golden Age nonsense poetry as touchstones to scrutinize how the concept of "instruction to delight" is conceptualized differently by scholars working inside versus those working outside the field of Children's Literature. I suggest that not only is there an observable difference in both the focus and methodology employed by scholars inside and outside the field, but that this difference has historically aided in establishing the field of Children's Literature, and currently delimits its edges.

Oral Presentation Session #3: 1:15-2:30PM Room 320

Ge, Yang

PhD, Technology (PHD-TC)

Engineering Technology

Dr. Kasim Korkmaz; Dr. Shinming Shyu

Designing Net-Zero Energy Buildings for the Future

The proposed study aims to investigate the notion and strategies to achieve net-zero building design. Net-zero energy building (NZEB) refers to the building with zero net energy consumption, meaning that the total amount of energy consumed by the building is equal to or less than the amount generated by the building. According to Energy Information Administration (EIA), the residential and commercial buildings were accountable for 11% of the total U.S. energy consumption in 2017. With limited natural resources and increasing population on the Earth, we are faced with severe challenges, including escalating energy demands, CO₂ emissions, and more frequent and intensified natural disasters. Therefore, there is no doubt that to construct NZEB is a responsible way to help soothe and lead to solving these problems. Embracing environmental sustainability, NZEB is to completely or significantly reduce energy consumption and greenhouse gas emissions during the life of the building so as to ensure people's health and improve people's quality of life. This study will examine and analyze available sources on energy, building materials, and technologies to understand and formulate the major strategies, advantages, as well as the feasibility of NZEB in the Detroit area.

Oral Presentation Session #4: 2:45-4:00PM Room 300

Gilmore, Mackenzie; Mathison, Rahn

MS, Orthotics and Prosthetics (ORPR)

Health Promotion and Human Performance

Assoc. Professor Frank Fedel

The Utility of a Virtual Reality Application in Orthotics and Prosthetics

The theory of mastery learning aims to ensure that students learn the necessary content for a given concept before moving on to the next concept through various means of instruction and time allowances based upon an individual learner's likes and needs. The means of instruction may vary from lecture and reading styles to interactive learning activities and simulation. Eastern Michigan University's Master of Science in Orthotics and Prosthetics program applies principles of this theory to ensure that students master the necessary concepts and develop various techniques throughout the program to become valuable residents upon graduation. To further enhance the learning of complex concepts such as ground reaction forces and their impact on joint moments, virtual reality can be employed as an additional resource for students. Utilizing virtual reality, students are able to visualize, interact, compare, and make notes as they investigate video gait analysis data from individuals with a 'normal' gait pattern as well as data from individuals with known pathological gait deviations. This immersive, virtual rendering can allow students to observe the ground reaction forces associated with each gait pattern in addition to the moments and joint angles occurring at the ankle, knee and hip. This can provide a more comprehensive understanding of various concepts and treatment options related to the care of an individual who suffers from an undesirable gait deviation, ultimately leading to better patient care and outcomes.

Poster Presentation Session A: 9:00-11:00AM Room 310A/B

Ginnard, Shane

MS, Chemistry (CHM)

Chemistry

Dr. Brittany Albaugh

Characterization of the Unmodified H3 and H3K9me3 Binding of the UHRF2 Tandem Tudor Domain

Post translational modification (PTM) of histone tails and methylation of DNA regulate gene expression. UHRF1 and UHRF2 are epigenetic regulators that contain two histone reader domains, the tandem Tudor domain (TTD) and plant homeodomain (PHD). UHRF1 is typically overexpressed in cancer while UHRF2 expression is often lost in cancer. With different roles in cancer, these two proteins may have distinct mechanisms of histone binding. While the histone binding of UHRF1 has been well characterized, the UHRF2: H3 binding interaction is less studied. Here, we characterize the mechanism by which the TTD of UHRF2 interacts with unmodified H3 and H3K9me3. Knowledge of these distinct binding interactions will allow for the development of anti-cancer drugs that can selectively inhibit UHRF1 and UHRF2.

Oral Presentation Session #4: 2:45-4:00PM Room 320

Goik, Joyce

MA, History (HST)

History & Philosophy

Dr. Mary-Elizabeth Murphy

A Smart Match

Why have historians, over the decades, persisted to preserve, to celebrate the love affair of George Armstrong (Autie) Custer and his wife, Elizabeth Bacon Custer? Autie was a United States Army officer and cavalry commander in the American Civil War and the American Indian Wars, who died at the Battle of the Little Big Horn, on June 25, 1876, leaving devoted wife, Elizabeth, a widow at age 34. Through their intimate letters and her diaries, they embodied the warmth and trust of a relationship, describing how they confided in one another, inspired one another, and adored one another, expressing a dedicated and ardent love affair that lasted their entire married life. Many scholars argue that the Custers were in love and completely devoted to one another. Despite these observations, my thesis will offer a new interpretation of the Custer saga, critically interrogating what comprised their so-called "undying love." I will be taking Shirley A. Leckie's academic chronicle, along with other scholarly and historical research to a firmer conclusion by revealing key details of their courtship, wedding day, honeymoon and time spent as husband and wife which has been previously neglected. These two individuals entered into a commitment of matrimony, not because of an "undying love" or "love at first sight" for each other, but because both parties adhered to social codes of the nineteenth century to become husband and wife. Specifically, I will examine how religion, gender, and courtship practices shaped the life of Elizabeth Bacon Custer and her marriage to Autie. Various discourses, for example, the books she read influenced the ways that Elizabeth Bacon interacted with Autie Custer. In conclusion, this research conference paper will give the reader a better understanding on how romance novels influenced Elizabeth toward marrying George Armstrong Custer.

Oral Presentation Session #4: 2:45-4:00PM Room 300

Goldberg, Matt

MS, Historic Preservation (HPRS)

Geography & Geology

Dr. Nancy Bryk

Abstracts Cont'd

The Persistence of the Outhouse

The transition from outhouse to indoor toilet was an important step in the history of sanitation in America. However, this is an underrepresented part of our history due to taboo. While the upper class was the first to receive indoor toilets in bathrooms in the late nineteenth century, others remained in outhouses for decades. Using primary sources on public health, rural electrification and socioeconomic division coupled with photographic evidence, I show how the introduction of indoor toilets in America was delayed in rural areas and among the lower socioeconomic classes in urban areas due to primitive views on sanitation, the cost of installation and racist policies, requiring government intervention to make indoor toilets available to all. The indoor toilet is considered a mainstay of first-world living. However, its widespread use in America is relatively recent. Their introduction into middle class homes required new knowledge of disease, mass production and government public health initiatives spurred on by sanitary reformers. To reach all, including rural folks, the poor and minorities, required more. This effort relied upon progressive outcry for sanitation reform and against racist policies, as well as government campaigns to spread knowledge and infrastructure. Across the rural-urban divide, the lowest socioeconomic classes received indoor plumbing last. However, due to the persistence of dedicated reformers, nearly all Americans now enjoy this first-world privilege.

Oral Presentation Session #3: 1:15-2:30PM Room 352

Grzelak, Beth

PhD, Educational Leadership
Leadership & Counseling
Dr. Carmen McCallum

Promoting Meaningful Student Voice in High Schools: The Role of the Building Leader

Schools and, more specifically, high schools, are failing students. There is an increasingly large body of research that shows that high school students are disengaged, disenfranchised, and de-motivated by school (Joselowsky, 2007; Mitra, 2015). Historically, high schools have been the most difficult part of the K-12 experience to reform, and few reforms at that level have longevity. Part of the issue is the way in which policy-makers and school 'leaders' think about how reform at the high school level should unfold. Students are often thought of as empty vessels, and schools and teachers fill those vessels with knowledge (Fletcher, 2005; Mitra, 2015). For students to be part of the conversation about reform of their school experience, conditions within schools must exist that allow students to both develop their voices to be a meaningful part of the reform process. School leaders, because they are also instructional leaders, need to promote a culture, language, and way of 'being' that supports the development of student voice in high schools. Building upon Spillane and colleagues' distributive leadership model, and models of student voice put forth by both Hart (1997) and Toshalis and Nakkula (2012), this research attempts to understand the behaviors, language, and actions of school leaders who promote the inclusion of student voice that is 'meaningful' in nature. The methods with which this study will be conducted include the case study of one or more high schools in which explicitly identified and named 'student voice councils' exist.

Oral Presentation Session #4: 2:45-4:00PM Room 352

Guadiana, Karina

MA, Communication (COMM)

Communication, Media, & Theatre Arts

Dr. Jeannette Kindred

Stereotypes in the Media: Effects of Media Representation on Young Latina Women

Scholarship shows that there is a significant relation between the media and the role they play on the mental and social growth of young people. While Latinos are the fastest growing population in the U.S., there is a lack of research of the (mis)representation in the media they have, as well as a lack of research done about the affects the (mis)representation. The published academic research on media portrayals of Latinas, from 2004-2018, was reviewed, summarized and synthesized. The literature review showed that Latina women are continuously misrepresented in the media with stereotypes, whitewashing, and hypersexualization. These misrepresentations have been shown to have negative effects on Latina women, such as body dissatisfaction, including eating disorders. A critique is offered suggesting further research on effects of (mis)representation on Latinas, further expansion on specific Latina ethnicity, as well as advertisement targeting on social media platforms. While there is research that has been done on the media portrayal of Latinas and the effects of misrepresentations, it is important to review recent research to understand stereotypes and ultimately further expand these so stereotypes can be broken and body dissatisfaction prevented.

Oral Presentation Session #2: 10:30-11:45AM Student Center Auditorium

Guevara, Diane

PhD, Technology (PHD-TC)
Visual & Built Environments
Dr. Deb de Laski-Smith

Interior Design Students' Perception of Virtual Reality

Virtual reality (VR) is the term used for "creating the illusion that we are present somewhere we are not" (Virtual Reality Society, 2017). University education of interior designers encompasses constructivism and problem-based learning, with an opportunity to add VR technology tools to further support student centered learning (Meggs, Greer & Collins, 2012). Analyzing the capabilities of virtual reality display formats can give us insight into which could be effective tools to support this learning. This experiment-research study analyzed the spatial presence capabilities of three VR display formats, as perceived by upper-level interior design students. The spatial presence capabilities were examined through the lens of the theoretical framework of the Model of Spatial Presence (MSP), which involved the user consciously experiencing the sensation of presence, based on a cognitive feeling and an unconscious process (Wirth et al., 2003). In addition to explaining the study methodology, preliminary findings will be shared.

Oral Presentation Session #1: 9:00-10:15AM Room 320

Hall, Jaelyn

MA, Children's Literature (CHL)
English Language & Literature
Dr. Amanda Allen

Masculine Haircut Versus Feminine Hairstyle: Hair as a

Symbol of Coming Age in Teen Novels

The bildungsroman, or coming of age novel, is a common storyline in the young adult genre. These novels depict the transition from childhood to adulthood as a critical point in the teenage protagonist life. With a focus on the events leading to the maturation of the main character, the transition from child to adult is accompanied by the evolution from a state of childhood innocence to adult experience. There is often a physical, as well as an emotional, demonstration of such growth within these narratives. While the physical manifestation of such a transition has been an area of focus on research in these young adult novels, the variation on feminine and masculine maturation is an area that is still lacking. The gendering of the maturing child into either man or woman is a glimpse at how literature develops the adoption of masculinity and femininity for the teenage reader. My research looks at the difference between the biological and the cultural, as indicative of femininity and masculinity within these novels. Using J. D. Salinger's *The Catcher in the Rye* and Maureen Daly's *Seventeenth Summer* as examples, I examine the way in which hair becomes a defining emblem of coming of age for both male and female. The implication of hair as both primitive and societally constructed allows for exploration into appearance as a factor in maturation. The cutting of hair functions indicatively of the masculine coming of age, while the feminine maturation process is depicted through the cultural importance of changing hair style. Hair, utilized in very different ways in these bildungsroman narratives creates a shared feature, as a signifier of coming of age.

Oral Presentation Session #1: 9:00-10:15AM Room 350

Han, Na

PhD, Technology (PHD-TC)

Visual & Built Environments

Dr. Shinming Shyu

A Study on Simulation of Building Performance: The Effects of Air Distribution Systems and Building Envelope Design

Increasing concern for drastic climate changes and limited natural resources justify the urgent need for research on sustainable design. All forms of energy consumption inevitably create carbon dioxide (CO₂) emissions that trigger the alarming global warming. As all buildings use a considerable amount of energy to facilitate intended functions, it is the designer's responsibility to address the energy efficiency of building systems. Multiple research outcomes and clinical records have provided evidence that poor indoor environmental quality will negatively impact on human health and result in sick building syndrome (SBS) and building-related illness (BRI). Therefore, it is critical to conduct analytical simulation studies on air distribution systems and building envelope design to ensure healthy indoor air quality and energy efficiency. The proposed study plans to investigate the effects of advanced air distribution systems and enhanced building envelope design for indoor air quality and energy efficiency in educational buildings. It will use the software program HAP 5.1 to make incremental adjustments to various environmental factors, such as thermal resistance (R-value) of exterior walls and Solar Heat Gain Coefficient (SHGC) of window, based on current building codes and energy standards, to identify optimal conditions for indoor air quality and energy efficiency.

Oral Presentation Session #4: 2:45-4:00PM Room 330

Harper, Jennifer

MS, Ecology Evolution and Organismal Biology (EEOB)

Biology

Dr. Steven Francoeur

Potential Mechanisms for Algal Stimulation of Bacterial and Fungal Production in Periphyton

Periphyton is an aquatic community comprised of autotrophic and heterotrophic microorganisms bound together in an extracellular matrix. This extracellular matrix facilitates intimate interactions between algae and heterotrophic microbes such as bacteria and fungi. Previous studies have documented increased production of heterotrophic microbes stimulated by algal photosynthesis, and the production of these heterotrophs contributes to decomposition in aquatic habitats. Environmental factors including pH, O₂, and labile organic carbon concentration are altered by algal photosynthesis. We experimentally manipulated these factors and observed the responses of bacteria and fungi to test the hypothesis that one or more of these factors increases heterotrophic microbial production in periphyton communities. Typha (cattail) leaf litter was submerged in greenhouse mesocosms under high and low nutrient regimes. Production assays were conducted on litter-associated periphyton after 79 and 128 days of microbial colonization and growth. During the day 79 assays, little change was observed in fungal production in the low nutrient treatment and bacterial production in the high nutrient treatment however, we observed significant reductions of fungal production when photosynthesis was inhibited in the high nutrient treatment ($p = 0.009$). Additionally, we observed a significant increase in bacterial production in response to glucose in the low nutrient treatment ($p = 0.043$). Data analysis on the day 128 assays are ongoing. Preliminary results suggest the absence of algal photosynthesis has the potential to significantly reduce heterotrophic microbial production, and photosynthetically-mediated shifts in labile organic carbon concentration could be stimulatory to bacterial production. This research has the potential to identify the role of photosynthesis as a stimulator of ecosystem-level processes in aquatic ecosystems and can advance our understanding of decomposition, nutrient cycling, and energy flow in these systems.

Oral Presentation Session #2: 10:30-11:45AM Room 300

Hazen, Bailey

MS, Orthotics and Prosthetics (ORPR)

Health Promotion and Human Performance

Assoc. Professor Frank Fedel

Accuracy and Reliability of a Mobile Gait Analysis App

Gait analysis can provide important information regarding an individual's gait, including insight into deviations from normal gait. This information is useful in evaluating biomechanical problems that require intervention by orthotists or prosthetists. The most common way to analyze gait in these professions is through visual assessment, even though the accuracy of visual assessment has recently been rated as poor to moderate. In addition, inter- and intra-rater reliability has been rated as only reasonable when using visual assessment. Instrumented gait analysis (the gold standard) has been demonstrated to have high validity and both inter- and intra-rater reliability; however it is often inaccessible due to cost and access to measurement facilities. This project aims to validate a convenient, low cost, mobile gait analysis app against a gold standard motion analysis laboratory for key kinematic (motion) measurements during gait. The proposed methodology of the study is reported, along with a discussion

Abstracts Cont'd

of the kinematic variables of interest. It is hypothesized that there will be no significant difference in key kinematic measurements when compared with the current gold standard. Access to a low-cost, accurate, reliable mobile gait analysis app could expand availability of objective, quantitative data regarding patient gait. These data could be used to plan and justify treatment; and monitor progress of various gait parameters over time. In addition, clinicians less adept in visual gait analysis could use this tool to identify gait abnormalities in more complex situations.

Poster Presentation Session B: 1:15-3:15PM Room 310A/B

Heck, Julia

PhD, Educational Leadership

Leadership & Counseling

Dr. Carmen McCallum

Examining the Scope of the Academic Ombuds Role in Higher Education in the United States

There is currently a dearth of research existing regarding the Ombuds role. Better understanding of the issues Ombuds help address, the functions and services provided, and the caseload and workload of the Ombuds have been identified as one area of the overall research agenda for the Ombuds profession. But, with a lack of knowledge in these areas, how are educational leaders and academic Ombuds practitioners making informed decisions regarding how Ombuds practices are established and advanced within institutions to resolve conflicts and support the overall mission and success of all constituents served? This proposed study intends to focus specifically on better understanding the scope of the Ombuds role in higher education within the United States. The intent of this study is to help expand the knowledge base of educational leaders and Ombuds practitioners who are interested in learning about the Ombuds function within higher education institutions. This study will be conducted using qualitative measures, interviewing a sample population of academic Ombuds in the United States who are currently members of the International Ombudsman Association. Additionally, the review of written job descriptions for the Ombuds roles of the individuals interviewed will be conducted. While the Ombuds profession has exploded within higher education in the United States over the last fifty years, it has also emerged as being deemed an "office of all seasons". Research must be conducted to better understand what the scope of the Ombuds role in higher education truly encompasses to help best inform educational leaders and Ombuds professionals.

Oral Presentation Session #4: 2:45-4:00PM Room 352

Heeder, Paul

MS, Orthotics and Prosthetics (ORPR)

Health Promotion and Human Performance

Dr. MacArthur LaMar Stewart; Assoc. Professor Frank Fedel

Comparing the Material Properties and Strength of 3D Printed and Conventional Socket

Three-dimensional (3D) printing has become increasingly popular as a method of fabricating prosthetic sockets for lower extremity amputees. Published data do not exist to support the ability of these sockets to accommodate the ground reaction forces (GRFs) that patients encounter when completing their activities of daily living (ADLs). Previous studies have analyzed the material properties of 3D printing plastics, but none have analyzed the material properties of plastics that are used by the 3D printing companies. The main question analyzed in this project was: what

are the material properties of transtibial prosthetic sockets produced by 3D printing? A follow-up question is: is the strength of 3D printed sockets comparable to sockets manufactured via conventional methods? The material property data were obtained through 4-point bending and tensile tests according to ASTM D6272 and D3039, respectively. A finite element analysis was performed to assess the displacement, von Mises stress, and number of cycles to failure of a 3D printed transtibial socket. The results of the testing are being compiled and will be reported with this poster presentation. Once the results are obtained, a conclusion may be able to be made as to whether or not 3D printed transtibial sockets are comparable in strength to conventionally fabricated sockets.

Poster Presentation Session A: 9:00-11:00AM Room 310A/B

Hertweck, Alison

MA, Arts Administration

Communication, Media, & Theatre Arts

Dr. Elena SV Flys

Understanding Research Methodologies in the Realm of Museum Management

This study aims to explore best practices on how to conduct research on the museum management decisions making process. This study seeks to understand how other museum researchers have embarked on their areas of inquiry, their strategies, and how they came to evolve their methodologies. Thus, this presentation will include the preliminary results of four interviews administered to four researchers in the field. From the collection of these data, we intend to understand how other researchers engaged with their subjects and which approaches yielded information that could be considered meaningful in the context of the researchers' study. Participants will learn the challenges of this research field, and the potential future importance it holds for museums.

Poster Presentation Session A: 9:00-11:00AM Room 310A/B

Hill, Victoria

MS, Chemistry (CHM)

Chemistry

Dr. Amy Flanagan Johnson

Polymer Education to Increase Student Awareness About the Effects of Plastic on the Environment

Polymers are pervasive in our daily lives and contribute to the high quality of life we've come to expect. Polymer-focused education has been increasingly integrated into undergraduate chemistry major courses, and there are opportunities to do the same for chemistry courses for non-majors. As plastic pollution increases and people become more aware of it, the need for education about the environmental impacts of polymers rises. To fulfill this at Eastern Michigan University, modules for labs and lectures will be designed for non-science undergraduate students. These modules will have a polymer curriculum that teaches basic concepts and properties along with the accompanying environmental issues. I will assess the overall impact of the curriculum on student's attitude, beliefs, and practices regarding polymers and polymer pollution through qualitative analysis.

Oral Presentation Session #4: 2:45-4:00PM Room 320

Howard, LaMarcus D.

PhD, Educational Leadership
Leadership & Counseling
Dr. Rema Reynolds

African American Male Success: An Analysis of Contributing Factors that Determine College Persistence Towards Degree Attainment in Relation to Geographic Location

Recent trends indicate an increase in the number of African American students attending college. The troubling reality is that more African American males are leaving without a degree in hand than any other racial/ethnic group attending American colleges and universities. In fact, in 2002, African American males represented only 4.3% of the students enrolled at institutions of higher education, the same exact percentage as in 1976. In 2010, African American males represented less than 6% of the entire U.S. undergraduate population (U.S. Department of Education, 2012). African American students encounter unique combinations of financial, academic, and social challenges that can make the task of college degree completion challenging. This study seeks to learn if any ascribed identity, performance, or environmental variables can predict whether African American male college students will successfully persist during their time in college. The purpose of this study is to analyze the relationship between academic and non-academic determinants of persistence for African American males. This study also seeks to explore the relationship of how university geographic location influences the likelihood of African American male persistence.

Oral Presentation Session #4: 2:45-4:00PM Room 350

Imseitif, Jad

MS, Computer Aided Engineering (CAE)
Engineering Technology
Dr. Herman Tang

Effects Analysis of Internal Buffers in Serial Manufacturing Systems for Optimal Throughput

Buffers can improve the efficiency of manufacturing systems by accommodating the negative impacts of machine stoppage and maximize the system throughput. Buffers are often designed and integrated into manufacturing systems. This study investigates the effects of small internal buffers on the throughput of serial manufacturing systems using discrete-event simulation (DES). For a serial manufacturing system, its internal buffer can be designed as an idle station or a small conveyor. In the study, typical automotive assembly lines are used as serial manufacturing systems. In addition, the capacity of a small internal buffer and two small buffers are studied for optimal throughput. The study results provide a general approach on where to assign small internal buffers in serial manufacturing systems and what the effects of such buffers and their configurations.

Oral Presentation Session #2: 10:30-11:45AM Room 350

Jin, Tong

MS, Apparel Textiles and Merchandising (ATM)
Visual & Built Environments
Dr. Subhas Ghosh

Development of an Odor Blocking Textile for Apparel and Other Applications

Odor control fabrics are smart fabrics with unique functional capabilities. Odor blocking is achieved by trapping the odor molecules within a

microporous structure of a chosen resin finish on the fabric. Odor blocking fabric can be used in several applications, for instance in military uniforms used in the combat zone when laundry access is limited to soldiers or in professional athletes with bad body odor due to excessively exercising. Odor blocking fabric is also useful for home furnishing. The most common method of creating odor absorbency is the application of charcoal or other minerals that have porous structures. Disadvantages of using these materials are that they require double layered clothing to avoid the discomfort of having these materials rub against the skin and that they are not aesthetically appealing. In the present study, a synthetic polymer (a cross-linked polystyrene with an adjusted porous structure) was applied onto the fabric. This type of resin has both micropores and macropores where the macropores provide the high surface area and the micropores provide rapid access to the internal surfaces. This structure results in a high absorption capacity of the odor molecules. We applied the absorbing finish and binder using knife coating on the inner side of the clothing. Consequently, we not only lowered the production cost, but we also maintained the fabric softness, fabric aesthetics, and efficiently blocked odor from spreading.

Oral Presentation Session #2: 10:30-11:45AM Room 350

Johnson, Yma

MA, Creative Writing (CW)
English Language & Literature
Dr. Carla Harryman

Daughters of the Machine: Coloniality and the Rise of the Female Revolutionary

Daughters of the Machine is a science fiction novel-in-progress. The work draws on the Cuban Revolution, biopunk elements as well as gothic imagery and themes to illustrate state-sponsored violence, disappearances, and the haunted society. The work is also heavily influenced by the disappearances of maquiladora workers in Mexico and indigenous women in the United States and Canada. DoM is set in a fictional Central American country where indigenous women raise a guerilla army called the Daughters of the Machine to overthrow a corporate/colonial power. Their primary objective is to locate Kaju women who have been kidnapped by the government. Klok is a car thief who joins the Daughters of the Machine. Through her story, the novel explores the enduring legacy of settler colonialism through coloniality— the logic, culture and structures that maintain discrimination well beyond the formal end of colonialism. The novel looks at the gendered tensions in nationalist movements. DoM also explores how colonial powers introduce third races to consolidate power over indigenous groups. The work aims to imagine what could be a credible catalyst for a female-led revolution.

Arts Front: 1:15-2:30PM Student Center Auditorium

Kamaj, Orlando

MBA, Master of Business Administration (M.B.A)
Accounting & Finance
Dr. Jodonnis Rodriguez

Steps to Identify and Avoid Fraudulent Investment Schemes

The presenter will discuss how to recognize and avoid fraudulent investment schemes as a novice investor. Attendees will learn to identify investment fraud and implement simple steps to prevent fraud. The results seek to determine if certain demographic characteristics such as age, gender, education, or financial background are more susceptible to becoming

Abstracts Cont'd

victims of fraudulent investment schemes. Summary: Every year, U.S. investors lose millions of dollars due to fraudulent investments. In order to avoid fraudulent investments, it is important to understand the various types of fraudulent schemes and be able to identify such schemes. Online tools and other technologies have made transacting faster and easier and they are effective for gathering information on various investments. Fraudsters are adopting and using these new technologies to reach a large audience in less time and at a low cost. Social media, online bulletin boards, spam emails, online advertising chat rooms, and online investment newsletters are the most common ways to reach less experienced investors.

Oral Presentation Session #1: 9:00-10:15AM Room 302

Kaminski, Joshua

MS, Historic Preservation (HPRS)

Geography & Geology

Dr. Nancy Bryk

The Path to our Past: Creating Heritage Trails for Our Communities

Heritage Trails are a fairly new form of historic preservation and interpretation. However, most recently there has been significant interest at both local & state levels to explore the path of our past. Heritage Trails connect people with the natural and cultural heritage of their community by working with communities to create and implement an interpretive plan for the Mike Levine Lakelands Trail Heritage Project (MLLTHP). This presentation offers a discussion on the Mike Levine Lakelands Trail Heritage Project (MLLTHP) and the rearing and collaboration of this fellowship with Eastern Michigan University's Geology and Geography Department and Historic Preservation Program. Operated by the Michigan History Center. The goal of the MLLTHP is the interpretation of a 33 mile-long state park trail on the foundation of an abandoned Grand Trunk Western Railroad corridor. This includes working with community resources that are involved, in-depth research for interpretive signage, and the future of the state heritage trail program. The discussion will also include the overcoming of obstacles through the support and guidance EMU staff in the Geology and Geography Department.

Oral Presentation Session #3: 1:15-2:30PM Room 352

Kennedy, Vee

MA, Written Communication (WRCM)

English Language & Literature

Dr. Rachel Gramer

Self-Assessment in First Year Composition Classrooms

This presentation will detail the concept of student devised self-assessment in first year writing classrooms, particularly as a function of making the classroom more accessible, as inspired by the work of scholars in educational studies and disability studies. Using the work of prior scholars before me, I will investigate the efficacy of self-assessment in composition. Ultimately, this research will help define if composition studies is as accessible as scholars in the field think it is.

Oral Presentation Session #1: 9:00-10:15AM Room 350

Kennedy, Vee

MA, Creative Writing (CW)

English Language & Literature

Dr. Carla Harryman

Failure Story: A Lyric Essay on Cultural Mishap

My creative inquiry revolves around American and Japanese ideas of failure, success, and the overall stakes of being a white foreign English teacher in Japan surrounded by, benefiting from, and contributing to a history of American colonialism whilst simultaneously suffering under the rigid expectations of an economically underperforming, exploitative Japanese company, violations of Japanese labor law, workplace sexism, complicated relationships with female authority figures, and the overall lack of mental health and sexual assault victim support services in Japan after I was raped. I examine my experiences both in conjunction with famous, contemporary Japanese court cases and public issues, and also in a broader history of foreigners (particularly English Teachers) in Japan stemming back to the 1860s, and how historical issues and attitudes from then impact foreign language education in Japan even now. Examples include the infamous re-branding of #MeToo as #WithYou in Japan, where it is still unsafe to name yourself as a survivor in public, and the famous Densetsu Overwork Suicide Case which unfolded while I was working in Japan, in which a woman the same age as me working for the Densetsu Corporation committed suicide after perceived workplace failures. An investigation revealed that she had logged approximately 170 hours of overtime per month for half a year before her death—a feeling I know all too well, and saw myself echoed in. Ultimately, my work does not make any claim about “correctness” between cultures, but rather about misinterpretation, difference, and the blurry lines between standing up for one's self appropriately and being inappropriately selfish.

Arts Front: 1:15-2:30PM Student Center Auditorium

Kestner, Vanessa

MA, Arts Administration

Communication, Media, & Theatre Arts

Dr. Elena SV Flys

Millennials and Classical Music Culture

Over the years, studies have shown a general decline in attendance to classical music performances. In particular, attendance is decreasing in one particular demographic: millennials. As attendance to performances declines, and classical music organizations suffer, the recurring question is: Why are millennials not attending classical music performances, and what can be done to attract them to the art form? This study aimed to discover the barriers that exist in classical music culture that prevent millennials from attending, as well as to discover the potential motivations that would encourage them to attend. This study was comprised of two phases. Phase one of this study used a series of focus groups and surveys to come to understand millennials' beliefs about classical music culture. Phase two of this study used the information gathered in phase one to inform the execution of several classical music pop-up concerts on a university campus. At these concerts, 106 surveys were taken in an effort to answer the following question: Would reaching out to millennials in a different space, presenting music to them in a new way, and educating them about the music they are listening to engage them in classical music culture?

Oral Presentation Session #2: 10:30-11:45AM Student Center Auditorium

Klooster, Isaac Lee

MA, History (HST)

History & Philosophy

Dr. Joseph Engwenyu

Liberia: Creation of a Failed State

The West African country of the Republic of Liberia was established in 1847 by former African slaves from the United States (Americo-Liberians) and enjoyed substantial economic promise as a successful African Republic up to the 1970s. However, the peculiarity of Liberia as non-classic colonial state posed other problems by the 1980s, which culminated into a mind-boggling 14-year civil war. What were the fundamental factors that contributed to the disintegration of the Republic of Liberia and the decades of violence which followed? This research attempts to synthesize and narrate several critical factors contributing directly to the failed state. At the heart of this narrative are long-term issues such as corruption in the ruling class Americo-Liberian bureaucracy, manipulation and oppression of the diverse local indigenous ethnic populations by the corrupt ruling class, the growing discontent in the military, and the economic decline of market values of consumer goods. Another long-term agitation to force the Americo-Liberian ruling class for an open and inclusive government directly paved way to a military coup in 1980 led by Samuel Doe. In 1985 the military government of Doe rigged elections to stay in power as a civilian government. This action ignited the civil war in 1989, which directly led to the birth of the failed state.

Oral Presentation Session #4: 2:45-4:00PM Room 302

Klus, Colleen

MPA, Master of Public Administration

Political Science

Dr. Jeffrey Bernstein

Oversight of Project-Based Section 8 Rental Assistance in Washtenaw County

A large portion of the future of subsidized housing provided by the Office of Housing and Urban Development (HUD) will continue to be provided through Project-Based Section 8 Rental Assistance (PBRA) program. Project-Based Section 8 Rental Assistance is a private public partnership between the federal government and private housing management companies. HUD's oversight of the management companies is not clear to residents or municipalities, which can negatively impact the residents and communities in which Project-Based Section 8 housing exists. In this research, the intention was to discover the best way for municipalities to have oversight of Project-Based Section 8 housing in their communities in order to protect citizens from unsafe and improper living situations. Research included a literature review, case studies and examining the data and impact of Project-Based Section 8 rental assistance in Washtenaw county. Having a system in place that can address issues in subsidized housing is essential. The current system of answering complaints is slow and not accessible to all residents. More needs to be done by HUD to create a sustainable and responsive system to protect the tenants living in Project-Based Section 8 housing. In addition, local municipalities need to have access to the system.

Oral Presentation Session #1: 9:00-10:15AM Room 302

Konglim, Veronica

PhD, Educational Studies (EDST)

Teacher Education

Dr. Joe Bishop

Educator Perceptions on the Use of Gardening as a Tool for Teaching and a Space for Nurturing School and Community

Collaboration

My research examines perceptions of school educators in the use of gardening as a tool for teaching and bridging communities and schools. The American Community Gardening Association (ACGA) defines community gardening from a stance that encompasses various settings (urban, suburban, rural, and schools) and uses (can grow flowers, vegetables, or community). Gardening has become a common sight in today's landscape but somehow, still viewed as a separate and detached activity because of problems such as difficulty securing funding for starting, difficulty maintaining during the summer break, and difficulty integrating them into the school curriculum. A lot happens in gardens other than growing food; and eco-conscious educators are exploring these potentials through the lenses of place-based education (PBE), eco pedagogy (EcoPED), and eco-justice education (EJE). First, I present a historical timeline on gardening in the United States since the 1890s. Gardening confronted various social problems from the economic recession, wars, urban decline, and environmental injustices. Secondly, I present the voices of the educators who use gardens as a teaching tool through an examination of their teaching philosophies, how they use their eco-consciousness to embed gardening into lessons/curriculum, and how/ what kinds of projects they design for their students. In schoolyards across America, teachers make gardens an essential part of learning, thus promoting nutrition, civic pride, the dignity of labor, and environmental stewardship, as in the power of place and belonging, as well as teach subjects such as science art, literature, and history. Lastly, I seek out teaching styles that use sustainable and holistic approaches by considering how such models of teaching have shaped the ways students perceive themselves, their learning and their community. Nonetheless, some teachers, schools, and communities are engaging in different solutions, such as involving external organizations, coordinating a community or parent volunteer system, or expanding the garden.

Oral Presentation Session #3: 1:15-2:30PM Room 302

Korshunova, Alina

MA, English Linguistics (LING)

English Language & Literature

Dr. Daniel Seely

The Syntax of Genitive of Negation in Russian Under the Minimalism Theory

This talk proposes an analysis of the syntax of genitive of negation (GenNeg) in Russian, that is where genitive case is assigned to the object when a negative element is present, as in the sentence: On ne polučil piš'mo/a. He NEG received letter-ACC/GEN 'He didn't receive the/a letter.' GenNeg alternates with accusative case on the object in transitive constructions, and with nominative case on the subject in unaccusative, existential, passive, or impersonal constructions. My central research questions include: How does this case alternation work, and what does it tell us about the optionality of rules in the grammar? A recent theory of syntax, called the Minimalist Program is taken as a main approach to the phenomenon. The key concepts in the study are feature checking and the operations Move and Merge, the technical mechanisms that are responsible for assigning case in a language. We argue that in order for a case to be checked, heads have to have a certain set of features which create a case-checking domain. GenNeg is checked in [Spec, Neg] position, and it requires the feature complex [+Neg, +V]. The proposed hypothesis implies that agreement operations and case-checking are com-

Abstracts Cont'd

pletely separate, which can be an argument against the accepted model of feature checking. This research was conducted in order to understand the ambiguous nature and optionality of GenNeg in Russian. We consider the consequences of the analysis for cross-linguistic variation.

Oral Presentation Session #2: 10:30-11:45AM Room 330

Kostlan, Raymond

MS, Molecular/Cellular Biology (MCBI)

Biology

Dr. Anne Casper

Evaluating the Impact of Hypoxia on the Frequency of mmBIR vs. BIR in (*Saccharomyces cerevisiae*)

In order to maintain the integrity of DNA, cells must have DNA repair mechanisms to correct damage from mutagens or errors occurring during the DNA replication process. Paradoxically, some mechanisms of DNA repair can be error-prone, leading to more mutations that may contribute to cancer progression or other genetic disease. DNA breaks at stalled replication forks are typically repaired using the Break Induced Replication (BIR) pathway (Costantino et al. 2014). There is an alternative pathway that is more error-prone called microhomology-mediated break induced replication (mmBIR), and is independent of a protein called Rad51 which is required in BIR. Hypoxia has been linked to the repression of the RAD51 gene (Bindra et al. 2004). Hypoxic conditions are a common trait in tumor cells. It is hypothesized that under hypoxic conditions, an increase in mmBIR relative to BIR will be observed in *Saccharomyces cerevisiae* (Yeast) due to lower levels of Rad51 in the cell. *Saccharomyces cerevisiae* will be used as a model organism to measure the frequency of mmBIR and BIR. The yeast model will contain three reporter genes that will allow for screening to identify colonies that result from a BIR or mmBIR event by observing selective and differential plates. CHEF gel electrophoresis, Southern blotting, next generation sequencing and SNP analysis of selected colonies will differentiate conventional BIR events from mmBIR events. The goal of this study is to test the hypothesis that hypoxia will lead to increased frequency of the error-prone mmBIR mechanism relative to conventional BIR, which has been suggested in the past, but has not yet been fully evaluated.

Oral Presentation Session #2: 10:30-11:45AM Room 300

Lancaster, Christine

PhD, Educational Leadership

Leadership & Counseling

Dr. David Anderson

Sense of Belonging and Its Influence on College Student Success Factors

This presentation will discuss a study exploring sense of belonging and its influence on college student success factors. Using Structured Equation Modeling (SEM), the study seeks to assess what pre-college, demographic, and college environmental factors influence sense of belonging for college students as well as the relationship of sense of belonging to retention, grade point average (GPA), and cumulative completion rate (CCR). The mediating effect of engagement will be discussed. Demographic, social, and economic information such as ethnicity, age, gender, family income, and first generation status will be considered. Further, the constructs of intersectionality will be used to analyze the impact of engagement and sense of belonging on retention, GPA, and CCR taking into consideration complex identities. The purpose of the study is for educational leaders to

have a greater understanding of what campus conditions may promote student success.

Oral Presentation Session #4: 2:45-4:00PM Room 350

Lathers, Erica

MS, Biology - General (BIOG)

Biology

Dr. Kristi Judd; Dr. Steven Francoeur; Dr. Emily Grman

How Does Herbicide Treatment Alter Soil Fungal Communities and Decomposition?

Wetlands provide many ecosystem services. One important ecosystem service is organic matter decomposition carried out by soil microbial communities. Invasive species and restoration efforts can alter ecosystem services, but the effects of restoration on ecosystem functioning are rarely monitored. *Phragmites australis* is an invasive plant that has the ability to alter soil redox conditions, which may affect ecosystem functioning. The purpose of this study was to determine how soil microbial communities, specifically fungi, respond to restoration efforts in Great Lakes coastal wetlands. We hypothesized that fungi would play a greater role in soil respiration processes (decomposition) in unrestored *Phragmites* soils and, therefore, the addition of a fungicide would have a greater effect in *Phragmites* soils. We sampled the soil and plant communities at three sites dominated by *Phragmites* and four sites previously invaded by *Phragmites* and treated with herbicide in 2011. We used the substrate induced respiration method with a selective inhibitor (cycloheximide) to assess the importance of fungi in decomposition, and in carbon dioxide and methane production. We found that fungal activity in saturated soils contributes 25-77% of the carbon dioxide produced during decomposition, although the difference between restored and *Phragmites* sites was not great. These findings suggest that fungi are more important in organic matter decomposition in saturated conditions than previously thought.

Poster Presentation Session A: 9:00-11:00AM Room 310A/B

Legg, Stephanie

MS, Interior Design (IDE)

Visual & Built Environments

Dr. Shinming Shyu

Couplet Care Combined Neonatal Intensive Care: Analysis Advancing Hospital Experiences for Families of Newborns Through Design

The current design of post-delivery hospital rooms only allow mother and newborn to stay together when the newborn is declared healthy. The mother and newborn are cared for together as a unit, referred to as "couplet care." If the newborn needs medical intervention, it is taken to a Neonatal Intensive Care Unit (NICU), away from the mother. This separation between mother and child can last hours or even days if the hospital is unequipped to address the medical requirements of the child, and hospital transfer must take place. This separates mother and newborn until the mother is discharged from the hospital herself. Post delivery hospital rooms need to be designed and equipped to ensure that families are able to stay together until the time in which both patients have been discharged. How can design improve the experience for post-birth families with newborns that require neonatal intensive care, and how can it incorporate the couplet care principles within the room design to ensure families are not separated? The intended research aims to isolate the factors that limit or inhibit the natural behaviors between

newborns, their mothers, and family members within the hospital environment. First, an extensive literature review will take place. Following the research, an interview with medical professionals who interact with NICU infants and postpartum mothers will occur. Then, a questionnaire will be completed by mothers who have had their newborns enter intensive care upon birth. The data collected will be analyzed to determine the changes that need to be made. Using these discoveries, a set of guidelines will be composed. These guidelines will be used to create a new room design that will incorporate the solution of the inadequacies that have been discovered.

Oral Presentation Session #4: 2:45-4:00PM Room 330

Lehman, Mike

MS, Construction Management (CM)

Visual & Built Environments

Dr. Kasim Korkmaz

Sustainable Transportation Alternatives in Metro Detroit

Post World War II urban sprawl has turned Metro Detroit into an auto based transportation society. Sustainable transportation alternatives in Metro Detroit are becoming increasingly important due to population growth, population shifts, and climate change. After an analysis of the transportation system, an implementation strategy will be reviewed. Transportation policy makers face an unwillingness to change commuting habits and pressure from the auto industry. Historical stakeholders' disagreements and transportation system funding policy has been a recurring problem that has hampered improvement of the transportation system. Barriers to be addressed are federal, state, and local governments subsidizes, grants, emission standards, autonomous vehicle implementation, infrastructure improvements and regional light rail. If all the above is implemented, energy consumption will be reduced and accessibility and mobility will increase.

Oral Presentation Session #1: 9:00-10:15AM Room 352

Leppala, Janet; Crain, Rachael; Taylor, Shelby; Bower, Mae

MA, English Linguistics (LING)

English Language & Literature

Dr. Eric Acton

Northern Cities Vowel Style Shifting: Evidence from Jewish Women in Metro Detroit

Recent research has shown that in many parts of the Inland North, some aspects of the Northern Cities Shift (NCS) are reversing, while others progress. In this updated analysis of both word-list and conversational data from interviews with ten Jewish women born and raised in metro Detroit, we find that younger women in our sample not only produce vowels closer to supra-regional norms than their older counterparts, they also show significantly greater style-shifting in their vowels from conversational speech to word-list speech. Additionally, the style-shift represented in word-list speech demonstrates a movement even further toward supra-regional norms. These style-shifts constitute evidence that the younger women view the supra-regional norms as more prestigious.

Oral Presentation Session #1: 9:00-10:15AM Room 350

Logan, Alex

MA, History (HST)

History & Philosophy

Dr. Joseph Engwenyu

Negritude: An Intellectual Dynamic in Francophone African Colonial Experience

Negritude is a literary, political, and cultural movement originating in the minds of the French speaking African intellectuals. The movement paralleled the Anglophone pan-Africanism, but was more intellectually ambitious, driven by complex thought accessible to only a minority of educated elite; and, therefore, not as populist as pan-Africanism. From a more literal and ideological angle, Negritude has a clear set of values defining the Black experience. Its objective was to garner consciousness among people of African descent, narrate their history of oppression and put the black experience back into an accurate and appropriate global perspective. Assimilation was embraced and the movement was depicted as a product of the symbiosis between France and Africa. The French component relied heavily on French literary and intellectual stream, while the African aspects emphasized the cultural foundations deemed proper to African history. In addition, the European humanism was inspirational. Ideologically, the movement was also influenced by "Marxist" thought. Capitalism, imperialism and colonialism are blamed for Africa's ills, and revolution from the international capitalist system is often recommended. The global tilt of Negritude is also noticeable in its internationalist aspect which accepts and at times advocates for a blend of cultures. This paper documents these intellectual foundations of Negritude as articulated by the founding fathers: Aimee Cesaire, Leopold Sedar Senghor, and Leon Damas. Special attention is given to the diversity of thought. The Eurocentric, Marxian version of Cesaire is squared with the more culturally oriented approach by Senghor from the same tradition. In a similar vein, tension between the Cesaire/Senghor version, and the more Afrocentric approach adopted by Leon Damas are compared and contrasted.

Oral Presentation Session #4: 2:45-4:00PM Room 302

Long, Susanna

MA, College Counseling (CLCL)

Leadership & Counseling

Dr. Carmen McCallum

Resilience-Based Counseling with College Students: How Does It Impact Academic Persistence and Academic Success?

As college counseling centers struggle to keep up with rising demands for services, many researchers have found significant links between higher resilience and the ability to manage the stress of college life. Recent research also suggests that high resilience positively impacts academic persistence and performance in college students. However, little research exists that examines and evaluates resilience-based interventions on college campuses. Using a quantitative, longitudinal study model that incorporates resilience-based, individual therapy as an intervention, this study seeks to answer the following research questions: does individual, resilience-based counseling impact academic persistence in college students, and does individual, resilience-based counseling impact academic performance in college students? This study will regularly measure academic performance (based on grade point average) and academic persistence (based on re-enrollment) of college student participants undergoing at least four sessions of individual, resilience-based counseling. The researcher expects that study participants will report higher resilience after undergoing at least four individual, resilience-based counseling sessions. In line with other research, results should also show that resilience-based intervention positively impacts academic persistence and

Abstracts Cont'd

potentially academic performance.

Poster Presentation Session B: 1:15-3:15PM Room 310A/B

Lu, Jingjing

MS, Polymers and Coatings Technology (PLT)

Chemistry

Dr. Vijay Mannari

Development of High-Performance Coatings from Bio-Renewable Based Materials

Most of the conventional coatings are developed from petroleum-based polymeric materials. Production of polymers from petroleum-based resources usually emits considerable CO₂, which is a significant source of carbon leading to global warming. In addition, petroleum resources are rapidly depleting, and therefore becoming more and more expensive every day. Consequently, the demand for renewable resources as promising alternatives in the production of viable polymeric materials to be used in coating applications has boosted in the recent years. Epoxidized soybean oil (ESO) is an abundant, sustainable, and low cost compound. However, when used alone in coatings, because of its flexible triglyceride backbone, it usually does not provide a film with ample rigidity and strength required for coating applications. Gum rosin is another largely abundant renewable feedstock with a unique hydrophenanthrene ring structure that confers to proper mechanical properties and chemical resistance. However, introducing rosin to the coatings usually induces undesirable brittleness. Considering the above mentioned points, rigid rosin and flexible ESO derivatives could be complementary in achieving products with balanced performance and overall improved properties. In this study, a series of polyols with high bio-renewable material content were developed through the reaction of epoxy groups in the ESO structure, with the carboxylic acid groups in several acids, including rosin, benzoic acid, itaconic acid, etc. The polyols were characterized for their chemical structure and OH value. Thermoset polyester-melamine formaldehyde coatings were then prepared by reacting these polyols with a melamine formaldehyde crosslinker in different weight ratios from 15-25%. The resulted films demonstrated excellent adhesion, high MEK-Rubs, high gloss at 60°, and promising flexibility and impact properties.

Poster Presentation Session B: 1:15-3:15PM Room 310A/B

Ludwick, Meghan

MS, Orthotics and Prosthetics (ORPR)

Health Promotion and Human Performance

Dr. Sun Hae Jang

Comparison of Methods Used to Disinfect the Inner Foam Liners of Plagiocephaly Helmets

One out of every ten infants will develop deformational plagiocephaly. Cranial remolding orthoses (CROs) are medical devices that were developed to reshape the head. These orthoses consist of a hard, outer layer and a soft interface made of a material such as aliplast or polyurethane. According to the protocol of the orthotic treatment, the infants should be wearing the CRO for 23 hours a day until the cranial vault asymmetry is less than 6 mm (Kwon, 2016). If a CRO is not cleaned thoroughly or at all then common skin irritations such as infantile seborrheic dermatitis can occur, which is one of the main issues with CROs. My hypothesis is that cleaning the soft interface liner of a CRO with soap and water decreases the number of bacteria found on the foam; however, there may be a better cleaning method that decreases the bacteria with a greater ef-

fect. Cleaning methods being tested: Dawn dish soap and water, rubbing alcohol, and chlorine dioxide mixture.

Five CROs will be obtained from five patients who are currently wearing CROs, which have not been cleaned for more than 24 hours prior to the appointment. Each CRO will be swabbed four times with a sterile cotton swab. Four petri dishes will be prepared for each CRO, one control with no cleansing method, one with Dawn dish soap and water, one with rubbing alcohol, and one with chlorine dioxide. A nominal comparison of bacteria growth counts will be recorded for each petri dish. Qualitative and quantitative data will be collected by the parent questionnaire regarding current wear and care of the CRO.

Poster Presentation Session A: 9:00-11:00AM Room 310A/B

Lumban Toruan, Dewi M.

MA, Autism Spectrum Disorders (ASD)

Special Education

Dr. Derrick Fries

Parents of Individuals with Autism Spectrum Disorders Perceptions of Current and Past Public Services

A lot of research has been done on various interventions and strategies for parents of children with autism spectrum disorders (ASD). In contrast, however, fewer studies have examined and have been published documenting the lived experiences of families affected by ASD and parents' own perceptions of needs, and whether parents felt their needs were being met. We know only a little about what the parents said they really need. The purpose of this study is to report on parents of individuals with ASD experiences with public services and whether they felt their needs were being met from their own perspectives. The hope is for this study to provide a platform to guide further investigation and inform the development of public services for families of individuals with ASD. In this study, parents will be interviewed in a one-on-one setting using open-ended questions.

Oral Presentation Session #1: 9:00-10:15AM Room 330

Luo, Lin

MS, Polymers and Coatings Technology (PLT)

Engineering Technology

Dr. Vijay Mannari

Development of Bio-Based Resins for Asphalt Sealer Application

Asphalt, a petroleum derivative, has been used as pavement bases in the U.S. since the 13th century due to its advantages of performance and economic efficiency. However, oxidizing agents such as salt water and UV light are the primary cause for lifecycle reduction of asphalt pavement. To address this issue, sealcoat for asphalt pavements are invented. Conventional sealers are typically based on coal tar and asphalt. Despite excellent performance, their adverse effects on human health and environment, due to the presence of polycyclic aromatic hydrocarbons (PAHs), have forced regulations that restrict their usage. This presents an opportunity to develop sealers for asphalt pavements that are free from PAHs and are regulatory compliant. In this research, we developed a novel bio-based resin and sealers that can prolong asphalt pavement's lifecycle in their new condition in an economically as well as environmentally efficient manner. Resins used were synthesized from the reaction of derivatives of gum rosin and epoxidized vegetable oils, which are both bio-based materials and have sustainable resources. The resins were further emulsi-

fied and incorporated in a water-based seal coat formulation and the resulting coatings were compared to conventional asphalt based and petroleum-based sealers. These sealers are studied for their performance characteristics such as UV-resistance, water-absorption/desorption, and heat resistance, besides many others, and compared with the commercial counterparts. The results show that by proper choice of bio-based resin chemistry and formulation parameters, it is possible to develop “green” asphalt sealers that can be a sustainable alternative for the conventional sealers.

Poster Presentation Session B: 1:15-3:15PM Room 310A/B

Luo, Wei

MSN, Nursing - Adult Gerontology Primary Care Nurse Practitioner
Nursing
Dr. Meriam Caboral-Stevens

Concept Analysis of Language Barrier Among Nursing Home Residents

According to the 2009 American Community Survey, about 9% of the U.S. population has limited English proficiency. With the increase in aging population, many are admitted to skilled-nursing facilities with language barriers. Language barriers can negatively impact patient's health and outcome. Improved communication can provide safe and quality healthcare to clients with no or limited English language proficiency, promote consistency in nursing dialog, research and practice. In order to understand fully the concept of language, it is necessary to analyze the concept. Concept analysis is a “process of examining the basic elements of a concept”. The purpose of this paper is to perform an analysis to explore the concept of language barriers among long term care residents using Walker and Avant's eight-step method. Definitions and uses of the concept were explored. The defining characteristics of language barrier noted from the review of the literature were absence of communication due to not sharing the first language. The antecedent of the concept was elderly people migrating to a country without speaking the language. Consequences of language barriers were compromised patient awareness, patient safety, and patient satisfaction. Model, borderline, and contrary cases were also developed. The implication of this paper is to explore culturally competent care to elder people with language barrier by improving communication strategies.

Poster Presentation Session B: 1:15-3:15PM Room 310A/B

Mackie, Katelyn

MS, Molecular/Cellular Biology (MCBI)
Biology
Dr. Steven Francoeur

What Would You Do? Factors Affecting Patients' Decision Making after NIPT Failure Results

Non-invasive prenatal testing (NIPT) using next generation sequencing is a safe and effective way to screen pregnancies for chromosomal abnormalities (aneuploidies of chromosomes 13,18, 21, X and Y as well as large deletions from other chromosomes). Several studies have shown that a low fetal fraction (FF) of cell-free DNA in a maternal blood sample is a predictive factor for a test failure. Fetal fraction has been correlated to gestational age, BMI, and hypertension. When a patient receives a result of test failure, she may decide to repeat the test, seek diagnostic testing, or wait for results of an anatomy scan at 18-22 weeks gestation. This study seeks to examine which factors may predict a patient's decision to pursue

follow-up testing following an NIPT test failure result. It is hypothesized that gestational age and maternal age will have the strongest effect on whether any further testing is pursued. The data examined in this study were randomly selected from an existing list collected by a private testing company. As part of routine quality assurance, the company sent follow-up forms to clinicians regarding the outcome of the pregnancy and any subsequent testing (amniocentesis, CVS, anatomy scans). Multiple regression analysis between the negative result group (control) and the failure result group should indicate whether any factors significantly impact a patient's decision to pursue further testing and provide some insight to how physicians are counseling patients. Future studies may examine patients who receive positive NIPT results and factors that affect their decisions to pursue further testing.

Poster Presentation Session A: 9:00-11:00AM Room 310A/B

Magrum, Hunter

MS, Historic Preservation (HPRS)
Geography & Geology
Dr. Nancy Bryk

“Modishly Swinging Manor for the Modern Man:” Rise of the Bachelor Pad, 1953-1973

In 1953, Hugh Hefner created one of the most contested, sexualized, magazines in the world: Playboy Magazine. This paper explores how the pages of Playboy Magazine developed a space for men to perform traditionally feminized roles of consumerism. By strategically placing pictures of women in various states of undress alongside advertisements for the latest, futuristic technology, Hefner created a space where men could create fantasy lives in a heterosexualized space. This paper primarily focuses on the years 1953-1973, the years of more heightened tension from changing societal norms, and the establishment of a fantasy world where men could hide from traditional “breadwinning” masculine roles.

Oral Presentation Session #3: 1:15-2:30PM Room 352

Malinowski, Adam

MA, Creative Writing (CW)
English Language & Literature
Dr. Carla Harryman

Abjection and Communal Love in Danielle Pafunda's *The Dead Girls Speak in Unison*

Is poetry a vessel for re-imagining our social relationships? Danielle Pafunda's recent book of verse, *The Dead Girls Speak in Unison*, attempts to respond to and understand the reality of its own historical moment: the intersections of rape- culture, patriarchy, and the militarization of borders and foreign lands in the contemporary USA. Although the book was written before #MeToo, it can be read in conversation with the movement, while simultaneously resisting a reduction to the limited rhetorical scope of political sloganeering. Can the unnamed voices—the chorus of the dead—in Pafunda's collection tell us what we don't already know? I analyze Pafunda's work through Julia Kristeva's thinking on “abjection” in ‘Powers of Horror’, drawing attention to the space where self and other meet and thus cease to be separate beings, linking this to Pafunda's emphasis on the choral “We” in her work. Furthermore, I draw on Lauren Berlant's “cruel optimism” and how Pafunda's poems work through the relationship between patriarchal, socially-constructed desire and radical, revolutionary fantasy. This paper asks: does Pafunda's poetry offer us a way to imagine a future collectivity, and, if so, how is Pafunda's writing in

Abstracts Cont'd

The Dead Girls Speak in Unison working at the level of poetic composition to achieve this politicized effect?

Oral Presentation Session #3: 1:15-2:30PM Room 320

Marshall, Courtney

MA, Arts Administration
Communication, Media, & Theatre Arts
Dr. Elena SV Flys

Sensory-Friendly Performances: What Has Been Discovered and What Can We Do Next

This study aims to understand what practices are currently being used in performing art venues for sensory-friendly performances. It seeks to analyze the benefits and challenges of access services used to improve inclusion for audiences with autism spectrum disorder (ASD). In order to do so, I will interview five experts in sensory-friendly performances. Thus, this study will analyze those interviews and will point out the best practices for sensory-friendly performances.

Poster Presentation Session A: 9:00-11:00AM Room 310A/B

Matin, Negar; Shahraki, Forough

PhD, Technology (PHD-TC)
Visual & Built Environments
Dr. Ali Eydgahi; Dr. Vijay Mannari; Dr. Shimming Shyu

Smart Windows Photochromic Coatings Facade Design Visual Comfort

Smart windows, a promising category of advanced building technologies, have the ability to change their properties by responding to the variations in the environmental conditions, and thereby offer considerable energy saving (reduce lighting and cooling loads by 26% and 20% respectively). Colored glass windows, on the other hand, can improve occupants' visual comforts by controlling solar discomfort effects such as glare and overloading light. The contemporary smart window technologies such as electrochromic or thermochromic glazing and photovoltaic technologies operate by selectively blocking and transmitting visual and near-infrared (NIR) solar radiation. The studies on these technologies are mainly centered on energy saving and are only designed in a limited color range, undermining the aesthetic aspects and users' comfort. To the best of our knowledge, smart colored windows that combines energy saving capabilities with enhanced users' visual comfort are not sufficiently explored.

This study aims to develop a series of smart photochromic clear coatings for window glass panes that could turn to different shades by responding to the intensity of the exposed solar radiation. Thus, the proposed advanced smart window technology not only can reduce energy consumption by controlling the amount of transmitted light but can improve the visual comfort metrics through changing colors.

The smart coatings developed under this project will be applied on glass substrates and will be extensively studied for their optical properties (UV-Vis spectroscopy), simulation of a building envelope utilized for proposed technology using Rhino software, evaluation of performance by measuring visual and thermal comfort metrics using Diva software, and development of a prototype. The novel smart window technology is a promising alternative to the current products in the market.

Poster Presentation Session B: 1:15-3:15PM Room 310A/B

May, Richard

MS, Orthotics and Prosthetics (ORPR)
Health Promotion and Human Performance

Assoc. Professor Frank Fedel

Creating a More Dynamic and Multi-Functional Upper Extremity Prosthetic Terminal Device Designed for Strength Training

Strength training comes with many benefits including increased muscle and bone mass, muscle strength, flexibility, dynamic balance, self-confidence, and self-esteem. In addition, strength training helps reduce the symptoms of various chronic diseases such as arthritis, depression, type-2 diabetes, osteoporosis, sleep disorders, and heart disease. Individuals wearing prostheses can benefit from the positive effects of strength training. Many prosthetic patients suffer from comorbidities associated with poor health, such as type-2 diabetes. Currently there is no single upper extremity prosthetic terminal device that can accommodate four major functions the human hand performs during strength training. These four functions are pushing, pulling, grasping, and stabilizing. The terminal device designed for this project has been designed to allow the motions needed for strength training. The design provides the support necessary to push and pull heavy body weight in addition to having some of the stabilizing capabilities that the wrist allows. This upper extremity prosthetic terminal device allows the user to perform their strength training workouts with less breaks during the workout, when compared to current designs of upper extremity terminal devices by not having a locking component that attaches the device to bar or dumbbell.

Poster Presentation Session A: 9:00-11:00AM Room 310A/B

McAndrews, M John

MA, Teaching English to Speakers of Other Languages / TESOL
World Languages
Dr. Wendy Wang

Expanding Feminist Pedagogy in TESOL by Degenderizing English

Research on feminist pedagogy in Teaching English to Speakers of Other Languages (TESOL) has shed insight on past practices incorporating equality of gender into English as a Second Language (ESL) classrooms. While feminist research and pedagogy in TESOL do not inherently create a binary between masculine and feminine gender identities, critical examination on the gendered nature of the English language is still needed in an attempt to "degender" English and to be inclusive in its new definition of gender that goes beyond the binary to account for all identities, such as Lesbian, Gay, Bisexual, and Transgender (LGBT). This presentation discusses how to expand feminist pedagogy in TESOL to make English more inclusive for all student identities in the classroom.

Oral Presentation Session #2: 10:30-11:45AM Room 330

McCombs, Patrick

MS, Chemistry (CHM)
Chemistry
Dr. Hedeel Guy-Evans

Insulin-Like Growth Factor Binding Protein Interact with Cell Surface Glycosaminoglycans Heparan Sulfate and Hyaluronan, Affecting Cell Survival and Proliferation

The insulin-like growth factor binding proteins (IGFBPs), of which six are known to exist (IGFBP1-6), are important players in the extracellular environment of many cell types, especially cancer. These proteins bind the insulin-like growth factor (IGF) and sequester it from the insulin-like growth factor receptor (IG-FR), leading to decreased proliferation

and cell survival by the affected cells. While the binding of IGF, which happens at the N-terminal domain, is a significant facet of the molecular physiology of the IGFs, new research has shed light on important non-IGF related functions. Specifically, the C-terminal end of the protein has been shown to bind with several extracellular glycosaminoglycans (GAGs), including hyaluronan (HA) and heparan sulfate (HS). The GAG HA is a ligand for the CD44 receptor, whose activation can lead to proliferation and migration in cancer cells. Both HA and CD44 have been shown to be more prevalent on cancerous cells, especially breast and lung cancer cells. Binding of the IGFs may be able to sequester HA from activating the CD44, while the ability of each given IGF to regulate cell proliferation, migration and survival could be dependent on both the HA/HS binding affinity of each IGF and the relative extracellular concentrations of HA and HS. This research aims to elucidate the dynamics of IGF-HA-HS binding and its effect on the activation of the CD44 receptors on various cancer cell lines using a combination of solid-phase binding assays, immunoblotting and cell-based assay.

Oral Presentation Session #3: 1:15-2:30PM Room 300

McEwen, Katherine

MA, Clinical Mental Health Counseling (CMHC)
Leadership & Counseling
Dr. Devika Dibya Choudhuri

Chronic Pain and Academic Performance: Does Chronic Pain Negatively Impact Academic Performance in College Students?

The impact of chronic pain on health and wellbeing has been explored primarily in adults in previous research. Studies show that chronic pain influences sleep, risk of substance abuse, concentration, mood, and how a person is perceived by others (Alford et al., 2016; Graham & Streitel, 2010; Gerrits et al., 2014; Koffel et al., 2015; Koffel et al., 2016; Oosterman et al., 2012). While previous research sheds important light on these implications, the effects of chronic pain on college students has not been widely investigated. The present research seeks to determine how chronic pain influences young adult collegestudent's academic performance.

Poster Presentation Session B: 1:15-3:15PM Room 310A/B

Mitchell, Kelsey

MS, Ecology Evolution and Organismal Biology (EEOB)
Biology
Dr. Katherine Greenwald

Climate Change Effects on Body Size and Population Composition of *Ambystoma Salamanders*

Climate change has been shown to drive changes in organisms' phenology, geographic ranges, and eco-morphology. Amphibians may show variable responses to climate change due to the diverse ecological, physiological, and genetic traits of these taxa. Unisexual (all female) *Ambystoma* salamanders reproduce via kleptogenesis, in which insemination by a sympatric sexual male is necessary to trigger egg development. The zygote can develop gynogenetically or via incorporation of the male's genome into the ovum, resulting in individuals that vary in ploidy and genome composition. We will analyze genetic and morphological data of historic and modern-day unisexual and *A. laterale* specimens from the University of Michigan's E. S. George Reserve. Epidermal cell nuclei measurements will be used to establish ploidy levels of historic specimens (dating back to the 1960s) housed at the UM Museum of Zoology. Ploidy of current samples will be assessed using a panel of microsatellite loci.

We predict that climate change (i.e. rising temperatures) will have driven population composition away from the more northern-distributed *A. laterale* and toward populations dominated by LLJ unisexuals. However, microclimate change (e.g. increased canopy cover) may mitigate the effects of these broader climatic shifts. We also predict that salamanders will show reductions in body size over the last half century. Changes in population composition and body size could inform our understanding of the susceptibility of amphibians to climate change, as well as whether adaptation can keep pace with rapid environmental change.

Oral Presentation Session #2: 10:30-11:45AM Room 300

Mohammed, Shariq Ishtiaq

MS, Construction Management (CM)
Visual & Built Environments
Dr. Kasim Korkmaz

Economic Crisis Hit Detroit and After

The purpose of this paper is to provide the economic history of the city Detroit. The paper also emphasizes evaluating and understanding the possible causes for why metropolitan Detroit filed for bankruptcy in 2013 and how the economic crisis has affected the city. Several books have described the city's severe distress and chronicled the extensive physical decay and abandonment that prevails in the city center and many of the city's neighborhoods. Over the last 50 years Detroit has been facing huge challenges in loss of employment, population and tax base. There were several factors which lead to crisis, including de-industrialization, globalization, and economic and racial segregation. Studies show that this city has made many attempts to save itself from the financial crisis but it ended up spending more than it received. Recent statistics have stated Detroit is a desirable place to live and work after the crisis, and it has attracted new immigrants from Latin America and the Middle East. This paper also focuses on providing solutions for the issues related to the crisis by a systematic approach, which is comprised of eliminating short term financial crises by ensuring the city doesn't overspend, dealing with long term obligations like addressing the ballooning costs (about 14 billion USD) to be paid pensions and healthcare, managing the budget through a systematic approach, and making sure the crisis doesn't happen again.

Oral Presentation Session #2: 10:30-11:45AM Room 352

Munn, Steven

MS, Geographic Information Systems (GIS)
Geography & Geology
Dr. Xining Yang

A Comprehensive Analysis on Gun Violence and School Shootings in the United States

School shootings are cold-hearted, visceral events that tear apart communities. Unfortunately, school shootings and gun violence in schools have become an all too familiar reality. As with any other issue, in order to fully understand it, it must be studied in depth. The purpose of this study is four-fold. First, it will attempt to determine whether or not the occurrence and/or intensity of school shootings have been increasing or decreasing over time. Second, it will attempt to effectively map exactly where these shootings have taken place in order to highlight geographic areas of concern or hotspots, as well as possible trends over time. Third, it will conduct robust quantitative analysis on the data in order to develop correlation and/or causation between a variety of factors. Finally, it will

Abstracts Cont'd

pull together current, disjointed research and data on school shootings in an attempt to create an improved overall narrative of school shootings in hopes to better explain how/why they occur, and also possibly prevent them from happening in the future.

Oral Presentation Session #1: 9:00-10:15AM Room 302

Muterspaugh, Robert

MS, Chemistry (CHM)

Chemistry

Dr. Hedeel Guy-Evans

Regulation of Lung Cancer Cell Growth by Insulin-like Growth Factor Binding Protein-3

Insulin-like growth factor binding protein-3 (IGFBP-3) belongs to a family of IGF binding proteins. Amino acid residues 215-232 of mature IGFBP-3 in the C-terminal region of the protein were shown earlier to bind certain glycosaminoglycans including hyaluronan (HA). Here we examined the effect of IGFBP-3 on normal human lung cells (HFL1) and three human non-small-cell lung carcinoma (NSCLC) cell lines with relatively high levels of IGFBP-3 (A549), detectable levels of IGFBP-3 (H358), and undetectable levels of IGFBP-3 (H1299). HFL1 is CD44-negative while the levels of CD44 are the highest in H1299 cells. We show that blocking HA-CD44 interaction with an anti-CD44 antibody in combination with IGFBP-3 did not have an additive negative effect on cell viability in the NSCLC cell lines suggesting that IGFBP-3 exerts its cytotoxic effects on cell survival through a mechanism that depends on HA-CD44 interactions.

Oral Presentation Session #3: 1:15-2:30PM Room 300

Nelson, Emily; Peterson, Doug

MS, Orthotics and Prosthetics (ORPR)

Health Promotion and Human Performance

Dr. Sun Hae Jang

Inter- and Intra-Reliability Test of the Global Visual Gait Assessment

Ankle-foot orthoses (AFOs) are commonly used to address gait impairments in lower extremities. In addition, footwear modifications have also been shown to be effective in providing additional ground reaction force control. It is necessary to develop a new validated visual gait assessment method that can account for the orthotic biomechanical effects on gait, especially for AFOs and shoe modifications. It is hypothesized that the Global Visual Gait Assessment (GVGA) will be a reliable method for assessing orthotic biomechanical outcomes. Five volunteers from the Orthotics & Prosthetics Master's Program were recruited as participants for the reliability test of GVGA. Instructions were provided in a formal educational session on how to capture various body segment angles during key gait events. Seven randomly selected gait video recordings were analyzed. One of the five volunteers was also tasked with performing the same measurements on another set of eight randomly selected recordings. These measurements would be repeated on three separate occasions (one week apart each). We hope that the results of this study will prove the reliability of this assessment method, thus providing benefit to clinical practice.

Poster Presentation Session A: 9:00-11:00AM Room 310A/B

Newman, Willow L.

MS, Ecology Evolution and Organismal Biology (EEOB)

Biology

Dr. Steven Francoeur

Nitrogen-Fixing Diatoms as Indicators of Historical Nitrogen Limitation in Laurentian Great Lakes Coastal Wetlands

The purpose of this study was to examine historical nitrogen limitation in Great Lakes coastal wetlands. Previous research has suggested that the presence of nitrogen-fixing diatoms can indicate nitrogen scarcity in wetlands. We obtained herbarium macrophytes from the University of Michigan Herbarium, acid-digested macrophyte material to isolate attached diatoms, and determined the relative abundance of the nitrogen-fixing diatoms Epithemia and Rhopalodia. Present-day nutrient enrichment experiments with a concurrent collection of epiphytic diatoms and water samples were also used to validate the relationship between diatoms and nitrogen scarcity. Preliminary analysis of present day data suggest that benthic algae in some Great Lakes coastal wetlands are nitrogen limited, and analysis of historical samples is ongoing. Understanding the prevalence of nitrogen limitation in Great Lakes coastal wetlands from 1896 to 2018 will shed new insights on wetland ecology and nutrient cycling and may suggest the need for new nutrient management policies in the Great Lakes region.

Oral Presentation Session #2: 10:30-11:45AM Room 300

Niethold, Timothy

MS, Construction Management (CM)

Technology & Professional Services Management

Dr. Kasim Korkmaz

Demolition of Detroit

Like many other cities pondering their former glory days, Detroit finds itself in the same light as it tries to figure out the best way to become the city it was in the 1950s. Demolition of abandoned buildings (both commercial and residential) has citizens believing that this could help bring back Detroit, but are the demolitions and money associated with them really helping their economy? For this research paper, I am going to conduct surveys and present findings from articles and news sites to come to a consensus regarding if it is truly helping their economy or hurting it.

Oral Presentation Session #2: 10:30-11:45AM Room 352

Nofs, Leo

MS, Physics (PHY)

Physics & Astronomy

Dr. Eric Paradis

Designing a Modified Zeeman Slower for the Paschen Back Strong Magnetic Regime

Controlled study of high density plasmas, such as those found in fusion reactions and stars, can lead to a greater understanding of the underlying physics within such plasma systems. A specialized high magnetic field (High-B) trap was developed at the University of Michigan in the Raitchel research group to study such highly magnetized, high density plasmas using rubidium atoms. This trap had its plasma densities limited by the atom source which provided an input atom flux of 10^7 atoms/s. The goal of this project is to increase the flux by replacing the source with a Zeeman slower, which is a well-studied device that uses a spatially varying magnetic field in combination with a counter propagating laser to slow and cool a constant flux of atoms. A Zeeman slower could increase the incident atom flux to the High-B by a factor of 1000 times greater than the previous source and would lead to higher density plasmas in the High-B trap. The proposed Zeeman slower is modified from the standard

design such that more than half of its magnetic field will be supplemented by the considerable fall-off bias field from the High-B trap. We created a Python model that generates the modified magnetic field by constructing a set of solenoids (with current, length, and thickness as parameters). This Zeeman slower design allows for operation with or without the High-B bias field.

Oral Presentation Session #3: 1:15-2:30PM Room 330

Opdycke, Lacey

MA, History (HST)
History & Philosophy
Dr. John McCurdy

“Glorified Glamour Girls:” Militarization of the Women Airforce Service Pilots of World War II

Formed in 1943, the Women Airforce Service Pilots (WASP) were a group of 1,074 women pilots chosen and trained to be the first female pilots to fly planes for the war effort. However, unlike other women military units such as the Women’s Army Corps, the WASP were never granted military status despite their active role in the Army Air Forces. This research aims to discover the reasons why the WASP weren’t militarized in 1944, and why Congress disbanded the program that same year. It also examines what societal shifts occurred in the 30 years following the Second World War that allowed for the WASP to be granted veteran status in 1977. Analyzing sources such as newspaper articles, Congressional documents, oral histories, and letter collections, this paper illuminates the negative public opinion of the WASP in the 1940s that later shifts into shock that they were never granted any military status, along with an understanding of the gendered society the WASP were operating in at the time. In short, the Women Airforce Service Pilots were not militarized in 1944 not only because of their contradictory role as “women” and “pilots,” but also because of outside influences such as media perception and male pilots protecting their best interests.

Oral Presentation Session #3: 1:15-2:30PM Room 302

Pallye, Roopkatha

PhD, Technology (PHD-TC)
Engineering Technology
Dr. Subhas Ghosh

Development of Super Hydrophobic Finish and its Application Technology on Acrylonitrile (Vinyl Cyanide) Textile Fabric

Super-hydrophobic textile fabric is in significant demand in several applications, including apparel, automotive interiors, automotive convertible tops, aircraft interiors, military apparel, and furniture. The finish has self-cleaning and stain-repellent attributes that provide an additional edge in the marketplace. However, the chemicals used in material production have associated health hazards, and the cost of manufacturing can be prohibitive. The current project aims to develop a super hydrophobic finish that is eco-friendly, health-friendly, durable, and cost-effective on acrylic fabric. The finish was synthesized using fluorosilanes to lower the surface energy and provide surface roughness to the fabric and applied to the fabric by spraying, followed by dip pad cure method. Super hydrophobicity of the treated fabric was tested for water repellency, and demonstrated superior water repellency and hydrophobicity according to industry standards. The durability of the finish was further determined through abrasion testing, but the fabric did not show any changes on the surface appearance and super-hydrophobicity. Further stain repellency

was conducted. No residue and stain was absorbed on the washed fabric.

Oral Presentation Session #2: 10:30-11:45AM Room 350

Pankiewicz, Josiah

MA, Children’s Literature (CHL)
English Language & Literature
Dr. Amanda Allen

C.S. Lewis & Mary Martha Sherwood: Christian Authors Constructing Children who Require Authority

Moralistic writers must construct a theoretical child they think they are writing for, and gear their work to speak to them. Some Christian writers positioned children as, paradoxically, both totally responsible for their own decisions, but also, infuriatingly incapable of acting morally when separated from an authority figure. In both Mary Martha Sherwood’s *The History of the Fairchild Family* (1818) and C.S. Lewis’ *The Lion, the Witch, and the Wardrobe* (1950), readers can see the narratives demanding moral decisions from children, but having them unable to enact such choices until in the presence of an adult, often spiritual, authority figure. I argue that changes in English culture from the Industrial Revolution to the Post-World War II era surrounding religion, childhood, and family allow children characters from these texts differing levels of compassion and forgiveness. While both authors doom their children to moral ineptitude, Lewis is able to offer a more autonomous route to redemption than was available in the religious and social consciousness to Sherwood. By creating children who craved authority, these authors built a system in which the younger generation would naturally gravitate towards their worldview and agree that Evangelical, Protestant moral authority is the only viable option to live one’s life under. Using theories from Jacqueline Rose, I will discuss how Sherwood and Lewis create the idea of a child already shaped by Original Sin, and how this translates into their works and the redemption available to characters. Through an investigation of the shifts in Evangelical Protestantism, thoughts on childhood, and the role of parental authority from the authors’ time periods, I will show how both writers were able to stay true to the tenants of their faith, even when seeming to enact a different level of moral accountability for children.

Oral Presentation Session #3: 1:15-2:30PM Room 320

Panuganti, Sai Jashwanth

MS, Construction Management (CM)
Visual & Built Environments
Dr. Kasim Korkmaz

Investments and Investors in Detroit

The main purpose of this study is to identify specific investments which are being made in Detroit. There is an opportunity for the investors to invest in Detroit, a city of rich history and great potential and it is something many people are beginning to recognize. After the 1967 riots in Detroit, the city experienced a huge decline in population and there was an increase in unemployment rates, crime rates, and poverty. As a result of these factors the economy became weak and in 2013, the city of Detroit filed for bankruptcy. But now things have changed, as Detroit is a different market. There are opportunities in real estate at low prices, and the opportunity for increased cash flow in the near future as the market will need quality landlords. Each unit will have a healthy return that cannot be achieved through traditional investments. The number of companies investing in Detroit has increased dramatically, including investors such as JP Morgan Chase and Dan Gilbert who are standing strong for

Abstracts Cont'd

the Detroit's growth. This paper describes the investors and investments which are being made through renovations, real estate, developing neighborhoods, parks, and small businesses in Detroit, which in turn increases the economy of the city of Detroit by attracting people, providing them job opportunities making the unemployment rate and thus the poverty rate come down.

Oral Presentation Session #3: 1:15-2:30PM Room 350

Patel, Mohit

MS, Construction Management (CM)

Visual & Built Environments

Dr. Kasim Korkmaz

Transit-Oriented Development (TOD) in the City of Detroit

The term transit-oriented development (TOD) is widely used in the transportation/transit field. It is a design and community planning approach to accomplish improvements that harvest natural, social, and financial advantages for the individual, region, and community. When employed successfully, TOD increases ridership on transit and raises the property values of nearby land (TDM Encyclopedia 2010a). If it is implemented, then transit-oriented development plays a significant role in improving local and regional transits. The purpose of this study is to understand the current transit system in metro Detroit as well as the environmental, social, and economic benefits of the implementation of transit-oriented development in Detroit. This study will also find the effects of TOD in regards to the decrease in greenhouse gases (local and global emission), potential energy savings and cutting down travel and transportation costs from more TOD. There is also a focus on neighborhood livability and economic benefits, such as increased affordability and urban redevelopment.

Oral Presentation Session #3: 1:15-2:30PM Room 350

Patterson, Chrishelle; Willeman, Jack

MS, Orthotics and Prosthetics (ORPR)

Health Promotion and Human Performance

Assoc. Professor Frank Fedel

Mobile-based Application for Orthotic Management of the Diabetic Foot

The diabetic population is at increased risk of neuropathy of the extremities, resulting in poor blood flow and lack of sensation, especially in the feet. This neuropathy can lead to the development of diabetic foot ulcers (DFUs), which are slow to heal and frequently lead to severe complications including amputation and death. Orthotic intervention has been demonstrated to facilitate healing of DFUs and to aid in prevention. A major obstacle in the efficacy of orthotic management is poor patient adherence to the recommended treatment plan. Research shows that there has been a recent increase in the successful utilization of smartphone apps to assist diabetic patients in monitoring and regulating their blood glucose levels. However, there is no research regarding the use of similar apps to aid diabetic patients with their orthotic care. The purpose of this study is to examine the current status of smartphone app utilization in the management of chronic diseases and to implement these findings in the development of an orthotic care-specific app.

Poster Presentation Session A: 9:00-11:00AM Room 310A/B

Pellerin, Jim

MA, Criminology and Criminal Justice (CRM)

Sociology, Anthropology, & Criminology

Dr. Grigoris Argeros

Combating the Opioid Crisis in Middle America: How Dayton, OH Reduced Overdoses by Fifty Percent

Opioid abuse is currently the fastest growing public health concern in the US. In order to develop prevention and treatment programs that are effective, those in the field need to understand which tools are necessary to fight this battle. This project seeks to identify effective methods used by Dayton, Ohio to reduce the number of overdose deaths due almost entirely to fentanyl and carfentanil. Some of these methods include understanding abuse causation, such as pain management, social influences, and recreation, while others include controversial methods such as needle exchange programs and requiring police and first responders to carry naloxone (NARCAN). On the basis of these utilized techniques, the economic, political, and social implications are evaluated, which revealed that tangential entities condemned these tactics and refused to participate in major initiatives. Research implications are discussed.

Oral Presentation Session #2: 10:30-11:45AM Room 302

Phanord, Christopher

MS, Psychology (General Clinical) (PSYC)

Psychology

Dr. Stephen Jefferson

The Moderating Effect of Impostorism on Mindset and Negative Affect in College Students

The Impostor Phenomenon (IP), often referred to as the Impostor Syndrome, is usually described as a negative self-perception associated with feelings of inadequacy. This stance is often accompanied by difficulty internalizing past achievements, and a fear of being exposed as a fraud. A person experiencing IP may tend to downplay their competence and may attribute their success to luck rather than their knowledge, skills, and abilities. Prior research findings suggest that a positive correlation exists between endorsing imposter feelings and subscribing to fixed-mindset attitudes; however, this finding was only significant for women. Further, positive links between impostorism and both negative affect and self-critical cognition have also been found. The present study aimed to replicate and extend these findings. Specifically, we wished to confirm that men and women differ in their levels of impostorism. Further, we wished to assess the role of fixed-mindset beliefs as a potential moderator between impostorism beliefs and negative affect (i.e., we expected that impostorism would only be associated with negative affect if participants endorsed a fixed-mindset; if they adopted a growth-mindset, there ought to have been no association between these variables). Finally, we also expected that the association between impostorism and negative affect would be mediated by participants' shame-proneness. Findings and implications will be highlighted in this poster.

Poster Presentation Session B: 1:15-3:15PM Room 310A/B

Phillips, NJ; Moellering, Christine; Raschid, Alissa

MOT, Master of Occupational Therapy (MOT)

Health Sciences

Dr. Andrea Zakrajsek

Effectiveness of Non-Pharmacological Interventions for Adolescents with Chronic Pain

Research has shown that 15-30% of children and adolescents experience chronic pain, which results in a measurable decline in their overall quality of life. This research project sought to find effective non-pharma-

colological interventions in reducing pain for adolescents who experience chronic pain through a critical literature review. Databases used were AJOT, CINAHL, Cochrane Library, ESearch, Google Scholar, and PsycINFO. Key terms used included chronic pain, fibromyalgia, interven*, adolescen*, therap*, chronic regional pain syndrome (CRPS), and relaxation treatments. Research included in this review was comprised of studies that focused on reducing pain, such as musculoskeletal pain, arthritis, localized and generalized pain, fibromyalgia, and recurrent abdominal pain. Articles that described inpatient and outpatient treatment settings were included in research. Pains excluded from research were acute pain, burns, and post-surgery pain. Articles written prior to 1990, articles not in English, and pharmacological interventions were excluded. Effective interventions that were found in this review included Cognitive Behavioral Family Intervention, Cognitive Behavior Therapy, Relaxation Techniques, Biofeedback, and Mindfulness-Based Interventions. Interventions using visualization techniques had mixed results. Ineffective interventions examined for this review were Lifestyle Redesign[®] and Virtual Dodgeball. Clinical implications from this study include the important role of occupational therapy in educating patients and families about chronic pain, the rationale for treatments, and teaching parents behaviorism techniques. Incorporating relaxation techniques and teaching positive self-talk to adolescents with chronic pain is recommended. Suggestions for future studies include conducting occupation-based interventions for adolescents with chronic pain. Further research is recommended for mindfulness and virtual reality/video-gaming interventions with larger sample sizes.

Poster Presentation Session B: 1:15-3:15PM Room 310A/B

Pitta, Naveena

MS, Construction Management (CM)
Visual & Built Environments
Dr. Kasim Korkmaz

Business Opportunities and Sustainable Developments in Detroit

During the early 20th century, Detroit was the center of the automotive industry with rapid growth paving a path for other lines of businesses and increasing the job opportunities. Migrations from other parts of the country made the Detroit center for development. Technological shifts, racial tensions, riots, and competition from foreign markets declined the city's economy and infrastructure. The city was abandoned, and industries shifted to other suburbs which were safer. Finally, the 2008 housing market crash hit the city both socially and economically. Since then, many organizations are stepping forward to rebuild and develop the city's infrastructure. From the past five to six years, new businesses (both micro and macro) are uplifting Detroit economically. Restoration and rehabilitation activities are being carried out by these organizations. To make Detroit a better place for future generations, sustainable developments are to be carried out such as green construction, acknowledging people about eco-friendly practices, etc. Affordable housing plans, encouraging start-ups by providing financial assistance, quality education, transportation, employment, etc. raise the living standards of people living in and around the city. The aim of this research is to study the ongoing sustainable developments and business opportunities in Detroit and to analyze some possible ideas and solutions for Detroit's infrastructure.

Oral Presentation Session #3: 1:15-2:30PM Room 350

Price, Deanna

MS, Molecular/Cellular Biology (MCBI)
Chemistry
Dr. Hedeel Guy Evans

Examining the Binding Kinetics of Acetylcholinesterase and Humanin with Amyloid-Beta

Acetylcholinesterase (AChE) is an enzyme that breaks down the neurotransmitter acetylcholine at the synaptic cleft. The cortical AChE activity present in the Alzheimer's brain is known to be predominantly associated with the amyloid core of senile plaques. AChE forms a stable, toxic complex with the Amyloid-beta (A β) peptide during its assembly into filaments, increasing the aggregation and neurotoxicity of A β fibrils. Here we show that humanin blocks the interaction of AChE with A β and reduces its rate of aggregation. Our data suggests that HN and AChE may serve to regulate the central domain of A β (residues 17-24) flanked by Lys-16 and Lys-28, known to be a critical structural element in fibrillar A β aggregates.

Poster Presentation Session B: 1:15-3:15PM Room 310A/B

Raosaheb Dhurpat, Priyanka

MS, Computer Aided Engineering (CAE)
Engineering Technology
Dr. Tony Shay

Development of a New Airfoil for Small Horizontal Axis Wind Turbine

The purpose of this research is to design an airfoil for small wind turbine blades. A blade is designed considering the conditions of low wind speed and high lift/drag ratio for desired power output. Airfoils used in large wind turbines are designed for high wind speed whereas small wind turbines are intended to produce power at low wind speed. If the airfoil designed for large wind turbines is used for small wind turbines, it will result in less power production than expected. The airfoil in this study is designed based on the Reynold's number for high lift/drag ratio. QBlade software is used to develop an airfoil followed by Computational Fluid Dynamic (CFD) analysis using ANSYS Fluent. For standard airfoils, lift/drag ratio decreases rapidly as angle of attack increases. The airfoil developed in this study has an improved lift/drag ratio, even for the greater angle of attack. The results are compared with wind tunnel test data.

Oral Presentation Session #2: 10:30-11:45AM Room 350

Redigan, Hannah

MA, Clinical Mental Health Counseling (CMHC)
Leadership & Counseling
Dr. Irene Ametrano

Disordered Eating and Negative Body Image among Sorority Women

The lifestyle of a sorority woman often involves several facets that may contribute to the development of negative body image and/or disordered eating. This study examined body image and eating habits among over 100 sorority women and what factors contribute to these eating habits and body image. The components of prevention programs aimed at combating negative body image and eating disorders among sorority women will also be discussed.

Poster Presentation Session A: 9:00-11:00AM Room 310A/B

Abstracts Cont'd

Remp, Ann M.

MA, History (HST)
History & Philosophy
Dr. Ronald Delph

Girolamo Savonarola (1452-98): The Fashioning of a Prophet in Fifteenth Century Florence

Five questions frame this study of Girolamo Savonarola's career path: (1) Why did the cities, particularly Florence and Rome, create the conditions for the rise of a prophet? (2) Why did Savonarola's piety, morality, and education set him on the path to becoming a prophet from an early age? (3) Who were the models that Savonarola chose to emulate in becoming a prophet and why? (4) Why was Savonarola able to convince people from varied classes to accept him as a prophet? (5) Why ultimately, in the face of charges of heresy, did he seek martyrdom? This presentation focuses on the conditions that fostered the rise of prophets in this pre-modern period and prepared Florentines to accept Savonarola as a prophet. The study is based on the theory of Teun A. van Dijk, Discourse and Context: A Sociocognitive Approach. This provides a framework to study interactions between Savonarola and his audience and between social and political contexts and the selection of message content in sermons, treatises, and other texts. This presentation argues that the conditions violence, corruption, and fear combine with a legacy of prophetic movements to prepare the population to accept the messages of Savonarola as a prophet.

Oral Presentation Session #1: 9:00-10:15AM Room 300

Rock, Elizabeth

MS, Ecology Evolution and Organismal Biology (EEOB)
Biology
Dr. Katherine Greenwald; Dr. Jamie Cornelius

Effect of Urbanization on Stress Response in Eastern Garter Snakes (*Thamnophis sirtalis*)

Urbanization affects both abiotic and biotic components of the environment. Altering landscapes from natural states to urban states results in changes to microclimate, input of pollutants, and disruption of ecosystem function, all of which may increase stress on organisms in these areas. Stress metrics of individual animals may be an indicator of how likely a population is to persist, which can inform our understanding of species living in urban environments. Corticosterone (CORT) is a hormone produced in response to life history circumstances, daily demands, and stressful events. Chronic or long-term stress stimuli can alter the baseline status of CORT in the blood. This study will measure physiological stress response (CORT levels) and physical health metrics (body condition) in Eastern Garter Snakes (*Thamnophis sirtalis*) along an urban-rural gradient, with the goal of assessing whether the magnitude of this effect varies over time (e.g., decreased HPA axis sensitivity). *T. sirtalis* is a generalist species commonly found across the eastern United States in a variety of habitats, ranging from meadows to urban areas. We predict that snakes in urban areas will have increased CORT when compared to rural snakes. We further predict that snakes in urban areas will have poorer body conditions than snakes in rural areas, as a reflection of this physiological response.

Poster Presentation Session A: 9:00-11:00AM Room 310A/B

Rogers, Jenny

MFA, Applied Drama & Theatre for the Young (ADTY)
Communication, Media, & Theatre Arts

Dr. Patricia Zimmer

Prototyping and Adapting a Story to Puppet Theatre: Process and Development Through an Artist Residency

In Fall 2018, I was invited for a four-month artist's residency at the Mermaid Theatre of Nova Scotia. The purpose of my residency was to begin the development process for adapting an original text (Sophie's Gift, which I wrote and illustrated) to a live puppet theatre production. An unusual aspect of this project is its two-dimensional, paper doll aesthetic. Through its unique style, the author/creator will model themes in the story, not through didacticism, but by embodying them in every aspect of the production. During my residency at Mermaid Theatre, I was able to realize a full-scale prototype model of the puppet set, a one-inch scale working model, multiple prototypes of the Sophie puppet and of the secondary puppet character, Bird. The residency also provided an opportunity to learn and understand the storyboard process for puppet theatre. With acute attention to detail and a goal of industry excellence, I hope through work of this kind to inspire young audience members to their own creative independence and self-confidence. To my encouragement, the project has been met with enthusiasm by professionals at Mermaid and in the field of theatre for young audiences. As Jim Morrow, Artistic Director of Mermaid Theatre wrote, "I also trust that we will stay involved in the creation of her production, Sophie's Gift, which, I have every confidence, will be world class."

Arts Front: 1:15-2:30PM Student Center Auditorium

Rutledge, Ladd

MS, Accounting (MSA) (ACC)
Visual & Built Environments
Dr. Julie Becker

An Examination of the Guiding Criteria Used by Midwestern Men in Selecting a Dress Shirt

Very little research has been conducted to study menswear and issues that pertain to men's relationship with clothing compared to the voluminous studies on womenswear. Within the menswear category, perhaps one of the most pressing issues is the culture of fit and sizing for menswear and the industries' seeming lack of response to customer needs. This study will seek what criteria men find important when selecting a dress shirt. A survey method will be used to examine men located in the Midwest. The survey will consist of questions that pertain to the process men use to select a white dress shirt and what particular features or flaws men like or dislike with the design of dress shirts. The findings of this survey will hopefully give greater insight into what men actually prefer in a dress shirt and suggest potential modifications to provide a better fitting garment.

Poster Presentation Session B: 1:15-3:15PM Room 310A/B

Schultz, Sara

MA, History (HST)
History & Philosophy
Dr. John McCurdy

Political Activities of Manhattan Project Physicists, 1930 – 1945

This research investigates the scientists who worked on the Manhattan Project during World War II. In particular, it considers the idea that the fear of the atomic bomb and its potential politicized them and argues that the scientists were, instead, political before the war. Historians typically

start at the detonation of the atomic bombs as the point when physicists decided to become politically involved. The traditional works primarily focus on the few months in 1945-46 where the scientific community failed to convert back to its pre-war practices, which included nearly complete detachment from the government and became involved in the Atomic Scientists Movement. Through studies of Manhattan Project physicists before and during World War II, it can be seen that they were politically active, involved and that their work did create conflict within their scientific community and between their personal civilian and scientific sides. By looking at various archival resources, the research highlights the experiences of prominent men such as J. Robert Oppenheimer, Leo Szilard, and Neils Bohr, to demonstrate that those involved in the Manhattan Project were not apolitical. They were, in fact, acutely aware of their work and the potential it had.

Oral Presentation Session #2: 10:30-11:45AM Room 302

Seeley, Kathleen

MS, Orthotics and Prosthetics (ORPR)
Health Promotion and Human Performance
Dr. Jacob Linquist

Quasi-Powered Ankle Prosthesis with Electromyographic Sensor Integration

Studies suggest that the use of more advanced prostheses [such as myoelectric ankles and microprocessor knee units] increases balance while ambulating and, consequently, decreases the likelihood of falling (Miller et al., 2001). Correspondingly, myoelectric prostheses may enable a highly functional but limited community ambulator to achieve the characteristics of a community ambulator. Unfortunately, amputees who are high functioning limited ambulators may only acquire myoelectric prostheses through personal financial investment because Medicare/Medicaid and most private insurers will not reimburse prosthetists for myoelectric devices unless the amputee for whom the device is intended is a community ambulator. The aim of the proposed investigation is to create an inexpensive, myoelectric ankle prosthesis that will enable transtibial amputees who are high functioning, limited community ambulators to advance in their functional ability until they become community ambulators.

After a review of pertinent literature, ANSYS software will be used to develop, as well as evaluate the mechanical and electrical integrity of the ankle unit. It is intended that the first design iteration feature the integration of an electromyographic system into a mechanical ankle similar to the low-profile, quasi-powered ankle prosthesis with non-backdrivable cam-based transmission published in 2017 by Lenzi, et al. It is expected that the design proposal will be considered complete with the production of an ankle design that demonstrates myoelectric activated control of plantar flexion and dorsiflexion.

Poster Presentation Session A: 9:00-11:00AM Room 310A/B

Seewald, Joel

MS, Geographic Information Systems (GIS)
Geography & Geology
Dr. William Welsh

An Examination of the Old Lutheran Emigration from Prussia (1835-1854) Using GIS

In the mid-nineteenth century, a group of people called the Old Lutherans left Prussia because of religious persecution for new homes, primarily in New York, Texas, Wisconsin, and South Australia. This migration was covered extensively by Wilhelm Iwan in two books — one published

in 1931 and the other in 1943. However, Iwan created only a couple of hand-drawn maps to visualize the migration. In one book the maps show the origin cities and villages in Prussia. The other book covers only the Australian migration and includes a map of the origin cities and villages in Prussia and a map of their settlements in Australia. This presentation will show how GIS can be used to visualize the locations of the cities and villages from which most of the Old Lutherans came and, at the same time, show where the emigrants ended up and the approximate number of emigrants from each origin. We will also see whether there are distinct regions in Prussia from which people went to each destination.

Oral Presentation Session #2: 10:30-11:45AM Room 302

Shaheen, Qadri

MS, Construction Management (CM)
Visual & Built Environments
Dr. Suleiman Ashur

Impact of Highway Work Zones on Traffic Crashes: A Case Study in Michigan

Infrastructure in the US is severely aged and outdated. This presents a seemingly paradoxical problem in the field of construction management: In order to fix and make roads and highways more safe, construction zones must become inherently less safe in the process. There is a high cost to taxpayers and drivers, as work zones experience a significant amount of crashes and fatalities each year. To mitigate some of the factors that contribute to these crashes, this paper attempts to deliver guidelines on how to update relevant crash data, identify relevant factors, and create recommendations accordingly. The research focused particularly on data from 2016 and closely observed data from the year preceding and following to isolate variables affecting work zone safety: the crash rate during construction compared to the time before construction and to the time after construction. Descriptive statistics, a paired t-test, and analysis of variance were used to test the crash rate differences. The study found with 95% confidence level that there is no significant difference in mean crash rates between construction time and non-construction time. Additionally, the study attempts to corroborate these data with external factors such as population and environment type and ultimately determine whether these factors are indeed significant to work zone safety.

Oral Presentation Session #1: 9:00-10:15AM Room 352

Soberal, Marilena; Boone Green, Allison

MA, Educational Leadership- Higher Education/ Student Affairs (HESA)
Leadership & Counseling
Dr. Carmen McCallum

The Effects of Success Coaching in College Students

This study examined the role and impact of a college success coach on at-risk, economically disadvantaged students and their persistence in higher education. Research demonstrates that a success coach can result in greater student retention and degree completion (Bettinger & Baker, 2014). Participants in this study were 14 college students from Washtenaw County Michigan, currently enrolled in a college or university. These students were recipients of the Ann Arbor Area Community Foundation (AAACF) Community Scholars Scholarship, which provided a multi-year scholarship with a success coach in hopes of supporting their persistence and attaining a postsecondary degree. Semi-structured interviews about college experiences, support systems, and familial views of higher education were conducted. Results indicate that students

Abstracts Cont'd

experienced a significant impact from the role of a success coach in their college experience.

Poster Presentation Session B: 1:15-3:15PM Room 310A/B

Stover, Elizabeth

MS, Ecology Evolution and Organismal Biology (EEOB)

Biology

Dr. Kristin Judd; Dr. Steven Francoeur; Dr. Daniel Clemons

The Effects of Emergent Pollutant Pharmaceuticals on Stream Biofilm Function across a Land-Use Gradient

Pharmaceuticals and personal care products are a contaminant class of emerging concern, detected in waters worldwide and potentially important global change agents. While the ecotoxicology of many of these compounds is understood, ecosystem-scale impacts at non-lethal levels have not been fully explored. We used microcosm experiments to assess ecosystem responses of stream biofilms from watersheds dominated by urban, agricultural, and natural land use. Biofilms were cultivated on tiles in six streams of the Huron River watershed and exposed to nm concentrations of triclosan, diphenhydramine, and sulfamethoxazole-trimethoprim treatments for microcosm experiments. There was no difference in chlorophyll fluorescence between treatments and controls, but dissolved organic carbon consumption decreased across five of the six sites by an average of 4.5%, 4.5%, and 2.4% in biofilms (excluding Mill Creek) when exposed to triclosan, diphenhydramine, and sulfamethoxazole-trimethoprim, respectively. Following exposure to triclosan, decomposition, measured using cotton strip assays, decreased nearly 50% in two streams, but did not change at the other sites. These results indicate that trace pharmaceutical exposure decreases some, but not all, biofilm processes and may alter stream carbon dynamics. Contrary to expectations, the largest impacts were observed in urban sites, indicating these communities may be more susceptible to pharmaceutical inputs. Further research is needed to assess the ecosystem-scale effects of these bioactive pollutants on natural processes in order to better inform regulation regarding waterways.

Poster Presentation Session A: 9:00-11:00AM Room 310A/B

Syed, Maaz Ahmed

MS, Construction Management (CM)

Engineering Technology

Dr. Kasim Korkmaz

Comparison of Economic Crisis between Detroit and Cleveland

Detroit, the largest city in Michigan, has undergone a major economic decline since the 1950s. Cleveland, the 2nd largest city in Ohio, faced similar economic crisis and unemployment after the Great Depression in the 1930s. The purpose of this study is to compare the economic crises between Detroit and Cleveland. The comparison will be conducted on basis of unemployment rates, poverty level, population density, and real estate. This historical case study will use factual research which incorporates factors and the causes of economic downfall. The research study of the comparison of the economic crises between Detroit and Cleveland can help improve different sectors of economy.

Oral Presentation Session #1: 9:00-10:15AM Room 320

Symonette, Nafeesah

MA, Arts Administration

Communication, Media, & Theatre Arts

Dr. Susan Booth

Cultivating Creative Educators in the 21st Century

The 21st century's most sought after commodity is creativity. So why has Arts Education in the K-12 public school sector been devalued, under-served, and neglected? This research seeks to identify significant gaps in the field of arts education and seeks to introduce ways in which significant improvements can be made. As school districts begin to rediscover the relevance of arts education for the 21st century student, this research will document as a case study, the best practices of nationally recognized arts education professional development programs. The data collection will consist of academic and peer reviewed research on the state of arts education in K-12 public education. A comparative analysis of nationally recognized programs with the goal of enhancing the learning and teaching methods of artists and arts educators will be studied. Additionally, this study will address the significance of arts education and culturally responsive teaching for the purpose of engaging creative learners. The researcher seeks to create a professional development workshop to share findings with professional artists and educators to develop a rigorous student engagement in the arts education curriculum. The potential impact of this research will support the revitalization and/or growth of arts education programming through the reinforcement of teacher and professional artist development. Through these improvements teachers will find new avenues to connect with students' natural and creative talents. By improving arts education a school district stands to see improvements in a students' general education performance, thereby increasing graduations rates and student matriculation toward the creative industries, trade apprenticeships and/or increase a college-going culture.

Oral Presentation Session #2: 10:30-11:45AM Student Center Auditorium

Thatikonda, Aishwarya

MS, Construction Management (CM)

Visual & Built Environments

Dr. Kasim Korkmaz

Smart City Concept for Detroit Case

A smart city is the one that uses a smart system characterized by the interaction between infrastructure, capital, behaviors and cultures, achieved through their integration. Over the past few decades, the city of Detroit is facing major challenges like migration and urban decay. The vision is to make Detroit a resident-friendly and sustainable city. The objective is to promote a city that provides core infrastructure and a high quality of life to its residents. The current urbanization requires strong strategies and innovative planning to modernize the urban life. Many cities are enhancing quality and performance of urban services by being digitized, intelligent and smarter. In this paper I would like to do a research study on cities that have transformed into smart cities and will identify probable solutions for the city of Detroit.

Oral Presentation Session #1: 9:00-10:15AM Room 352

Theisen, Emily

MS, Orthotics and Prosthetics (ORPR)

Health Sciences

Dr. Jacob Lindquist

Differences in Plantar Pressure using Different Durometer Foam Pads in Young Adults with Pes Planus

Metatarsal pads are commonly used as a non-surgical treatment for

people with flat feet. When the pads are appropriately placed, they are considered to be effective in reducing pressures on the bottom of the foot, specifically under the ball of the foot. Despite previous research being conducted on the effectiveness of metatarsal pads reducing pressure, there have been no studies done on the effectiveness of foam pads of different stiffnesses. For this study, 10-20 active young adults will participate. These subjects will need to have a flat foot condition and consider themselves to be active 3-5 times a week. Once the subjects have met the inclusion criteria, their shoe size will be noted and used to custom fabricate two different metatarsal pads made from two different foam materials. These subjects will then be asked to walk across a pressure sensor mat at their normal walking speed under three conditions: without any pad, foam pad #1, and foam pad #2. Data will be collected and analyzed using the PhitsMat. This type of system will allow the researcher to view the plantar pressures of the foot to determine which type of pad is best at reducing plantar pressures at the metatarsal heads. It is hypothesized that the firm pad will be better and pressure redistribution than the soft pad or no pad at all.

Poster Presentation Session A: 9:00-11:00AM Room 310A/B

Thompson, Teona

MS, Construction Management (CM)

Visual & Built Environments

Dr. Kasim Korkmaz

Detroit: Adapting Mass Transportation to a Limited City

The purpose of this study is to evaluate current modes of transportation as well as implementing new and improved mass transportation to Detroit, Michigan. For a city that has approximately 66,000 households that are car-less, mass transportation is extremely limited, and some transportation does not reach to some neighborhoods in city limits. The question is, why has transportation fallen to the wayside? Why has it taken Detroit so long to implement a mass transit system? By analyzing Detroit's economic trends, the rise and fall of population, business growth, commute time and length, and the employment history of Detroit residents working in the city versus neighboring county residents commuting daily to the city, a conclusion can be made as to why mass transit is so low in one of the largest cities in America. Furthermore, the research will compare data formulated from other large cities such as, Chicago, Seattle, and New York City, with mass transit plans that can give Detroit an idea and help implement their own mass transit plan. In conclusion, the study and data should prove that mass transit does improve the daily lives of its residents, increase business growth, and decrease unemployment rates.

Oral Presentation Session #1: 9:00-10:15AM Room 352

Tudor, Candice

MA, Criminology and Criminal Justice (CRM)

Sociology, Anthropology, & Criminology

Dr. Rita Shah

Exploring the Impact of Solitary Confinement on Life after Prison

The immediate impacts on a person held in solitary confinement is an extensively researched phenomenon; these range from the development of anxiety, depression, paranoia, psychosis, hypersensitivity, and hallucinations to increased incidences of self-harm and levels of violence towards others. In contrast, less is known about the long-term impacts and given the severity of the immediate impacts of solitary, it is likely that

this experience affects individuals even after they have been released back into society. In this presentation, I will discuss a proposed study in which I evaluate the trauma caused by time spent in segregation by comparing trauma ratings between those who spent time in segregation and those who did not, along with possible impacts on post-incarceration life. The proposed method is a survey containing both a trauma assessment scale and open-ended questions about the impacts of solitary confinement.

Oral Presentation Session #4: 2:45-4:00PM Room 300

Vagholkar, Parth

MS, Polymers and Coatings Technology (PLT)

Engineering Technology

Dr. Vijay Mannari

Interior Automotive Coatings: Study of Effect of Cross Link Density and Film Thickness on the Performance

Automotive Interior clearcoats, for rigid and flexible substrates, represent an important segment within the automotive coating domain, requiring optimum chemical and mechanical properties. Crosslink density (XLD) of the cured coating and its solubility parameter (SP) are the two prominent factors influencing the properties of the clearcoats. In general, a higher XLD signifies higher number of crosslinks (attachments) between polymeric chains per unit volume of the coated film. This results in lower free volume between the chains and thereby lower permeability for chemicals and fluids through the coating at a given film thickness. Thus, in general, coatings with a higher XLD exhibit good chemical resistance but have a high hardness due to the tightly closed network formed by the crosslinks. SP of the coating gives information about the coating's affinity to various chemicals. A chemical can effectively penetrate a coating if its numerical value of SP is comparable to that of the coating. SP is an important factor which can affect the chemical resistance of the coating towards various chemicals (like DEET, suntan lotion, etc), which normally come in contact with the interior automotive clearcoats. The present study investigates the effect of XLD and SP on the performance of the coatings. We have formulated a range of 2K Polyurethane and Polyol-Melamine based coatings with varying XLD and applied at various dry-film thicknesses (DFT) for measurement of their chemical and mechanical properties. The XLD were determined by the swelling method using thirteen different solvents with varying SP. XLDs have also been determined using Dynamic Mechanical Analysis (DMA). The results of this study provided us with some useful information regarding the effect of XLD on the performance of the coating which can be helpful to both formulators and end-users in formulation and trouble-shooting purposes.

Poster Presentation Session B: 1:15-3:15PM Room 310A/B

Vaughn, Lawyer

MS, Construction Management (CM)

Engineering Technology

Dr. Kasim Korkmaz

Shortage of Work Flow in Construction Projects in Detroit

The focus of this project is growing the image of skilled trades as a valuable career to the Detroit community starting with the millennial generation. To approach the skill trades workforce shortage among Detroiters, my paper will review a strategic recruiting campaign consisting of a skill trades show and a career day event that will target high school students

Abstracts Cont'd

in Detroit. The purpose of the project is to increase the skilled trades workforce from a "grassroots" marketing plan. The strategic plan will consist of surveying the students and their current thoughts about skilled trades as a career. The survey will have six questions. However, after all events, a revamped survey will ask similar questions where we will see if the answers and results are better. I will specifically be looking at the city of Detroit's labor shortage in skilled trades and examine some of the reasons why people, especially the millennial population, lean away from the industry as a career choice.

Oral Presentation Session #4: 2:30-4:00PM Room 302

Wagner, Keely

MS, Psychology (General Clinical) (PSYC)

Psychology

Dr. Catherine Peterson

Chronic Headaches in Children and Adolescents: Systematic Review of the Literature and Pilot Study

Although chronic headache pain is a problem for an estimated 10% of school-aged children, the majority of the research focuses on solely migraine pain in children or chronic headache pain in adult populations (Gladstein, 1996). The functional implications of children and adolescents with chronic pain have been shown to be associated with psychological distress, decreased physical activity and school participation as well as having a negative effect on family functioning (Palermo, 2000). Our current study examines how chronic headaches may be associated with the cognitive function in children ages 6-17 (current N = 9, data collection ongoing). Preliminary pilot data will be presented. Each child was given a brief battery of executive functioning tests, as well as paper-and-pencil questionnaires assessing psychosocial functioning. Parents completed measures of parent and family functioning as well. This presentation will provide a literature review of chronic headache pain in child populations and present preliminary results of the study. With improved understanding of associations between child and adolescent chronic headache pain and the children's executive functioning, targeted family interventions may be able to improve coping with chronic pain.

Oral Presentation Session #1: 9:00-10:15AM Room 330

Wang, Yixuan; Gadekar, Aishwarya

MS, Polymers and Coatings Technology (PLT)

Chemistry

Dr. Vijay Mannari

Design of Non-Isocyanate Polyurethanes for Advanced Aerospace Coating Application

Polyurethanes (PUs) are used in a variety of applications such as coatings, adhesives, sealants, elastomers, etc. However, currently utilized polyurethanes are based on harmful isocyanate compounds which are prone to be subjected to severe regulations in the future. Our project studies the development of environmentally friendly non-isocyanate polyurethane coatings prepared by a novel route based on reaction of cyclic carbonates and amines in different proportions. Coatings are prepared using different ratios of polyurethane polyamine (PUPAs) and epoxies (aromatic and aliphatic) as crosslinkers and studied for various coating performance criteria such as flexibility and hardness. We have also studied the effect of manipulating the structure of polyurethanes on the mechanical properties of coating which are of high importance in advanced coating applications such as aerospace paints. Results have revealed that

changing ratios of PUPAs and epoxies affects the crosslink density of the coating and various properties such as adhesion, impact resistance and water resistance. Selected coating samples showed superior performance compared to commercially available PU coatings. These coatings will lead to significant environmental, occupational safety, and health benefits, as well as increase productivity.

Poster Presentation Session B: 1:15-3:15PM Room 310A/B

Watson, Adam

MS, Orthotics and Prosthetics (ORPR)

Health Promotion and Human Performance

Dr. Frank Fedel

Proposed AFO Retention and Adjustment Design

An ankle foot orthosis (AFO) is a plastic device worn by patients to assist with proper gait mechanics. The orthosis typically extends along the bottom of the foot and wraps around the posterior side of the ankle to mid-calf. A large opening on the front of the device allows patients to place their limb inside. After the device is donned, a strap that crosses the opening is looped through a thin metal ring at the top of the orthosis to retain the limb in proper position. This system can be a challenge to manage for a subset of orthosis users with pathologies such as neurological dysfunction, muscle contractures, decreased flexibility, and impaired or loss of vision due to the fine motor skills and visual acuity needed to use the strap. Attempting to thread a strap through a thin metal ring and secure it can be a difficult and frustrating process and require extended time to don the device. A simple design for securing the orthosis without assistance is presented. The design uses thin cables, low-profile attachment sites, and a spring-loaded dial to provide micro-adjustability. This design addresses issues inherent in the conventional strap-and-loop design by requiring less dexterity, obviating the need for visualization, and allowing patients to complete the action with one hand.

Poster Presentation Session A: 9:00-11:00AM Room 310A/B

Wauer, Carl

MA, Philosophy

History & Philosophy

Dr. John Koolage

Intuition and Game AI

When people make decisions, it is rare that the person making the decision consciously deploys any of the traditional deductive logical tools. This suggests that people do not make "rational" decisions in the traditional sense. Worse yet, people do not recognize traditional logics as guiding their decision making; in fact, most people do not recognize any rules that they follow in many mundane decisions. In many ways, the everyday reasoning of human beings appears to be "intuitive." I explore some models of non-logical models of reasoning in order to capture this idea of intuitive decision-making processes. I argue that what we sometimes call intuitive decision-making may offer a solution that is as good, if not better than traditional, rational decision-making in the same instances. To do this, I appeal to some current Artificial Intelligence (AI) structures to clarify these models and ideas. Further, I offer an account of intuitive decision-making as an informed decision-making process that develops through repetitive exposure to similar situations.

Oral Presentation Session #1: 9:00-10:15AM Room 320

Werner Tschoeke, Patricia

MS, Interior Design (IDE)
Visual & Built Environments
Dr. Shinming Shyu

An Assessment of Passive Design Efficiency

It is a known fact that hurricanes, wildfires, and other natural disasters have increased over the recent decades, as a result of climate changes. One of the main sources of CO₂ emissions is the ever-increasing energy use contributing to global warming. At present, the society needs are such that our daily routines are tied to energy consumption under several forms, including transportation, electricity use, etc. Looking for comfort and health, energy is consumed by buildings for heating, cooling, ventilation, domestic hot water, appliances, and lighting. According to the Energy Information Administrator (EIA), buildings accounted for 11% of the overall U.S. primary energy consumption in 2017. Therefore, building energy is to be an urgent research topic to address energy efficiency and climate changes. To improve energy efficiency, it is imperative for buildings to use passive design that can help to reduce the energy consumption, create a sustainable environment, and lead to healthier living environments. This study intends to explore advantages and disadvantages of passive design, and how it can improve the energy efficiency. Through a literature review it will be shown how the passive design is being studied in order to be applied.

Oral Presentation Session #4: 2:45-4:00PM Room 330

Williams, Alyssa Michelle

MA, Women's and Gender Studies (WGST)
Women's and Gender Studies
Dr. Mary Elizabeth Murphy

Queen Nanny Revisited: A Narrative on Race, Gender, and Resistance

Queen Nanny's legacy of strength, perseverance, and leadership has permeated the African Diaspora as she has been commemorated as a Jamaican National Figure and featured in art work, plays, and literature throughout the Caribbean and North America. This research revisits Queen Nanny's legacy using a feminist framework to explore the multidirectional (or competitive) memory. Additionally, this research examines how Queen Nanny's memory has been preserved in the nationalistic sphere, art, and in literature.

Oral Presentation Session #1: 9:00-10:15AM Room 330

Williams, Grace

MA, Literature (LITR)
English Language & Literature
Dr. Meg Dobbins

The Value and Limitations of Queer Readings for Historical Texts

Little Women is an American novel written by Louisa May Alcott and published in two parts, one in 1868 and the other in 1869. It follows the March sisters (Meg, Jo, Beth, and Amy) as well as several other family members, neighbors, and eventual love interests through scenes of everyday life. It is an idyllic picture of what life was like for "middle class" white Americans in the mid 1800s. Because each chapter presents a simple plot with clear solutions to the problems the characters face, the book seems to bridge the gap between etiquette books and novels. The content of etiquette books are designed to impart guidelines for proper behavior

on their readers. The behavioral guidelines this research examines are those determined by feminine gender roles, specifically as they relate to Jo. Jo is consistently described as having more masculine mannerisms than her sisters, something she is shown to delight in. Through a queer lens, Jo can be read as transboy, or at least a transmasculine individual. Jo's eventual status as a wife and mother, though, sees Alcott as placing her firmly within feminine gender roles. With this ending, the message readers are left with is that although girls may rebel against gender norms, women cannot. Jo's arc, then, is representative of a correction for nonnormative gender expression. The ultimate aim of my research is to explore how reading Jo from *Little Women* as transgender within the context of a pseudo-etiquette book highlights the way in which society has stifled transgender identities through the enforcement of gender roles. Further, a queer reading of *Little Women* highlights the caution fans and critics alike should practice when attempting well-meaning progressive readings of representation of problematic texts.

Oral Presentation Session #1: 9:00-10:15AM Room 350

Wilson, Melody

MA, Social Foundations of Education (SFND)
Teacher Education
Dr. Christopher Robbins

Pre-Service Teachers' Emerging Views on Educational Equity

I hypothesize that an equity-based Statistics course for pre-service mathematics teachers may play a role in illuminating some of the structural factors that contribute to the educational opportunity gap in the U.S. A faculty team at Eastern Michigan University is currently piloting such a course. The course includes data explorations dealing with structural inequities by race – one of the most difficult topics to address productively in a teacher preparation course. In the present study, a survey of pre-service teachers' views on educational equity has been administered in a required Social Foundations course for pre-service teachers and in the Statistics for Teachers course. Pre-post analysis of this survey, along with interviews and classroom observations, will help to illuminate the ways that each course has contributed to pre-service teachers' emerging views on educational equity. The study is currently in progress; initial findings about pre-service teachers' incoming views will be presented and compared to previous findings in the literature.

Oral Presentation Session #2: 10:30-11:45AM Room 330

Winkelseth, Meagan

MA, Communication (COMM)
Communication, Media, & Theatre Arts
Dr. Jeannette Kindred

Power Dynamics within Dementia Caregiver Communication: A Comprehensive Literature Review

Health communication scholarship has undergone a contemporary shift in focus from examining the significance of public health campaigns to the various types of interpersonal communication amongst and between healthcare providers, patients, and caregivers. The family constitutes a formidable institution in which to examine said relational interplay, particularly as it pertains to the plights of dementia caregivers and their experience with dementia patients. Power within this relationship becomes the object of concern due to dementia's evanescence in form and frequency, which is damaging to both the person it inhabits and their

Abstracts Cont'd

caregivers. It stifles its hosts' communication, making it nearly impossible to meaningfully examine, which is how the experience and dialogue of dementia becomes lost and often forgotten. However, dementia caregivers hold the discursive agency to act as conduits through which the communication of dementia can be accessed. In this literature review, the critical investigation of how power (in all its clandestine designs and channels) is (re)constructed to systemically confine dementia caregivers' communication was centralized. Specifically, I conducted an exploration of the messages that dementia caregivers exchange concerning eldercare and the experience and dialogue of dementia by extricating and scrutinizing three of the literature's most prominent trends to determine how caregivers' communication is manipulated by the grave effects dementia has on their loved one. Ultimately, the literature reveals that the conceptualization of power dynamics within caregiver communication is obscurely pointed to but never explicitly discussed, and that communication within the dementia caregiver experience is conceived predominantly as heedlessly endeavoring toward the accurate transaction of communicative and care information. Alternative methodological and theoretical avenues and their implications are discussed and suggested for future inquiry and research.

Oral Presentation Session #2: 10:30-11:45AM Student Center Auditorium

Wright, Autumn

MS, Orthotics and Prosthetics (ORPR)
Health Promotion and Human Performance
Dr. Frank Fedel

3D Anatomically Correct Model Fabrication and the Opportunity to Enhance Healthcare Education - an IPE Collaboration

Recent research indicates that 3D anatomically correct functional models for learning provide better outcomes in comparison to only a didactic lesson (ECAR 2012). The current project integrates digital medical imaging and fabrication methods with conventional shape capture to create anatomically correct models for educational purposes in orthotics and prosthetics (O&P) education labs. Magnetic resonance imaging data conversion software, 3D printing, and lifecasting were combined to create physical functional models that are designed to be used in graduate health care classes. These models provide both tactile and visual application to illustrate function of the structures within the knee. A previous presentation by the authors of this poster focused on identification of critical structures of the knee. The current project substantially extends the previous work by addressing functional characteristics of those structures.

Poster Presentation Session A: 9:00-11:00AM Room 310A/B

Yaeger, Jesse

MA, History (HST)
History & Philosophy
Dr. John McCurdy

Arsenal of Domesticity: Women, Relationships, and Gender Roles at Home During World War II

Popular imagery of Rosie the Riveter has colored our collective consciousness to assume the women entering manufacturing jobs during World War Two permanently expanded the gender roles of women in American society. However, Historians Leila J Rupp, Susan Hartmann, and Maureen Honey have shown that during the war, publicly espoused

gender roles continued to restrict women to the point of "going back to the kitchen" once the war ended. Their research focuses on societal expectations of women and leaves us with the question, did gender roles within the private sphere change during the war, or did they stay relatively the same as they had been before the war started? Reading correspondences between men and women after the attack on Pearl Harbor can help answer these questions and gives a unique insight into the little-studied realm of the private lives and relationships of women during World War Two. Hand-written letters, a common way for those serving in the military to stay connected to their loved ones at home, describe daily life, jobs, leisure activities, dating partners, and the expectations men and women had of each other, even when they were continents apart. By analyzing these letters written between family, friends, and lovers, this paper shows relationships between men and women during World War Two conveyed gendered expectations and established gender roles within the private sphere, which limited any significant and lasting change to the roles of women after the end of the war.

Oral Presentation Session #3: 1:15-2:30PM Room 302

Yekollu, Nikhil Sai

MS, Construction Management (CM)
Visual & Built Environments
Dr. Kasim Korkmaz

Social and Environmental Issues for Detroit

Detroit has undergone a lot of economical, demographic and environmental changes over the past few decades. The decline that occurred in Detroit had a strong impact on the state as well. People lost their jobs, many left the city, and population was dramatically decreased. These issues were interlinked with economic inequality, lack of education and lack of affordable housing, etc. Many public issues go unresolved such as low graduation rates, inadequate access to transportation, youth violence, and employment. History of ecological disregard has made the city hazardous. Environmental issues such as air pollution, waste recycling and contaminated lakes are a great concern. Research is carrying out from all sides to reduce the intensity of these problems. Upgrading the physical infrastructure of transportation, sanitation and social infrastructures like schools, universities, hospitals, and communities, etc., uplifts the standard of living. Groups of non-profit, environmental and environmental justice organizations like Detroit Environmental Agenda (DEA) focuses on interlinked social, economic and environmental injustices. The main purpose of this paper is to study the present scenario of social and environmental issues for Detroit by the analyzing case studies regarding the issues and suggesting possible solutions for them.

Oral Presentation Session #2: 10:30-11:45AM Room 352

Yelonek, Christopher

MS, Historic Preservation (HPRS)
Geography & Geology
Dr. Ted Ligibel

One of a Kind: Dexter's Gordon Hall

Gordon Hall of Dexter is one of Michigan's oldest and most unique structures. Gordon Hall tells not only Dexter's past, but the state of Michigan's too. Through Dr. Ted Ligibel's class on Preservation Administration and Planning, a Historic Structure Report (HSR) was developed on Gordon Hall. This HSR reveals the findings of the class documenting Gordon Hall's past, present condition, and possible future.

Oral Presentation Session #3: 1:15-2:30PM Room 352

Yu, Shiyin

MS, Polymers and Coatings Technology (PLT)
Engineering Technology
Dr. Vijay Mannari

Thermoset Coatings Based on Bio-Renewable Materials: Synthesis and Characterization

Bio-based materials have gained lots of attention in coating applications due to increasing environmental awareness and regulations all over the world. Rosin is an important feedstock source with a specific hydrophen-
antherene ring structure that confers good coating properties such as mechanical properties, thermal stability and chemical resistance. However, introducing rosin to coatings usually induces brittleness, and improving the flexibility with chemical modifications using petroleum-based materials decreases the final bio-based content in the product, reducing the value from an environmental point of view. In this study, epoxidized soybean oil (ESO), was used as a low cost available bio-based material to be reacted with rosin derivatives to achieve sustainable polyols exhibiting a good balance of flexibility and rigidity. A series of bio renewable-based polyester polyols with high bio-renewable material content and hydroxyl value range of 92-124 were developed and characterized for their chemical structure (using Fourier-transform infrared spectroscopy [FTIR] and Nuclear magnetic resonance [NMR] techniques), and various physical and chemical properties. Thermoset polyester- melamine formaldehyde coatings were prepared by reacting these polyols with a melamine formaldehyde crosslinker in an 80:20 ratio by weight. The resulting films were evaluated for various mechanical and chemical properties. According to the results, the final coatings demonstrated high degrees of conversion when cured at 150°C for 30 minutes. The results also showed that increasing the amount of rosin weight percentage in the polyol, will increase the Tg and consequently brittleness of the final coatings. The optimum rosin wt.% to achieve proper flexibility was found to be about 25% in total formulation solids.

Poster Presentation Session B: 1:15-3:15PM Room 310A/B

Zahor, Dorothy

MS, Ecology Evolution and Organismal Biology (EEOB)
Biology
Dr. Jamie Cornelius

Species, Age, and Foraging-Niche Variation in Blood Lead Levels in Urban and Rural Songbirds

Anthropogenic metal pollutants emitted into the environment have the potential to harm organisms residing in the polluted ecosystem. Urban birds spend much of their time in human-dominated landscapes and could serve as bioindicators of metal pollution as well as possibly reflect human exposure. Lead is a persistent heavy metal in the environment that can act as a neurotoxin when it reaches high levels within an organism. Diets vary widely in songbirds, and species that forage on soil-dwelling organisms may be more prone to lead exposure. Similarly, if young birds are fed preferred items there may be differences in exposure between adults and juveniles. Finally, species that associate strongly with human structures may differ in exposure to lead. In this preliminary study, we captured and tested blood lead levels in four species of urban songbirds: two omnivores that forage frequently for soil-dwelling organisms and two granivores, including, an invasive and native species

of each. Omnivore levels were significantly higher than granivores, and within omnivores, the native species was significantly higher than the invasive. Juveniles tended to be higher ($p=.09$) than adults and urban residents tended to be higher ($p=.06$) than rural residents in the native omnivore species. These data suggest that diet, age, and location can all impact exposure to lead. Understanding factors that increase a species sensitivity to pollution can better guide conservation efforts and raise public awareness surrounding pollution exposure.

Poster Presentation Session A: 9:00-11:00AM Room 310A/B

Zamzow, Aiden

MA, Philosophy
History & Philosophy
Dr. Peter Higgins

Is it Ever Morally Permissible to Out a Closeted Gay Person?

In this paper, I consider whether there are any circumstances in which it is morally permissible to out a closeted gay person. In doing so, I argue against Richard Mohr's 'Case for Outing' as it is presented in the book *Gay Ideas* (1992). For the purpose(s) of this paper, 'outing' will be defined as disclosing another's previously undisclosed gayness. While choosing to remain in the closet can be motivated by shame over being gay, this does not mean that remaining in the closet (for whatever reason) is necessarily motivated shame, as Mohr believes. Further, in articulating his view as it relates to gay dignity, his argument that a dignified gay existence cannot take place in the closet or, more specifically, that gay dignity suffers serious harm when it remains undisclosed leaves much to be desired. While I concede to the assertion that a closeted existence is harmful to one's dignity, I do not believe that this harm justifies the outing of individuals whom one knows to be gay. And it will be this piece of Mohr's greater argument that I most explicitly challenge. I achieve this through appeal to the concept of dignity and the idea that the freedom to choose how, when, and if one discloses their gayness is more fundamental to dignity, generally, than simply being out.

Oral Presentation Session #1: 9:00-10:15AM Room 330

Zarean, Forough

PhD, Technology (PHD-TC)
Engineering Technology
Dr. Vijay Mannari

Radiation-Curable Sustainable Coatings for Aerospace Applications

Aerospace protective coatings, such as those used on wing leading edges and helicopter blade surfaces, have stringent performance requirements, such as high chemical resistance and low-temperature flexibility. The current commercial polyurethanes (PU) used in aerospace industry are based on isocyanates, compounds that are highly hazardous both in the production and application and may be prohibited for use in the near future. These coatings also contain high amounts of volatile organic compounds (VOCs), one of the main contributors to global warming. In addition to the environmental burden posed by the conventional PU coatings, their long curing times presents a significant production burden. Radiation curing has become one of the fast developing, eco-friendly technologies in the coating industry, due to the exceptional rapid curing and the low VOC formulations. This study proposes to use crosslinking chemistry as a novel approach for designing green polyurethane coatings for aerospace applications, which has not been sufficiently explored

Abstracts Cont'd

before. Synthesis of novel UV-curable non-isocyanate polyurethane (UV-NIPU) oligomers was carried out in two stages. First, amine functional NIPUs were synthesized through the reaction of cyclic carbonates and amines. Reaction progress was monitored by amine value titration. Second, (meth)acrylate functionality was introduced by reacting amine groups at the chain ends with anhydride groups in methacrylic anhydride. UV-curable NIPU coatings were formulated by using UV-NIPU oligomers, conventional photoinitiator(s), and reactive diluents (RDs), and evaluated for military critical performance properties. The results showed that high-performance UV-curable NIPU coatings for military applications can successfully be developed by proper design of UV-NIPU oligomers and selection of appropriate RDs.

Poster Presentation Session B: 1:15-3:15PM Room 310A/B

Zarem, Megan

MA, Clinical Mental Health Counseling (CMHC)

Leadership & Counseling

Dr. Patrice Bounds

The Effectiveness of Trauma-Focused Cognitive-Behavioral Therapy with Abused Children

Child abuse is a very prevalent issue in today's society across the globe and it can be a difficult experience for any child to live through. There are many different types of therapeutic methods of intervention when working with children who have been physically and/or sexually abused. The focus of this literature review is to specifically look at the effectiveness of Trauma-Focused Cognitive Behavioral Therapy (TF-CBT) on children's behavior and mental state after being abused. The identified studies show that TF-CBT is very effective in reducing symptoms of Post-Traumatic Stress Disorder, depression, anxiety, aggression, and other emotional disturbances, as well as it improves resiliency, self-efficacy, and overall self-concept (Allen & Hoskowitz, 2017, *Child Maltreatment*, 22(2), 112; Deblinger, et al. 2017, *Child Abuse & Neglect*, 65, 132; Dittman & Jensen, 2014, *Child Abuse & Neglect*, 38(7), 1221; Farina et al., 2018, *Journal of Education and Health Promotion*, 7(1), 58; Hubel et al., 2014 *Journal of Child Sexual Abuse*, 23(3), 304). The research also looks at the number of sessions of TF-CBT needed in order to see the best results for these children and how a group format of TF-CBT can be an effective method of treatment (Allen & Hoskowitz; Deblinger et al.; Misurell et al., *Journal of Child Sexual Abuse*, 20(1), 14).

Poster Presentation Session A: 9:00-11:00AM Room 310A/B

Zarshenas, Ehsan

MS, Chemistry (CHM)

Chemistry

Dr. Gregg Wilmes

Self-Assembled Smart Block Copolymers Used for Drug Delivery Systems

Sending cancer drugs in the human body is not as easy as it looks. These drugs have the same power to destroy healthy cells as they have for cancer cells. The drugs should be protected as long as they don't reach the aimed destination. To do that, a smart copolymer has been synthesized. The copolymer is able to form a responsive polymeric micelle controllable by environmental factors like pH and temperature. Cancer drugs can be carried inside of polymeric micelles to get to the cancer site without being exposed to healthy cells. Based on the conditions of the cancer site (pH and temperature) they can be easily released and only destroy cancer

cells.

Oral Presentation Session #3: 1:15-2:30PM Room 300

Ziemba, Brian

MS, Construction Management (CM)

Technology & Professional Services Management

Dr. Kasim Korkmaz

The Impact of Detroit's Biggest Investors on the City's Economic Growth

The city of Detroit, Michigan has had a declining economy for many years, but recently the economy has been improving. Construction investments have been made in hopes to return the city back to a top ten metropolitan city and bring a positive impact to the economy. Detroit has also dealt with a decrease in market value, increasing crime rates and extreme unemployment rates that have been improved in their respective areas. The purpose of the study is to see if there is a correlation between the construction investments in the city and positive changes regarding the economy. Detroit's major investors and their construction investments over the last 10 years will be examined along with the last 10 years of market value, crime rates and unemployment rates. The study has not yet been conducted but will reveal if there is a correlation to the construction investments and the positive changes in the city's economy.

Oral Presentation Session #2: 10:30-11:45AM Room 352

Thank you!!

The Office of Graduate Studies and Research would like to thank the many individuals, organizations, and departments whose efforts have made this event a success!

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ORDA

In addition, thank you to today's room moderators. We appreciate your support of our graduate students and their participation in this year's conference.

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