

DEAN'S WELCOME

Welcome to the 39th Undergraduate Symposium

This day of presentations of scholarly and creative activities by our undergraduate students is the culmination of a year-long collaboration between the students and their faculty mentors. The presentations, posters, performances and exhibits on display today illustrate an impressive level of accomplishment as a result of these collaborations. As you explore the extraordinary breadth and depth of student scholarly and creative activity, you will discover the special synergy of teaching, research, and hands-on learning that powers this year's Symposium program.

Eastern's Undergraduate Research Symposium is one of the longest standing events of its kind in the country and provides a model for universities that have sought to develop similar programs. In 1980, then professor of chemistry and later provost of the University, Dr. Ronald Collins, conceived the idea of an annual conference opportunity for undergraduate research presentation. This innovative approach to encouraging undergraduate research was supported by then president, John W. Porter and provost, Dr. Anthony Evans. Each subsequent president and provost has continued to support the Undergraduate Symposium and acted to enhance its stature. The first event began with a handful of students and faculty mentors from the College of Arts and Sciences and, over the years, has evolved into one of Eastern's signature annual events. The Undergraduate Symposium embodies a philosophy of learning that defines the unique educational experience that EMU students receive.

Although the College of Arts and Sciences remains the host of the Symposium, student research presentations span all five EMU Colleges and every undergraduate discipline. Six years ago, the Undergraduate Symposium expanded beyond oral and poster presentations to include exhibits through a partnership with the Crossing Lines Design Expo. The addition of this exhibit option engages students whose creative processes involve various 2D and 3D materials.

Many faculty and staff have worked hard to make this Undergraduate Symposium a success. I gratefully acknowledge the efforts of the volunteer Symposium Planning Committee and its chair, Dr. Harriet Lindsay, event coordinator Amy Bearinger, Symposium graduate assistant Judy Lewis, submission site support Tracey Sontag, and the staff of the College of Arts and Sciences Office of the Dean. Additionally, I want to thank Associate Vice President of Advancement, Jill Hunsberger for her continued fund-raising efforts on behalf of the Symposium.

The faculty sponsors of the student presenters are the expert core of the Symposium. They deserve special recognition for their voluntary efforts. I also want to recognize the families of the students, and the many sponsors and guests who provided essential support for this event and who are committed to the success of our students in their academic pursuits. A special thank you to donors who have supported the work of 17 Symposium Undergraduate Research Fellows for this academic year.

Most especially, my congratulations to you, our students, who are presenting today!

Dana Heller, Dean
College of Arts and Sciences

SCHEDULE OF EVENTS

Friday, March 29, 2019 – EMU Student Center

Oral Presentations

Second Floor Room 204, Auditorium, Student Art Gallery

Third Floor Room 304, 320, 330, 350, 352

Session A	9:00 – 10:15 am
Session B	10:30 – 11:45 am
Session C	1:30 – 2:45 pm
Session D	3:00 – 4:15 pm

Poster Presentations

Third Floor Room 310 A/B

Group 1	9:00 – 10:30 a.m.
Group 2	11:00 – 11:45 am & 1:30 – 2:15 pm Room closed over luncheon
Group 3	2:45-4:15 p.m.

Crossing Lines Design Expo

Third Floor Room 300, 301, and 302

Gallery Exhibit 9:00 a.m. – 4 p.m.

Symposium Luncheon

First Floor Ballroom 12:00 – 1:15 pm

Keynote speaker: Robert Murkowski
Principle
Miller, Canfield, Paddock
& Stone, PLC

Student emcee: Victoria Fields
4-Time Symposium Presenter

TABLE OF CONTENTS

College of Arts & Sciences

29	Africology & African American Studies
30	Art & Design
36	Biology
51	Chemistry
58	Communication, Media & Theatre Arts
65	Computer Science
68	Economics
69	English Languages & Literature
73	Geography & Geology
77	History & Philosophy
85	Mathematics & Statistics
87	McNair Projects
88	Music & Dance
91	Physics & Astronomy
91	Political Science
97	Psychology
102	Sociology, Anthropology & Criminology
105	Women's & Gender Studies
105	World Languages

College of Business

108	Management
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College of Education

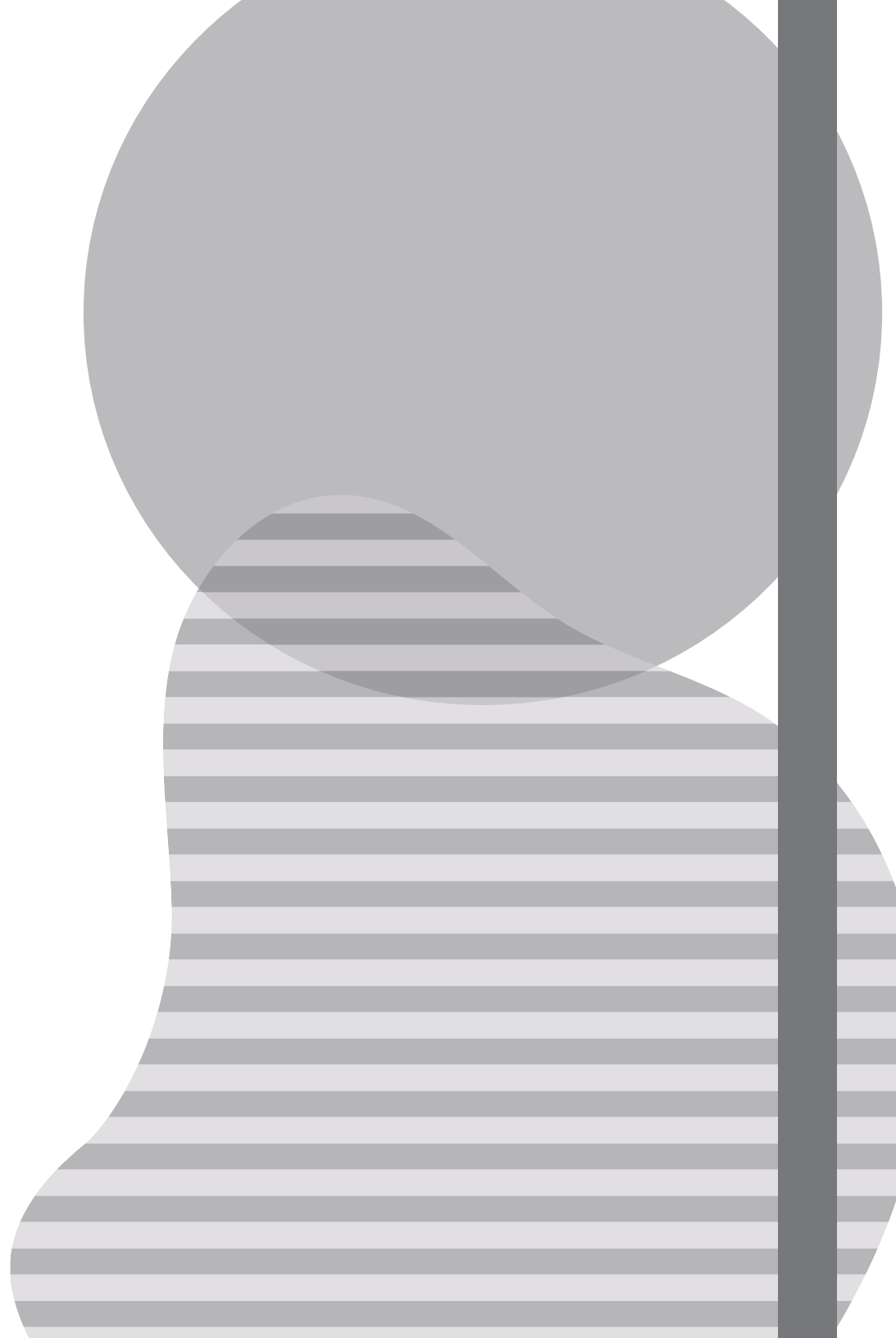
109	Leadership & Counseling
109	Special Education
111	Teacher Education

College of Health & Human Services

113	Health Promotion & Human Performance
115	Health Sciences
117	Nursing
118	Social Work

College of Technology

120	Engineering Technology
121	Information Security & Applied Computing
121	Visual & Built Environments



ORAL SESSIONS – SESSION A

Room 204

Moderator: Beverly Mihalko

- 9:00 a.m. **The Keys to Life: A More Humane Policy Prescription for Global Pharmaceutical Trade and Manufacture**
Ethan Smith
Richard Stahler-Sholk, faculty mentor
Political Science
- 9:15 a.m. **Multi-Drug Resistant Bacteria and Their Impact on Healthcare**
Carolyn Lammers
Beverly Mihalko, faculty mentor
Health Promotion and Human Performance
- 9:30 a.m. **Marijuana: History, Medical Uses, and Future Challenges**
Addison Jendza
Joan Cowdery, faculty mentor
Health Promotion and Human Performance
- 9:45 a.m. **Antibiotic Production is Increased by Various Simple Sugars in Media**
Mel Roberts
Paul Price and Cory Emal, faculty mentors
Chemistry
- 10:00 a.m. **Complex Polysaccharides can Induce the Production of Potentially Novel Antibiotics**
Dawit Gebrehiwot and Khaled Ali
Paul Price, faculty mentor
Biology

Room 304

Moderator: Philip Schmitz

- 9:00 a.m. **La Convivencia: An Unusual Definition of Tolerance**
Alexander Schweihofner
Mark Whitters, faculty mentor
History and Philosophy

- 9:15 a.m. **Understanding Sharī'ah: Islamic Law in its Historical Context**
Sister Maria Benedicta Bete
Mark Whitters, faculty mentor
History and Philosophy

- 9:30 a.m. **Religious Studies and New Testament Textual Criticism: A Summary of How We Get Our Bibles Today**
Sam Nesbitt
Philip Schmitz, faculty mentor
History and Philosophy

- 9:45 a.m. **An Introduction to the Science of Hadith**
Ali Qazwini
Philip Schmitz, faculty mentor
History and Philosophy

- 10:00 a.m. **Ancient Magic and Wisdom of Italian Renaissance Magi: Hermeticism and Cabalism of Christian Humanists**
Blake Trinske
Ronald Delph, faculty mentor
History and Philosophy

Room 320

Moderator: Barry Pyle

- 9:00 a.m. **Suicide in the Black Community: Potential Ways to Support African Americans Who Lose Someone to Suicide**
Desmine Robinson
Devika Dibya Choudhuri and Kate Curley, faculty mentors
Leadership & Counseling

- 9:15 a.m. **Race, Skin Color, and Friendship**
Bria White
Stephen Jefferson, faculty mentor
Psychology

- 9:30 a.m. **What Impact Did the Detroit Riot of 1967 Have On the Kerner Commission's Report of 1968?**
Joshua Campeau
Mark Higbee, faculty mentor
History and Philosophy

9:45 a.m. **State Civil Rights Commissions: Agendas and Decisions**
Madelaine Coy
Barry Pyle and Barbara Patrick, faculty mentors
Political Science

Room 330 Moderator: Christopher Robbins

9:00 a.m. **Comparative Study of Arab Rappers in America and Germany through the Female Lens**
Mariam Samir
Carla Damiano, faculty mentor
World Languages

9:15 a.m. **Run for Your Life: Popular Music & Rape Culture**
Chadwick Noellert
Christopher G. Robbins, faculty mentor
Teacher Education

9:30 a.m. **Feminist Art and Its Ability to Affect Society**
Christine Bolton
Brendan Fay, faculty mentor
Art & Design

9:45 a.m. **“By the Hand of a Woman”: Artemisia Gentileschi’s Judith and Holofernes**
Rachel Kindred
Pamela Stewart, faculty mentor
Art & Design

10:00 a.m. **Transcending Graphic Design**
Sarah Bertram
Leslie Atzmon, faculty mentor
Art & Design

Room 350 Moderator: Steven Backues

9:00 a.m. **Role of Tarantula Silk in Attracting Potential Prey**
Dallas Haselhuhn
Cara Shillington, faculty mentor
Biology

9:15 a.m. **A Comparison of Scientific Pluralism and Taoist Synchronicity**
Bradley Birkle
W. John Koolage, faculty mentor
History and Philosophy

9:30 a.m. **Stereoselectivity in the Synthesis of a Pyrrolidine with no Protecting Group at the Nitrogen**
Terrence Stahl
Non-presenting student author: Jalen Williams
Maria Milletti, faculty mentor
Chemistry

9:45 a.m. **Understanding the Role of Atg7 in Autophagy**
Ronith Chakraborty
Steven K Backues, faculty mentor
Chemistry

10:00 a.m. **To Bind or Not to Bind: Identifying Necessary Binding Sites on Atg11, a Selective Autophagy Protein**
Mitchell Meyer
Non-Presenting student authors: Alex Kilgore,
Mukiri Gilruth and Jasmine Winzeler
Steven K Backues, faculty mentor
Chemistry

Room 352 Moderator: Charles Graham

9:00 a.m. **The Joy of Raising a Child with Special Needs**
T. Dante Del Pizzo
Jacquelyn McGinnis, faculty mentor
Special Education

9:15 a.m. **A Life Worth Living**
Aaron Rosebrock
Jacquelyn McGinnis, faculty mentor
Special Education

9:30 a.m. **Do Parenting Styles Affect Productivity?**
Austin J. Boynton
Rusty McIntyre, faculty mentor
Psychology

9:45 a.m. **The Caregiver's Guide to Down Syndrome: Supporting and Celebrating Loved Ones with Trisomy 21**
Madeleine Ruth Wolfe
Christina N. Marsack- Topolewski, faculty mentor
Social Work

10:00 a.m. **Benefits of Person-Center Planning in a Community Mental Health Setting**
Alex Barich
Cristina Marsack-Topolewski, faculty mentor
Social Work

Auditorium Moderator: John Dorsey

9:45 a.m. **The Effects of the French Music School on Composers Aaron Copland and Karel Husa**
Louis Vajda
Mary Schneider, faculty mentor
Music and Dance

10:00 a.m. **The Unmeasured Preludes of Louis Couperin: Performance Practice**
Emily Katynski
Michael Burkhardt, faculty mentor
Music and Dance

Student Art Gallery Moderator: Sadaf Ali

9:00 a.m. **Rhetorical Themes in Bojack Horseman's "Free Churro"**
Hannah Brenneman
Raymond Quiel, faculty mentor
Communication, Media & Theatre Arts

9:15 a.m. **The 17-Year-Old Game Super Smash Bros. Melee Lives On in Washtenaw County**
Will Bogen
Sadaf Ali, faculty mentor
Communication, Media & Theatre Arts

9:30 a.m. **Characterization and Uses of 3D Animation in Film and Comics**
Alex Peplinski
Bilquis Ferdousi, faculty mentor
Information Security & Applied Computing

9:45 a.m. **Media Narratives and Confirmation Bias**
Angela Zielinski
Carol Schlagheck, faculty mentor
Communication, Media & Theatre Arts

10:00 a.m. **Modernizing Cultivation Theory: Social Media and The Impact on Self-Esteem Through Social Comparison**
Elana Graessley
Tsai-Shan Shen, faculty mentor
Communication, Media & Theatre Arts

SESSION B

Room 204 Moderator: Mary-Elizabeth Murphy

10:30 a.m. **Erasure of Black Women from the Feminist Movement**
Danisha L. Grier
Mary Elizabeth Murphy, faculty mentor
Women's and Gender Studies

10:45 a.m. **Dodging the Bullet: African American Draft Resistance in Canada During the Vietnam War**
Mia Colavito
Mary-Elizabeth Murphy, faculty mentor
History and Philosophy

11:00 a.m. **The Importance of Intersectionality in the Fight for Black Liberation**
TeLor McClary
Antoinette Pressley-Sanon, faculty mentor
Africology and African American Studies

11:15 a.m. Picturing the Personal as Political
Julia Lozon
Brendan Fay, faculty mentor
Art & Design

Room 304 Moderator: Tanweer Shapla

10:30 a.m. Diagnostics in Simple Linear Regression Model by Means of Graphs and Formal Tests
Sadia Sarker
Tanweer Shapla, faculty mentor
Mathematics

10:45 a.m. An Affordable Physical Pendulum for Introductory Physics Laboratories
Emily Stimson
Ernest Behringer, faculty mentor
Physics and Astronomy

11 a.m. Applying Agile Concepts to Develop a Software Application
Nikolaos Papanastasopoulos, Evan Graessley and Craig Campbell
Non-presenting student authors: Michael Sturza, Jeremiah Reyer
Krish Narayanan, faculty mentor
Computer Science

11:15 a.m. Identifying and Interpreting Predictors of Credit Default via Random Forest and Logistic Regression
Joseph Sturm
Khairul Islam, faculty mentor
Mathematics

11:30 a.m. AI Integration: An Analysis of Current Research and Public Opinion
Randy V. Andrews
Zenia Bahorski, faculty mentor
Computer Science

Room 320

Moderator: Richard Stahler-Sholk

10:30 a.m. Child Sex Trafficking: Global and Domestic Perspectives
Kayla Harvey
Peter Wood, faculty mentor
Sociology, Anthropology and Criminology

10:45 a.m. The Growing Pains of Revolution: The Turbulent Decade of 1960's Cuba
Isaac Vanderwal
Mary-Elizabeth Murphy and Richard Stahler-Sholk, faculty mentors
History and Philosophy

11:00 a.m. Considering Abolition: The Role of Police and Prisons in the United States
Alexander Nuttle
Richard Stahler-Sholk, faculty mentor
Political Science

11:15 a.m. Dropping Nuclear Bombs on Japan: The Decision that Shaped the Post-War World Order
Sarah Maier
Richard Stahler-Sholk, faculty mentor
Political Science

11:30 a.m. The Genocide of the Highlanders: The Jacobite Rebellion of 1745
Leigh Young
Roger Long, faculty mentor
History and Philosophy

Room 330

Moderator: Judith Kullberg

10:30 a.m. United States Intervention in Latin America and its Impact on Human Development
Hannah Zwolensky
Connor Sutton, faculty mentor
Political Science

10:45 a.m. **An Analysis of Metro Detroit and Strategic Budget Planning after the Great Recession**
Jack Swartzinski
Barbara Patrick, faculty mentor
Political Science

11:00 a.m. **The Impact of Foreign Election Intervention on Domestic Politics**
Avinash Vivekanandan
Judith Kullberg, faculty mentor
Political Science

11:15 a.m. **Mormons in Politics: The Viability of Minority Religious Candidates**
Stephen Rathje
Barry Pyle, faculty mentor
Political Science

11:30 a.m. **The Impact of the Candidate's Race on Voter Opinion**
Yssis Patterson
Jeffrey L. Bernstein, faculty mentor
Political Science

Room 350 Moderator: Sarah Walsh

10:30 a.m. **The Biocultural Evolution of Inflammatory Bowel Disease**
Amanda Rielinger
Megan Moore, faculty mentor
Sociology, Anthropology and Criminology

10:45 a.m. **Health Outcomes for Low-Income Older Adults with Diabetes who Receive Services from Meals on Wheels**
Monyca L. Johnson
Sarah E. Walsh, faculty mentor
Health Promotion and Human Performance

11:00 a.m. **State Health Disparities Across the United States: A Cross-Sectional Study of Variation in Life Expectancy**
Evan Delcamp
Thomas Taylor, faculty mentor
Economics

11:15 a.m. **Defensive Medicine's Role in Healthcare Spending**
Hallie Barkume
James Thornton, faculty mentor
Economics

11:30 a.m. **Alzheimer's Disease and Related Dementias (ADRD) and the Arab-American Community**
Laith Quasem
Kristine Ajrouch, faculty mentor
Sociology, Anthropology and Criminology

Room 352 Moderator: Eric Acton

10:30 a.m. **Can Normative Influence Ease the Effects of Social Exclusion?**
Autumn Chall
Rusty McIntyre, Ph.D., faculty mentor
Psychology

10:45 a.m. **Manifest This Gay Ass**
Austin Book
Christine Hume, faculty mentor
English Language and Literature

11:00 a.m. **Womyn and Other Contested Identities: Attendance Policies at the Michigan Womyn's Music Festival**
Catherine Waldecker
John McCurdy and Mary-Elizabeth Murphy, faculty mentors
History and Philosophy

11:15 a.m. **Language and its Agentive Potential in Gender Discourses: Contemporary Pronominal Intervention**
Marri Visscher
Daniel Seely, faculty mentor
English Language and Literature

Auditorium**Moderator: John Dorsey**

- 10:30 a.m. **Pioneering Women of Marimba Performance: Keiko Abe, Vida Chenoweth, and Ruth Stuber Jeanne**
Claire Castle
John Dorsey, faculty mentor
Music & Dance
- 10:45 a.m. **The Study of Beethoven Piano Sonata Op. 31**
Megan Angriawan
Garik Pedersen, faculty mentor
Music and Dance
- 11:00 a.m. **Thematic Development in Mozart's Clarinet Concerto in A Major, K. 622**
James Rayle
Sandra Jackson, faculty mentor
Music and Dance
- 11:15 a.m. **New Works by Student Composers: Fanfare for Woodwind Quintet, Daughter of the Sea, and Color Rays**
Alexandria Sikora, Geoffrey Kelm, and Robert Thorburn
Whitney Prince, faculty mentor
Music & Dance
- 11:30 a.m. **Rediscovering Opera through New Works and Individual Approaches to Characters**
Olivia Barnaclo and Austin Hadwick
Robert Peavler, faculty mentor
Music and Dance

Student Art Gallery**Moderator: Heather Neff**

- 10:30 a.m. **Surviving Refugee Status: Three Innovative Approaches to Addressing the Needs of Refugees**
Jaylen E. Taylor, Ayanda Brydie, Avery Dumas and David DeLisle
Heather Neff, faculty mentor
McNair Projects

- 10:45 a.m. **The Refugee Crisis: A Report for Local Business in Host-Countries**
Shayla Card-Nowlin, Chocolate Brooks, Perrece Hamilton, and Bree Robinson
Heather Neff, faculty mentor
McNair Projects
- 11:00 a.m. **The Black and Beautiful Club: The Fashion Culture of the Harlem Renaissance**
Jasmine Annette Billings
Holly Mosher and Julie Becker, faculty mentors
Visual & Built Environments
- 11:15 a.m. **Arts and Peacebuilding: Poems versus Weapons in Contemporary Somalia**
María Paula Perdomo García
Richard Stahler-Sholk, faculty mentor
Political Science
- 11:30 a.m. **W.E.B. Du Bois and Booker T. Washington, the Pioneers of Black Excellence**
Zarre'a Mason
Imelda Hunt, faculty mentor
Health Promotion and Human Performance

SESSION C**Room 204****Moderator: Joseph Engwenyu**

- 1:30 p.m. **Julius Nyerere on Socialism, Unity, and Development: Parallels with Kwanza**
Artero Wilson
Joseph Engwenyu, faculty mentor
History and Philosophy
- 1:45 p.m. **Keep Calm and Carry the Empire: Colonial Propaganda in WWII-Africa**
Josh Sheppard
Joseph Engwenyu, faculty mentor
History and Philosophy

2:00 p.m. **West Africans and the Italo-Ethiopian Crisis, 1935-1936**
Jimmy Davis
Joseph Engwenyu, faculty mentor
History and Philosophy

2:15 p.m. **The Unsteady Transition: South Africa From Apartheid to Democracy, 1989-1994**
Jasmyn Williams
Joseph Engwenyu, faculty mentor
History and Philosophy

Room 304 Moderator: Elisabeth Daumer

1:30 p.m. **Sarah Orne Jewett's The Country of the Pointed Firs' Parallel to Dante's Alighieri's Divine Comedy**
T. Dante Del Pizzo
Joseph Csicsila, faculty mentor
English Language and Literature

1:45 p.m. **Folktales in Action: How the Comic Books of Today Depict the Legends of Yesterday**
Leah Brooks
Andre Peltier, faculty mentor
English Language and Literature

2:00 p.m. **Answers and Echoes**
Larissa Diem-Conlen
Christine Neufeld, faculty mentor
English Language and Literature

2:15 p.m. **The Biological Interpretive Analysis of *The Metamorphosis* by Franz Kafka**
Jared Marsh
Elisabeth Daumer, faculty mentor
English Language and Literature

2:30 p.m. **Marital Affection in Two Poems by Ashvaghosha**
Makoto Takata
James Egge, faculty mentor
History and Philosophy

Room 320 Moderator: Barbara Patrick

1:30 p.m. **Cyber Security: Russia and China's Erosion of 21st Century U.S. Hegemony**
Cyril Yancey
Richard Stahler-Sholk, faculty mentor
Political Science

1:45 p.m. **A Study on the Effects of Imports and Exports on Life-Expectancy in Post-Communist Poland**
David Nichols
Mehmet Yaya, faculty mentor
Economics

2:00 p.m. **Ethical Considerations in International Computing**
Gwenyth Andrusiak
Zenia C. Bahorski, faculty mentor
Computer Science

2:15 p.m. **Factors Impacting American Perception of Globalization and its Effects on Society**
Fadwa Ashur
Barbara Patrick, faculty mentor
Political Science

2:30 p.m. **Cold and Crude: American Oil During the Suez Crisis**
Rebecca Murphy
Mary-Elizabeth Murphy, faculty mentor
History and Philosophy

Room 330 Moderator: Khairul Islam

1:30 p.m. **The Petition Process: Why You Should Care**
Edin Bukva
Beth Henschen, faculty mentor
Political Science

1:45 p.m. **Rhetorical Analysis of the Cruise Industry's Sustainability Practices**
Jadyn S. Guess
David A. Victor, faculty mentor
Management

2:00 p.m. **Descriptive Analysis of Health Insurance Coverage: An Overview of Current and Recent Census Data**
Nicholas Garska
Khairul Islam, faculty mentor
Mathematics

2:15 p.m. **Modeling Cost of Auto Insurance: An Application of Polynomial Regression Model**
Emma Krietemeyer
Khairul Islam, faculty mentor
Mathematics

Room 350 Moderator: Laura George

1:30 p.m. **The Ethical Steward: Jane Austen's Redefinition of Masculinity through Mr. Darcy**
Joan Kwaske
Laura George, faculty mentor
English Language and Literature

1:45 p.m. **Anti-Feminist Stereotypes in Jane Austen Novels**
Jasmine Riehl
Laura George, faculty mentor
English Language and Literature

2:00 p.m. **Walls of Stone or Straw? Jane Austen's Legacy**
Daniel Patrick
Laura George, faculty mentor
English Language and Literature

2:15 p.m. **Jane Austen and Her Depictions of Clergyman: The Good, the Bad, the Morally Flawed**
Marie Williamson
Laura George, faculty mentor
English Language and Literature

Room 352 Moderator: Wendy Wang

1:30 p.m. **Englañol and the Puerto Rican Identity**
Alexander Schweihofer
Wendy Wang, faculty mentor
World Languages

1:45 p.m. **The Early Stages of Compound Bilingualism**
Kelsey Madary
Wendy Wang, faculty mentor
World Languages

2:00 p.m. **From Bonjour to Hello: The Motivational Key to Success**
Aimee D'Amico
Wendy Wang, faculty mentor
World Languages

2:15 p.m. **United Nations Resolution 242: An Examination of Cross-Cultural Communication**
Alissa Kennedy
Tsia-Shan Shen, faculty mentor
Communication, Media & Theatre Arts

Auditorium Moderator: Jamie Lawler

1:30 p.m. **The US Army Total Institution: Mortification of the Self and the Military to Civilian Transition Process**
Dallas Ford
Tricia McTague, faculty mentor
Sociology, Anthropology and Criminology

1:45 p.m. **Veterans' Path to Reintegration**
Anthony D. Terry
Ellen Koch, faculty mentor
Psychology

2:00 p.m. **Association between Childhood Experiences, Socioeconomic Status, Access to Care and Depression**
Sierra Powdhar
Jamie Lawler, faculty mentor
Psychology

2:15 p.m. **Homelessness Among College Students: A Literature Review**
John Wilkerson
Caren Putzu, faculty mentor
Social Work

2:30 p.m. **Wiping Dust under the Carpet: A Look into Poverty in America**
Omar B. Davidson II
Richard Stahler-Sholk, faculty mentor
Political Science

Student Art Gallery Moderator: Xining Yang

1:30 p.m. **The Environment: Should the Government Make It More of a Priority?**
Lillian Pellerito
Barbara Patrick, faculty mentor
Political Science

1:45 p.m. **Categorizing the Weathering of Volcanic Ash Using SEM and XRD Analysis**
Emily Nowacki
Christine M. Clark, faculty mentor
Geography and Geology

2:00 p.m. **Using 10Be to Understand the Glacial History of Isle Royale National Park, Michigan**
Stephen L. Ogden, Jr.
Eric W. Portenga, faculty mentor
Geography and Geology

2:15 p.m. **The Bimodality of Old Faithful Geyser Eruptions**
Lilly Vael
Tanweer Shapla, faculty mentor
Mathematics

SESSION D

Room 204 Moderator: Rebecca Sipe

3:00 p.m. **Assistive Technology in the Core Classroom: The Importance of Accommodating All Learners**
Danny Collins and Lillia Sheline
Rebecca Sipe, faculty mentor
Teacher Education

3:15 p.m. **Teach What You Preach: Practical Applications for English Language Arts Social Justice Curriculum**
Scout Bostley and Mackensi Crenshaw
Rebecca Sipe, faculty mentor
English Language and Literature

3:30 p.m. **Teaching and Learning at Estabrook Elementary School**
Autumn Chall
Cynthia Macknish, faculty mentor
World Languages

3:45 p.m. **Concepts to Go!: Extending Early Literacy Practice to the Home**
Melanie Prince
Christina Mirtes, faculty mentor
Teacher Education

4:00 p.m. **A Bayesian Justification for Movement in Pedagogic Practices**
Natalia Anderson
W. John Koolage, faculty mentor
History and Philosophy

Room 304 Moderator: Dennis O'Grady

3:00 p.m. **Bisexual Discrimination: Eliminating Biphobia and Bi-Erasure**
Julia Kops
Keiko Kishida, faculty mentor
Sociology, Anthropology and Criminology

3:15 p.m. **"Leaders Of Today": Local Queer History and Student Groups in the Modern Gay Rights Movement**
Natalie Osbourne
John McCurdy, faculty mentor
History and Philosophy

3:30 p.m. **Queer Educators and Leaders: Centering LGBTQ+ Leadership Development**
Lorant Peeler
Dennis O'Grady, faculty mentor
Communication, Media & Theatre Arts

3:45 p.m. **Imagining Queer Futures to Ensure Queer Survival**
Leah Minadeo
Ashley Glassburn Falzetti & Suzanne Gray, faculty mentors
Women's and Gender Studies

4:00 p.m. **Queer Eugenics: From Pathologization to Homonationalism**
Marri Visscher
Ronald Rich, faculty mentor
Sociology, Anthropology and Criminology

Room 320 Moderator: Richard Nation

3:00 p.m. **Sodium Chloride Reduces Tomato Performance and Palatability to Herbivores**
Jocelyn Marsack
Brian Connolly, faculty mentor
Biology

3:15 p.m. **Fish Lake: A History of Restoration**
Sarah Fisher
Richard Nation, faculty mentor
History and Philosophy

3:30 p.m. **The Use of Geospatial Technology to Identify Remnant Prairies Areas for Restoration in Michigan**
Aysia Booth
Xining Yang, faculty mentor
Geography and Geology

3:45 p.m. **Using Exploratory Spatial Analysis to Study Noise Pollution's Effect on Health in the United States**
Aya Lakkis
Xining Yang, faculty mentor
Geography and Geology

4:00 p.m. **Environmental Mismanagement and Development in the Tunica, Mississippi Delta Floodplain, 1850-2010**
Emily Marcil
Richard Nation and Bruce Conforth, faculty mentors
History and Philosophy

Room 330

Moderator: Toni Pressley-Sanon

3:00 p.m. **Displaced DNA: Genetic Testing and the Pursuit of African Ancestry**
Nailah Bush
Antoinette Pressley-Sanon, faculty mentor
Africology and African American Studies

3:15 p.m. **Interpreting "Difficult History" in the Context of 21st Century Museums**
Sean Ryan
Matthew Cook, faculty mentor
Geography and Geology

3:30 p.m. **Holocaust and Civil Rights Memorials: Memory and Legitimization**
Savannah C. Ferrante
Jeffrey L. Bernstein, faculty mentor
Political Science

3:45 p.m. **Investigating a 420-Million Year Old Fossil Specimen Using Cutting-Edge Analytical Tools**
Shawn Steckenfinger
Steven LoDuca and Thomas Mast, faculty mentors
Geography and Geology

4:00 p.m. **Ars Longa? Perspectives on Materiality in Contemporary Art**
Hannah McCready
Brendan Fay, faculty mentor
Art & Design

Room 350

Moderator: Susan Booth

3:00 p.m. **Mindfulness-Based Meditation and Its Effects on College Students**
Jordan B. Sieja
Ellen Koch, faculty mentor
Psychology

- 3:15 p.m. **How Subtle and Overt Social Influences Affect Test-Taking Behaviors and Perceptions**
Stefaney O'Chel
Rusty McIntyre, faculty mentor
Psychology
- 3:30 p.m. **Beauty as Portrayed in the Media and its Effects on Development of Body Image**
Alexis Hatchard
Tsai-Shan Shen, faculty mentor
Communication, Media & Theatre Arts
- 3:45 p.m. **Orthorexia Nervosa Among College Students: Examining Links Among Eating, Exercise, and Distress**
Alyssa Lawson
Karen Saules, faculty mentor
Psychology
- 4:00 p.m. **Self-Identification: First-Person Authority or Negotiative Theory?**
Lauren Williams
Peter Higgins, faculty mentor
History and Philosophy

Room 352 Moderator: Hannah Seidel

- 3:00 p.m. **An Exploratory Data Analysis of Lung Cancer Patients Using SEER Data**
Sadia Sarker
Khairul Islam, faculty mentor
Mathematics
- 3:15 p.m. **Anti-Cancer Activity of Truncated Cysteine-Deleted Tachyplesin Analogs with a Hyaluronan Sequence**
Jaylen E. Taylor
Deborah Heyl-Clegg, Hedeel Evans, and Jeff Guthrie, faculty mentors
Chemistry

- 3:30 p.m. **Characterization of Reproductive Tumors in *C. elegans***
Shanti N.G. Bernstein
Nonpresenting student author: Yamini Donekal
Hannah S. Seidel, faculty mentor
Biology
- 3:45 p.m. **Effect of Tumor Growth on Body Fat, Body Size, and Stress Response in *C. elegans***
Reem Yassine
Hannah Seidel, faculty mentor
Biology

Auditorium Moderator: Xianghong Feng

- 3:00 p.m. **Barack Obama's 2016 speech at the United State of Women Summit: Neo-Aristotelian Rhetorical Analysis**
Jessica Cheyenne Sherwood
Anke Wolbert, faculty mentor
Communication, Media & Theatre Arts
- 3:15 p.m. **She said... and he reacted: Apparent gender-bias and inequality at the 2018 U.S. Women's Open Finals**
Julia Stevenson
Anke Wolbert, faculty mentor
Communication, Media & Theatre Arts
- 3:30 p.m. **Mechanism and Prevention of Overuse Injury Among Youth Female Gymnasts**
Hallee Ellefson
Anthony Moreno, faculty mentor
Health Promotion and Human Performance
- 3:45 p.m. **Female Nationalist Activists, Askari, and Guerilla Girls of Kenya and Zimbabwe**
Collin Rafferty
Joseph Engwenyu, faculty mentor
History and Philosophy

4:00 p.m. **Bridewealth as an Exchange for Wives' Socioeconomic Contribution Among the Yi in Southwest China**
Pariss Gray
Xianghong Feng, faculty mentor
Sociology, Anthropology and Criminology

Student Art Gallery

Moderator: Martha Baiyee

3:00 p.m. **The Impact of Mentoring on Youth Facing Challenges in School**
Brianna M. Jones
Celeste Hawkins, faculty mentor
Social Work

3:15 p.m. **From Intervention to Impact: Exploring the Impact of Mentoring in K-12 Schools**
Desiree Drake
Celeste Hawkins, faculty mentor
Social Work

3:30 p.m. **Are 'Work Samples' Value-Added?**
Carolynn Lynn Lofton
Martha Baiyee, faculty mentor
Teacher Education

3:45 p.m. **Managing and Automating Emails Sent To Honors Students**
Kelly Mayhew and Zachariah Pelletier
Krish Narayanan, faculty mentor
Computer Science

4:00 p.m. **"You Have to Be Careful of the After-clap": Changing Attitudes to Rural School Modernization**
Maxwell Harrison
Richard Nation, faculty mentor
History and Philosophy

ABSTRACTS

COLLEGE OF ARTS & SCIENCES

DEPARTMENT OF AFRICOLOGY AND AFRICAN AMERICAN STUDIES

Displaced DNA: Genetic Testing and the Pursuit of African Ancestry

Nailah Bush

Antoinette Pressley-Sanon, faculty mentor

The Transatlantic trade in African captives engendered a profound rupture between Africa and its diaspora. For people of African descent, this separation has produced a longing that has traversed time and space. There is extensive scholarship that focuses on this longing. One of the latest tools that people of the diaspora have deployed to connect to their African heritage is genetic testing. While many researchers focus on the scientific outcome of genetic testing, this paper will explore how African diasporic people use genetic testing as a means of bridging the perceived gap between themselves and their African counterparts.

ORAL SESSION D — ROOM 330 — 3P.M.

W.E.B. Du Bois and Booker T. Washington, the Pioneers of Black Excellence

Zarre'a Mason

Imelda Hunt, faculty mentor

In this paper presentation I will discuss and raise awareness of the differing opinions of Du Bois and Washington, and what each scholar thought would improve the lives of African Americans at the beginning of the 20th century. Those differing opinions include the debate of education versus the service industry. Ending the presentation with the impact of these two scholars on today's African American community.

ORAL SESSION B — STUDENT ART GALLERY — 11:30 A.M.

The Importance of Intersectionality in the Fight for Black Liberation

TeLor McClary

Antoinette Pressley-Sanon, faculty mentor

In studying historical black liberation struggles one easily finds the names of Black men as leaders. When Black women are cited, their femininity is almost never considered in discussing their role in the fight for liberation. They are often faced with the challenge of deciding to fight to dismantle racism or sexism. Concepts like "womanism," and "intersectionality" provide a lens through which to view Black women's fight for liberation. The dominant society is white, patriarchal, and heterosexual. To completely ignore sexism as a factor of oppression of Black people is to erase Black women from the fight. My research will explore several womanist movements and the importance of considering intersectionality in the fight for Black liberation.

ORAL SESSION B — ROOM 204 — 11 A.M.

SCHOOL OF ART AND DESIGN

Metamorphosis

Breanna Benson

Brooks Stevens, faculty mentor

This piece was created using a subtractive fibers method; Individual warp and weft threads have been cut and removed to create the illusion of different values on the fabric.

DESIGN EXPO – ROOMS 300/301/302 – 9 A.M.- 4 P.M.

Transcending Graphic Design

Sarah Bertram

Leslie Atzmon, faculty mentor

The paper Transcending Graphic Design explores approaches designer April Greiman has taken in pushing the boundaries of methods and processes in creating works of visual communication. Considered a pioneer in graphic design, Greiman investigates type and image together with color as objects in space. This approach is reflected in her work in which she experiments with the hybridization of art and technology. This paper and presentation explores crucial works of Greiman's that are exemplary of a new approach to design in the 1980s and 1990s: Postmodernism. Her work falls within the "New Wave," branch of Postmodernism. Touching on the role of California culture in the 1980s, Greiman's experimentation is expressive of the environment in which she lives. Greiman continues to push the intersectionality of design and space. Her past work left an impact on design that followed after the New Wave era.

ORAL SESSION A — ROOM 330 — 10 A.M.

Feminist Art and Its Ability to Affect Society

Christine Bolton

Brendan Fay, faculty mentor

Throughout history, art has had the ability to influence cultural change. Judy Chicago is one of the pioneers of the Feminist Art Movement, and The Guerrilla Girls are an anonymous group of female artists. These artists exploited art's ability to inspire change by informing viewers about female inequality in America. Focusing on work by Chicago and The Guerrilla Girls, this paper examines how feminist art inspires cultural progression towards gender equality.

ORAL SESSION A — ROOM 330 — 9:30 A.M.

Ceramics Group 3 - The Elegant Elephant, The Wandering Donkey, Woman of Leaves, Blue Woman

Mikku Dahiya, Hunter Meyers, Raychel Prime, Keypathwa Gibson

Beth Ogden and Diana Pancioli, faculty mentors

These pieces began as a translation of a 2-D image into a 3-D, functional platter. The student-artists made their own supports to form the platter. The platters were then carved and/or painted using slips and glazed. The result is a painterly work that is both aesthetic and functional.

DESIGN EXPO – ROOMS 300/301/302 – 9 A.M.- 4 P.M.

Jun Togawa Promotional Materials

Elizabeth S. Davis-Craig

Leslie Atzmon, faculty mentor

This project for ADGD 321 Typographic Systems is comprised of one 5x5" album cover, two 18x24" posters, and two 5x7" postcards to represent an artist of the student's choice. Japanese "anti-pop" artist Jun Togawa is a favorite of mine for her bold, grotesque imagery and vocals, which I tried to bring across using insects and a dark color scheme.

DESIGN EXPO – ROOMS 300/301/302 – 9 A.M. - 4 P.M.

Branding Bands: Judah & the Lion Marketing Materials

Abigail Feld-Mathieu

Leslie Atzmon, faculty mentor

This project's main focus was to design promotional marketing materials for a band that were both a cohesive system, and that captured the overall essence of their music. The process entailed the creation of two posters, two postcards, a brochure, and an album cover. Judah & the Lion is a band that I've enjoyed for a while now and having gone to a handful of their concerts and knowing their music well made for a fun and rewarding project – I was able to utilize that information and those experiences to design a set of materials that works to be visually appealing, while also showcasing the characteristics of this band and their music.

DESIGN EXPO – ROOMS 300/301/302 – 9 A.M. - 4 P.M.

#MeToo

Andrea Hatter

Brooks Harris Stevens, faculty mentor

#MeToo is an installation piece that I created in the 3-D Fiber Forms course in Fall 2018. This piece contains printed and screen-printed text from my own writings based on my personal thoughts and experiences. Creating #MeToo became an outlet for me, and a way to help process the trauma that I have experienced. Every survivor has a story, and this is only a glimpse into mine. Even with the #MeToo movement, rape culture is still a taboo topic to discuss and it only makes that stigma stronger when we remain silent.

DESIGN EXPO – ROOMS 300/301/302 – 9 A.M.- 4 P.M.

“By the Hand of a Woman:” Artemisia Gentileschi’s Judith and Holofernes

Rachel Kindred

Pamela Stewart, faculty mentor

This paper examines the painting Judith and Her Maidservant with the Head of Holofernes (c. 1623), by Artemisia Gentileschi, housed in the Detroit Institute of Arts. I contextualize this painting by probing the significance of its subject within the Italian Baroque and defining its iconography. I then argue that while this work is stylistically similar to other Baroque depictions of the theme, a key difference can be seen in Gentileschi’s portrayal of female characters, who have unusually strong hands and forearms. I argue that this unique detail is central to Gentileschi’s interpretation of the biblical story and revealing of her experiences as a female artist in the 17th century.

ORAL SESSION A — ROOM 330 — 9:45 A.M.

Metal Sculpture by the Indirect Lost-Wax Casting Method

Christopher Line

Brian Nelson, faculty mentor

Metal sculpture by the indirect lost-wax casting method is an ingenious art form and craft that has remained relatively unchanged for millennia. Modern artists and industries continue to utilize its ancient principles to produce contemporary works. The earliest known metal object crafted in the lost-wax casting method is “The Mehrgarh Amulet,” a 6,000-year-old specimen discovered in present day Pakistan. The materials processes nature of the method requires many technical steps from initial conception to final production. One of its greatest advantages is the capability to produce highly detailed and accurate metal replications of soft formed objects which, in fact, may last for millennia.

DESIGN EXPO – ROOMS 300/301/302 – 9 A.M.- 4 P.M.

Picturing the Personal as Political

Julia Lozon

Brendan Fay, faculty mentor

As an effect of European imperialism, systemic racism has linked whiteness to ideals of beauty and has limited or distorted the depiction of non-white people. As societies across the world fight for civil rights, artists too have strived to challenge and transform this tradition, using their work as a means to convey messages for social change. Through the work of contemporary photographers Latoya Ruby Frazier and Zanele Muholi, this paper examines photography’s ability to cross-culturally reframe the ideal in high art. By humanizing and giving representation to the oppressed, Frazier and Muholi make a political statement while visualizing new ways in which the personal has become political.

ORAL SESSION B — ROOM 204 11:15 A.M.

Ars Longa? Perspectives on Materiality in Contemporary Art

Hannah McCready

Brendan Fay, faculty mentor

Artists can be seen working with non-traditional materials throughout the 20th Century. However, the shift from traditional notions of medium in the 1960s, the point at which modern art is divided from contemporary art, has had implications on artistic choice and has initiated discussions regarding the values explored by an artist in an artwork versus the value ascribed by professionals to artworks at an institutional level. This paper examines these issues for artists, art historians and professionals in adjacent fields such as conservation, through a series of case studies from artists linked by an engagement with time and the relationship of an object to the human body.

ORAL SESSION D — ROOM 330 — 4 P.M.

Ceramics Group 1 - Bee Pot, Dragon Pot, Pot with Branches, Pot with Blossoms

Rachel Merz, Miranda Rhea, Arrionna Pinder and Bethany Berger

Beth Ogden, faculty mentor

These pieces are hand built (constructed without the use of the potter’s wheel) using terra cotta, a reddish earthenware clay. The shapes of the pots (Group 1) are loosely based on historical pot forms, which the student artists used as inspiration for their own creative expression. This collection features the use of terra sigillata, a very fine red clay that can be burnished to a sheen. Some artists applied a dark stain after the first firing, to enhance surface textures. The interiors of the pots were glazed, and then fired again. One artist juxtaposed the earthy red of terra sigillata with areas painted in slip, a colored clay, and then glazed.

DESIGN EXPO – ROOMS 300/301/302 – 9 A.M. – 4 P.M.

Designing the Symposium

Emmalene Meyers and Elijah Bobo

Leslie Atzmon, faculty mentor

The task of designing the identity for the 39th Undergraduate Symposium starts by narrowing down who and what the symposium contains: students, faculty mentors, and the university itself. The striped, organic shape represents the students, the ever-changing and complex student body. The green circle represents the faculty mentors, true to EMU. The encompassing box is Eastern Michigan University as an institution, bringing students and faculty mentors together. While each element overlaps, they exist outside of each other. When they come together under the university, students and faculty mentors work together to be part of a brilliant, knowledge and information filled day.

DESIGN EXPO – ROOMS 300/301/302 – 9 A.M.- 4P.M.

Ceramics, Large Terra Cotta Pots

Hailey Mull, Christopher Line, Amanda Beggs and Emmet Mix

Beth Ogden and Diana Pancioli, faculty mentors

Humans have been creating objects with clay for twenty thousand years; they made sculptural work as well as functional pottery. Is it any wonder that today we continue to make work with this fascinating material! Here you see students' large pots somewhat similar to those made in the first century in Italy. Often used then for the storage and transportation of wine, olives, and olive oil, early Roman pots this large were usually not decorated. Students, however, are encouraged to carve and decorate the surfaces of their work and, as you can see, seem to enjoy the process.

Design Expo – Rooms 300/301/302 – 9 a.m.- 4 p.m.

Ceramics, Wall Reliefs

Abigail Neminski, Providence Cantalamisa and Hailey Mull

Beth Ogden and Diana Pancioli, faculty mentors

This assignment was designed to emphasize the more sculptural aspects of clay work. These Wall Reliefs are dimensional paintings made with clay. While clay is most often known for pottery forms—utilitarian shapes—it can also be used in more decorative and sculptural ways. Clay reliefs too have been made for thousands of years. This is a new exploration for Ceramics students here at EMU.

DESIGN EXPO – ROOMS 300/301/302 – 9 A.M.- 4P.M.

Keeping Memory: The Gerald R. Ford Presidential Museum

Gemma Perrotta

Pamela Stewart, faculty mentor

This presentation examines keeping and transmitting memory in historic museums through a focused case study of the Gerald R. Ford Presidential Museum in Grand Rapids, MI. Based on a semester of research and direct experience working with the Ford Museum's collections, this presentation covers: caring for artifacts, forming an artifact collection, curating, research, and telling a historic story. I contextualize these ideas within the broader field of museum studies and probe the specific concerns of historic museum and presidential archive as a category distinct from other types of institutions.

POSTER SESSION 1 – ROOMS 310 A/B – 9 A.M.- 10:30 A.M.

Ceramics Group 2 - Untitled Pot, Flower Pot, Double-Curve Pot, Pot with Faces

Amelia Sampson, Droma Shangchu, Kelsey Law, Al'x Pierre

Beth Ogden and Diana Pancioli, faculty mentors

These student-artists (Group 2) are working extensively with slip, a colored clay that changes the surface color of the clay. Several have used sgraffito, a technique in which the slip is carved away to reveal the clay beneath. After the slip is applied, the pot is dried and fired in a kiln. Glaze is then applied, and the pot is fired again to create a finished work.

DESIGN EXPO – ROOMS 300/301/302 – 9 A.M. - 4 P.M.

Ceramics, Terra Cotta Sculptures

Ronan Sampson, Madeline Klux and Emmett Mix

Beth Ogden and Diana Pancioli, faculty mentors

Students were given the assignment "Self Portrait Bust," another subject with a long history in clay. As you can see from the works shown here, one student chose to create a classical type of bust—head and shoulders; others chose instead to view the "self" as a body segment. The clay portraits are made over several weeks, then well dried, biscuit fired, stained, and fired once again to a higher temperature.

DESIGN EXPO – ROOMS 300/301/302 – 9 A.M.- 4 P.M.

Ceramics Group 4 - Platter with Bird, Sailboats, Dark Scene, Garden Tree

Alexa Stephan, Valerie Eaton, Cassadie Kirk, Droma Shangchu

Beth Ogden and Diana Pancioli, faculty mentors

These pieces began as a translation of a 2-D image into a 3-D, functional platter. The student-artists made their own supports to form the platter. The platters were then carved and/or painted using slips and glazed. The result is a painterly work that is both aesthetic and functional.

DESIGN EXPO – ROOMS 300/301/302 – 9 A.M.- 4 P.M.

Nexus

Sara Varjabedian

Brooks Harris Stevens, faculty mentor

The work I make relies largely on thorough investigations into my own interpersonal relationships, past and present, and finding form through repetitive processes. In Nexus, crochet was used to delve further into connectivity between separates, using this process to confront and cope with the inherent incongruities that arise from improvisational flow. The three yellow forms have ways of engaging one another, but have the option of touching or not touching.

DESIGN EXPO – ROOMS 300/301/302 – 9 A.M.- 4 P.M.

Band Promotion - Young Oceans

Adam Westerbur

Leslie Atzmon, faculty mentor

For this assignment, I was given the task of designing promotional prints for a band or artist of my choice. In this case I chose the band, Young Oceans – a contemporary Christian Alternative Rock band. Young Oceans produces spiritually moving music that won't fail to touch both ends of the spectrum of spiritual belief. They are a band of variety – producing lyric-filled music as well as instrumental versions of their music. In my design, I wanted to establish a look and feel that communicates how spiritually moving their music is.

DESIGN EXPO – ROOMS 300/301/302 – 9 A.M.- 4 P.M.

DEPARTMENT OF BIOLOGY

Inducing Antibiotic Production in Liquid Culture

Sara Baghdadi

Paul Price, faculty mentor

Bacteria are becoming increasingly resistant to antibiotics; however, no novel classes of antibiotics have been approved in over 30 years. We have isolated several soil microbes that produce antibiotics that kill extensively-drug resistant bacteria. One antibiotic-producing strain, PAP133, is especially effective against carbapenem-resistant Enterobacteriaceae, but we have been unable to replicate its antibiotic activity we see on plates in liquid culture. We have employed several different methods to induce this activity including using an agar layer in the bottom of a liquid culture flask, co-culturing with other microbes, growth in various media, and growth with other antibiotics.

POSTER SESSION 1 – ROOMS 310 A/B – 9 A.M. – 10:30 A.M.

Characterization of Reproductive Tumors in *C. elegans*

Shanti N.G. Bernstein

Nonpresenting student author: Yamini Donekal

Hannah S. Seidel, faculty mentor

Cancer models have been developed in many organisms, but few models have focused on the tractable worm model *C. elegans*. Here we characterized cancer-like tumors in the reproductive system of *C. elegans* and identified factors affecting the probability of tumor rupture. We found that tumors ruptured more often in old animals compared to young animals, more often in hermaphrodites than in males, and more often with some genotypes of tumors compared to others. We also saw unexpected, age-related changes in tumor nuclear morphology in some tumor genotypes. Our work establishes *C. elegans* as a useful cancer model and shows that tumor rupture is influenced by age, sex, and genotype.

ORAL SESSION D — ROOM 352 — 3:30 P.M.

The Influence of Metal Exposure on Plumage Coloration in Several Songbird Species

Selena Chiparus

Non-presenting student authors: Dorothy Zahor and Kenneth Glynn

Jamie Cornelius, faculty mentor

Mercury is found naturally in the environment but can be elevated beyond normal due to anthropogenic activities. Exposure to mercury may be harmful if an individual's fitness is reduced. Bright plumage in many songbird species is thought to signal fitness levels to potential mates and may reflect efficient foraging for diet-dependent carotenoids and/or the ability to allocate carotenoids to coloration. Studies have shown a decline in carotenoid-based coloration along metal pollution gradients. We will relate coloration of two songbird species to feather mercury levels. Identifying impacts of pollutants is important for understanding the consequences of anthropogenic activities on wildlife.

POSTER SESSION 2 – ROOM 310 A/B – 11 A.M.- 11:45 A.M. & 1:30 P.M. – 2:15P.M.

Investigating the Coaggregation of Potential Probiotics Isolated from Fermented Foods

Brittney Colvard

Non-Presenting student author: Lily Chan

Daniel Clemans, faculty mentor

Probiotic microbes propagate within the human gastrointestinal tract through the formation of biofilms by means of coaggregation. The aim of this study is to observe the interacting coaggregative abilities of microorganisms isolated from fermented foods with a panel of representative native gut microbes and known probiotic strains. Thirteen unique bacterial and fungal species, including *Lactobacillus* and *Kazachstania*, were isolated and identified using molecular techniques. We will present the characterization of these cellular interactions. These results will allow us to further understand how coaggregation plays a role in gut biofilm formation between normal microbiota and probiotics.

POSTER SESSION 1 – ROOM 310 A/B – 9 A.M.- 10:30 A.M.

Does the Prospect of Strong Seedling Competition Alter Seed Germination Rate?

Lara M. Devine

Brian M. Connolly, faculty mentor

Competition for resources alters plant growth. Consequently, plants use multiple strategies to be the best competitor. We examined the relationship between factors influencing plant-to-plant competition in Common Teasel: seed germination rate and seed dispersal height. Because seeds experience greater competition closer to parent plants, we expected shorter dispersal height to correlate with faster germination (i.e., early germinants establish priority on available resources). We found, however, that seeds dispersed from greater heights germinated more quickly than those from lower heights. Further experiments demonstrated the competitive benefits to seedlings of early germination.

POSTER SESSION 2 – ROOM 310 A/B – 11 A.M. – 11:45 A.M. & 1:30 P.M. – 2:15 P.M.

Feast and Famine: Feeding Regimes and Relative Growth Rates in Tarantulas, *Brachypelma albopilosum*

Christine Doran

Cara Shillington, faculty mentor

Predation can come at a cost for the predator. In tarantulas, both venom to subdue and digestive fluids to consume prey require resources to produce and redirect energy away from growth. This study compares growth of unrelated clutches in two feeding regimes: groups were given one cricket biweekly or two crickets once monthly. Crickets were restricted within a size class, and monthly weights were used to calculate Relative Growth Rate (RGR). We hypothesized individuals fed twice monthly would experience greater mass increases, as spaced feedings would allow for better regeneration and digestion efficiency. Early results suggest spaced feeding supports increased RGR.

POSTER SESSION 3 – ROOM 310 A/B – 2:45 P.M.- 4:15 P.M.

Invasive Autumn Olive (*Elaeagnus umbellata*) increases seed removal at new moon

Wolfgang Ebersole

Brian Connolly, faculty mentor

Invasive shrubs may increase the perceived safety of small mammals from nocturnal predators (e.g., owls), possibly resulting in more small mammal seed predation on native forest species in shrub-invaded habitats. We investigated how nocturnal lux in invaded and uninvaded plots – influenced seed removal of three conifers. We saw no difference between seed removal during the full moon between invaded and uninvaded plots. During the new moon there was a large increase in predation but only in invaded plots. Removal of the largest seed (white pine) significantly declined with increasing nocturnal lux. Our results suggest invasive shrubs may affect the ecology of fear on small mammals.

POSTER SESSION 2 – ROOM 310 A/B – 11 A.M. – 11:45 A.M. & 1:30 P.M. – 2:15 P.M.

A Domain Swap Study to Examine Specificity of CSLA Proteins

Lauren Farris

Aaron Liepman, faculty mentor

Mannans are mannose-rich polysaccharides in plant cell walls, with many industrial uses. CELLULOSE SYNTHASE LIKE-A (CSLA) genes encode membrane proteins that synthesize pure mannan or glucomannan backbones. Factors controlling mannan backbone composition remain unknown. We hypothesize that the large hydrophilic domain (LHD) of CSLA proteins governs mannan composition. We are testing this hypothesis by creating chimeric proteins, exchanging the LHD of a pure mannan synthase from *Cyamopsis tetragonoloba* with one from a glucomannan synthase from *Arabidopsis thaliana*. Recombinant DNA molecules have been constructed and introduced into yeast. Characterization of these proteins will be presented.

POSTER SESSION 1 – ROOMS 310 A/B – 9 A.M.- 10:30 A.M.

Methane and Carbon Dioxide Emissions from Soils on Native and Invasive Wetland Plant Litter

Jayde Gaydos

Kristin Judd, faculty mentor

To test how plant species composition alters wetland function we added leaf litter from three native and three invasive species to wetland sediments and compare CH₄ and CO₂ emissions using jar incubations. The soils with invasive litter released less CO₂ than the soils with native litter. In one set, the soil with invasive litter averaged 37.8% lower. Methane emissions averaged 15.6% lower in the soil with invasive litter. These results suggest that the soils had such variability because invasive species have higher success in carbon sequestration and yielded higher CO₂ fluxes. Trade-offs need to be assessed to determine if carbon retention outweighs the lack of diversity when invasive species are present.

POSTER SESSION 2 – ROOM 310 A/B – 11 A.M.- 11:45 A.M. & 1:30 P.M. – 2:15 P.M.

Complex Polysaccharides can Induce the Production of Potentially Novel Antibiotics

Dawit Gebrehiwot and Khaled Ali

Paul Price, faculty mentor

With the rise of infections caused by multidrug resistant bacteria, there is a need for new antibiotics. We have identified many soil bacteria that produce antibiotics effective against carbapenem-resistant Enterobacteriaceae (CRE) grown in microcosm environments. We can now recreate these effects in simple environments by adding different simple or complex polysaccharides to our media and co-culturing these antibiotic-producing strains with *Escherichia coli* and *Klebsiella pneumoniae*. The addition of mannitol or potato starch were most effective at inducing this activity. Mass spectrometry and NMR will be used to identify the chemical components responsible for the antimicrobial activity.

ORAL SESSION A — ROOM 204 — 10 A.M.

Comparison of Microorganisms Present in Remnant and Restored Prairie Soils

Madolin Glowacki, Autumn Joice and Tamara Snelson

Daniel Celmans, faculty mentor

Microorganisms are an essential part to the growth and diversity of prairie microbiomes. The objective was to determine the difference in microbial diversity in remnant and restored prairie soils. We hypothesized that the remnant prairie soil samples would have greater microbial diversity, and this was supported by the data we obtained from this experiment. The microbial diversity was determined through traditional culture-based and molecular techniques. The lack of microbial diversity in restored prairie soil could suggest that the restoration process may be inefficient in regard to the introduction of certain species of microorganisms commonly found in remnant prairie ecosystems.

POSTER SESSION 1 – ROOM 310 A/B – 9 A.M.- 10:30 A.M.

Body Condition and Feather Coloration of Urban Vs. Rural American Goldfinches and American Robins

Kenneth Glynn

Non-presenting student authors: Dorothy Zahor and Selena Chiparus

Jamie Cornelius, faculty mentor

Some songbirds use colorful ornamentation for mate selection, and their bright plumage and bill color are believed to honestly reflect overall health to potential mates. Our study examined the health of two species by examining body condition and feather color in rural and urban habitats. American Robins use melanin to produce their ornamentation, while American Goldfinches use carotenoids obtained from the environment which may be involved in antioxidant defense. Therefore, brighter plumage may reflect environmental availability of carotenoids and/or higher individual condition. We aim to better understand how these different habitats are impacting the health and fitness of these species.

POSTER SESSION 2 – ROOM 310 A/B – 11 A.M.- 11:45 A.M. & 1:30 P.M. – 2:15 P.M.

Behavioral Response to Flooding in Tropical Tarantulas

Dallas Haselhuhn

Cara Shillington, faculty mentor

Seasonal floods are common occurrences in tropical rainforests. Within these environments many species have developed mechanisms for dealing with continual changes in water levels. In many invertebrates this is a behavioral response, likely climbing higher to avoid drowning. By experimentally manipulating the water level, tarantulas were coaxed into climbing an artificial tree. The Y-Shape of the tree provided tarantulas a choice to go left or right. The lateralization response in their movement to a perceived flood is further explored within this study.

POSTER SESSION 3 – ROOM 310 A/B – 2:45 P.M.- 4:15 P.M.

Role of Tarantula Silk in Attracting Potential Prey

Dallas Haselhuhn

Cara Shillington, faculty mentor

Many spiders build webs to capture prey, while some will also line webs with decaying matter to attract prey. Tarantulas likewise leave prey remains and debris within their burrows. To determine if the debris left in their burrows attracts prey we examined choice behavior in cockroaches; well-known detritivores and common prey for tarantulas. An arena setup allowed cockroaches a choice of tarantula silk, the tarantula itself, the cockroaches' main food source, or crickets predated on by tarantulas. Cockroaches chose equally between silk and their food source. These results suggest that tarantula silk is as desirable to prey as their primary food source.

ORAL SESSION A — ROOM 350 — 9 A.M.

Genetic Comparison of United States and Mexican Red Rump Tarantula (*Brachypelma vagans*)

Sarah N. Holtzen

Cara Shillington and Salima Machkour M'Rabet, faculty mentors

The red rump tarantula, *Brachypelma vagans*, is a popular pet species native to areas from Mexico to Costa Rica. Due to over-collecting, all *Brachypelma* species are considered endangered and are thus a protected species. However, red rump tarantulas were introduced into Florida 40 years ago and are also readily available in the U.S. pet trade. The goal of our research is to compare the genetic profiles of the invasive Florida individuals and pet trade animals with specimens from different locations in Mexico to determine the relationship between U.S. and Mexican red rump tarantulas. We hope to determine the source population for this introduced species.

POSTER SESSION 3 – ROOM 310 A/B – 2:45 P.M.- 4:15 P.M.

Global Warming and its Impact on Fungi

Bailey Knight

Non-presenting student author: Louis Jochems

Emily Grman, faculty mentor

Research abstract: Global warming can stress organisms such as fungi and soil microbes directly and indirectly by modifying their interactions with plants. We hypothesized that warm-adapted fungi and soil microbes would perform better at high temperatures. Warm-adapted soil fungi were more abundant at higher temperatures in the roots of some plants. Contrarily, cooler-adapted soil fungi were more abundant at higher temperatures in the roots of one prairie plant species. Global warming has a widespread and complicated effect on the components within the soil that can ultimately impact ecological diversity and overall plant health.

POSTER SESSION 2 – ROOM 310 A/B – 11 A.M. – 11:45 A.M. & 1:30 P.M.- 2:15 P.M.

Characterization of Candidate Mannan Synthases DoCSLA6 and DoCSLA8 of *Dendrobium officinale*

Sierra Linton

Aaron H. Liepman, faculty mentor

Mannans and glucomannans are important carbohydrate components of plant cell walls where they play roles in structure and energy storage. These carbohydrates are used in traditional medicine to treat cancer and gastric ulcers and they are also used in the food industry. *Dendrobium officinale* is an orchid species rich in mannan polysaccharides. DoCSLA6 and DoCSLA8 are enzymes from *D. officinale* hypothesized to encode mannan synthases responsible for biosynthesis of the backbones of mannans and/or glucomannans in this plant. This study aims to use recombinant DoCSLA6 and DoCSLA8 proteins, produced in yeast, to determine whether they synthesize pure mannan and/or glucomannan backbones.

POSTER SESSION 1 – ROOM 310 A/B – 9 A.M.- 10:30 A.M.

Refinements of an Alu-based DNA Marker for Advancing Studies of Human Populations

Madeline Maki

David Kass, faculty mentor

Alu elements represent the most common family of short interspersed elements (SINEs) in the human genome. Roughly 2,000 of the over one million elements are not fixed in the human genome yielding presence/absence DNA markers shown to be highly useful in human population studies, hence included in the 1,000 Genomes Project. Upon sequencing an Alu locus we have discovered additional variants and developed a relatively simple assay to distinguish them. We have identified six haplotypes for this locus and propose this will increase the robustness of Alu-based markers, laying the groundwork for further advancing studies of human populations.

POSTER SESSION 3 – ROOM 310 A/B – 2:45 P.M.- 4:15 P.M.

Sodium Chloride Reduces Tomato Performance and Palatability to Herbivores

Jocelyn Marsack

Brian Connolly, faculty mentor

Sodium chloride salt (NaCl) is a de-icing agent used in North America, Europe, and Asia for winter road management. Although many studies have shown its direct, negative effects on plants and animals in natural systems, less is known on how salt disrupts interactions between species. In this work, we examined how soil salinization alters plant-herbivore interactions by testing how increased salt concentrations in the soil influence plant palatability. Using greenhouse and field studies, we found that increased salt concentrations decreased tomato growth and palatability to insect herbivores. Here, we explore implications of soil salinization on broader plant and animal community structure.

ORAL SESSION D — ROOM 320 — 3P.M.

Effect of Microbial Diet on Tumor Rupture in *C. elegans*

Dominic Paoletti

Hannah Seidel, faculty mentor

Our microbiome is the collection of microorganisms living within or on our body. Our microbiome interactions aid in digestion, immune system regulation, and production of vitamins. An excellent model system for understanding animal-microbe interactions is the microscopic worm *C. elegans*. *C. elegans* feeds on bacteria, shares many genes with humans, and can form tumors in its reproductive system, providing a model of cancer. The goal of the current study is to test whether tumors within the *C. elegans* reproductive system are influenced by microbial diet.

POSTER SESSION 1 – ROOM 310 A/B – 9 A.M.- 10:30 A.M.

How Achievement Goals Impact Quality of Reflective Writing and Demonstration of Scientific Literacy

Anna Pathammavong

Chiron Graves, faculty mentor

Reflective writing has been used in classrooms to help facilitate student critical thinking. Typically, professors provide guidelines for the writing which include page or word limits and scoring rubrics and students often write to give the professor what he/she wants. We were curious to know how students would approach reflective writing without guidelines or scoring rubrics. This study examined the word counts and quality of the reflective writing submissions of elementary teaching majors to determine how they would approach reflective writing when only provided with suggested writing prompts to facilitate their reflective process.

POSTER SESSION 3 – ROOM 310 A/B – 2:45 P.M.- 4:15 P.M.

Are You What You Eat? Prey Diet and Relative Growth Rate in Tarantulas, *Ceratogyrus marshalli*

Kendra Perkins

Cara Shillington, faculty mentor

Research in herpetology husbandry provides extensive evidence of detrimental effects of inadequate diet on various species. Similar research has not been undertaken with arachnids, also common in the pet-trade. We investigated the impact of prey items' diet on tarantula growth and hypothesized that tarantulas fed crickets on a nutrient-rich diet would experience faster growth rate. We randomly separated spiderlings into two groups: group 1 was fed crickets on a nutrient-poor diet and group 2 received crickets that were gut-loaded on a nutrient-rich diet. As measures of growth, we compared both intermolt periods and relative growth rates between these groups.

POSTER SESSION 3 – ROOM 310 A/B – 2:45 P.M.- 4:15 P.M.

Cofilin Expression at Specific Stages of *Xenopus laevis* Embryonic Development

Verginio Persicone

Robert Winning, faculty mentor

Cofilin is a protein that functions in the signaling pathway for cell migration; this includes cell migration during embryonic development. This study observed how cofilin expression varies at different stages of embryonic development in the frog *Xenopus laevis*. I hypothesized that cofilin expression would be observed at early stages of embryonic development. This hypothesis was tested by isolating RNA and protein from *X. laevis* embryos at landmark stages of development. Samples from each stage were analyzed for accumulation of cofilin mRNA and protein. Preliminary results indicate that cofilin is expressed in early embryo stages.

POSTER SESSION 1 – ROOM 310 A/B – 9 A.M.- 10:30 A.M.

Identification and Characterization of Microcystis Isolates from Ford Lake

Sean Polidori

Michael Angell, faculty mentor

Microcystis aeruginosa is a cyanobacteria (blue-green algae) that forms harmful blooms in freshwater ecosystems. The objective of this study was to isolate and identify *M. aeruginosa* found in Ford Lake (Ypsilanti). Ford Lake was sampled bi-weekly during the summer of 2018. Algal samples were agar-isolated and grown in liquid media. This process resulted in the identification of fifty isolates exhibiting *Microcystis* characteristics. There were at least four distinct colony morphologies, indicating that there are potential factors or advantages that lead to different colonial conformations. Our lab's future studies on the mechanisms of colony formation aim to prevent algal bloom occurrence.

POSTER SESSION 3 – ROOM 310 A/B – 2:45 P.M.- 4:15 P.M.

Nutrient Shifts Affect Adherence Ability and Cell-Surface Properties of *Lactobacillus rhamnosus* GG

Amanda Rielinger

Daniel Clemans, faculty mentor

Lactobacillus rhamnosus GG (LGG) is a common probiotic microorganism. Its ability to adhere to other microorganisms and the gut lining is hypothesized to play a major role in its probiotic capabilities. The goal of this study was to examine how nutritional shifts affect the ability of LGG to adhere to other human gut microbes and to form microbial communities known as biofilms. Animal-derived protein sources increased the adherence of LGG to partner microbes and biofilm formations. Analysis of surface properties revealed that animal-derived protein sources increased hydrophobicity of LGG. Our results suggest that dietary nutritional variation may affect microbial interactions in the gut.

POSTER SESSION 3 – ROOM 310 A/B – 2:45 P.M.- 4:15 P.M.

Moonlight Illumination Affects Species Interactions through Perceived Predation Risk

Molly Ripka

Brian Connolly, faculty mentor

Risk of predation for animals varies across space and time and can have effects on animal behavior and species interactions. We estimated how spatial predation risk (i.e., different vegetation heights) and temporal predation risk (i.e., percent moon illumination) altered seed removal. Buckets with sunflower seeds were placed in a field with varying vegetation height (short, edge, and tall grass) at full, last quarter, new, and first quarter moon phases. We saw lowest seed removal during full moon and greatest removal during first quarter. Seed removal did not differ between cover types. Our work supports the hypothesis that predation risk drives variation in species interactions.

POSTER SESSION 2 – ROOM 310 A/B – 11 A.M.-11:45 A.M. & 1:30 P.M.- 2:15 P.M.

Faculty Perspectives about African-American/Black Biology Student Retention and Persistence at EMU

Tommiea Robertson

Chiron Graves, faculty mentor

This study aims to get the perspective of some of the faculty in EMU's Biology Department regarding African-American/Black student retention in its various academic programs. We interviewed six biology faculty to get their perspective on what can be done at EMU to increase African-American/Black student retention and persistence in biology. Many scholars have pointed out that African-American/Black professors are underrepresented in STEM-related fields and have called for supportive efforts to increase the persistence and retention of African-American/Black undergraduate students who can progress to graduate school and eventually join the academic ranks.

POSTER SESSION 3 – ROOM 310 A/B – 2:45 P.M.- 4:15 P.M.

Using SDM toolbox to Understand Endemism Throughout Madagascar Plant Species

Nicole Rowley

Margaret Hanes, faculty mentor

Madagascar is an ideal place for evolutionary and biodiversity research due to its geographic isolation and high species diversity. Many of the species on Madagascar are not found anywhere else in the world and have limited distribution on the island. In this study we use an ArcGIS plugin called SDM toolbox to analyze species distribution models within five plant genera in the Hibiscus family in order to predict biodiversity metrics such as species richness and endemism. We explore the evolutionary and conservation implications of these analyses.

POSTER SESSION 2 – ROOM 310 A/B – 11 A.M.-11:45 A.M. & 1:30 P.M.- 2:15 P.M.

Evidence of Ploidy-Reduced Individuals in a Unisexual Ambystoma Salamander Laboratory Breeding Trial

Michelle Souza

Non-presenting author: Kyle Williams

Katherine Greenwald, faculty mentor

Unisexual *Ambystoma* salamanders are an all-female lineage that reproduce by breeding with males of other species. Sperm triggers egg development but the male genome may or may not be incorporated into the offspring. Low-ploidy individuals are found in nature but the exact mechanism for ploidy reduction is unknown. We analyzed DNA samples from 30 offspring of a diploid male blue-spotted salamander and triploid female unisexual salamander. We identified asexually produced offspring, ploidy elevated individuals with alleles not found in either parental genome, and ploidy reduced diploid individuals. The allele loss may be the first documented example of reduced ploidy in unisexual salamanders.

POSTER SESSION 3 – ROOM 310 A/B – 2:45 P.M.- 4:15 P.M.

Invasive vs Native Leaf Litter Effects on Microbial Community Composition in Vernal Pools

Michelle Souza

Kristin Judd, faculty mentor

Vernal pools provide critical habitat for many species, and changes in the nutrient cycle/water chemistry can signal changes to the health. Because invasive species can alter ecosystem processes, we examined the effects of leaves on microbial communities in vernal pools. To assess how different plant species affected the physiological capabilities and functional diversity of microbial communities we added invasive and native leaf leachate to microbial biofilms. We predicted that dissolved organic matter from different species would alter the response. Our findings suggest leaf litter leachate alters microbial physiological responses and different ponds may respond differently to invasion.

POSTER SESSION 2 – ROOM 310 A/B – 11 A.M.-11:45 A.M. & 1:30 P.M.- 2:15 P.M.

Repair Pathways Responsible for Long-Tract Gene Conversions in *Saccharomyces cerevisiae*

Joseph Stewart and Michael Hillegass

Anne Casper, faculty mentor

When DNA damage occurs, the cell goes through various repair pathways to fix it. One result of this repair is long-tract gene conversions (LTGC). LTGCs often are present in the tumor cells of some cancers. We analyzed a collection of yeast strains containing LTGCs. Our experiments aimed to determine which DNA repair pathway was the most likely cause of each gene conversion. Using CHEF gel electrophoresis, we were able to determine the size of the repaired chromosome containing the LTGC. Next Generation Sequencing gave us the sequence of the repaired region. Using both sets of data, we were able to determine whether the repair pathway for each gene conversion was dBIR or mmBIR.

POSTER SESSION 3 – ROOM 310 A/B – 2:45 P.M.- 4:15 P.M.

Development of a Testable Model Gut Microbial Biofilm using *Mus musculus*

Allan Teague

Daniel Clemans, faculty mentor

Naturally occurring bacterial species form biofilms on the lining of the gut in all mammals. These biofilms are important to many mammalian functions. The objective was to develop a model gut biofilm to test nutrient shifts and the addition of known microbes on the community. Preliminary results show that the development of the biofilms (static and flow-cells) is dependent upon the media conditions. Results from this experiment would help to create a model to test the impact of nutrient shifts and the addition of probiotics on the biofilms.

POSTER SESSION 1 – ROOM 310 A/B – 9 A.M.- 10:30 A.M.

Effects of Activity and Web Coverage on Growth Rate in Tarantulas

Tyler Underwood

Cara Shillington, faculty mentor

Trade-offs in behavior and growth are not well-studied in most invertebrates. Higher activity requires larger energy demands and potentially less growth. Tarantula spiderlings adopt either a burrowing lifestyle, arboreal lifestyle, or a combination of the two. Based on observations of activity, we hypothesized that burrowing tarantulas and those that produced less web would have faster growth rates. To test this hypothesis individuals were fed the same amount biweekly, and weighed monthly to calculate growth rate. Amount of web coverage and behavior was recorded. We then compared the relative growth rates between the lifestyles and amount of webbing produced by individuals.

POSTER SESSION 3 – ROOM 310 A/B – 2:45 P.M.- 4:15 P.M.

The Effects of Invasive Plants on Greenhouse Gas Production in Vernal Ponds

Janae White

Kristin Judd, faculty mentor

Vernal ponds, forested wetlands that dry up seasonally, are a critical habitat for many organisms. However, many vernal ponds are being taken over by invasive shrubs. These plants may alter the chemical composition and biogeochemical processes of the wetlands. This study investigated how invasive leaf litter affects the production of greenhouse gases by microbes in the sediments. We incubated jars with soils from two ponds, leachates made of invasive or native leaf litter, and the corresponding litter. After 24 hours, we measured the amount of CO₂ and CH₄ gas produced. We found that in both ponds, invasive litter resulted in more CO₂, but less CH₄ production than native litter.

POSTER SESSION 2 – ROOM 310 A/B – 11 A.M.-11:45 A.M. & 1:30 P.M.- 2:15 P.M.

Risk it for the Biscuit: Perceived Predation by Cuttlefish Affects Food Acquisition

Carina Willcock and Molly Ripka

Cara Shillington, faculty mentor

Prey animals experience a trade-off with perceived predation risk and food acquisition. Many invertebrates are predators, but may become prey to other organisms while hunting. Invertebrates like cuttlefish have yet to be included in predation risk studies such as this. We observed juvenile cuttlefish in a low-risk enclosure where a tube of shrimp was presented at progressively closer distances, starting at 6-inches. The distance where cuttlefish attempted prey capture was used to measure perceived predation risk. Cuttlefish attacked more frequently when shrimp were closer (<3-inches). Additionally, age significantly impacted cuttlefish willingness to attack prey.

POSTER SESSION 3 – ROOM 310 A/B – 2:45 P.M.- 4:15 P.M.

Salt Pollution Decreases Decomposition of Biofilms from Local Streams

Caleb Willette

Kristin Judd, faculty mentor

Freshwater salinization syndrome is a global problem adversely affecting lakes and streams. In this region, road salts entering streams may alter ecosystem functions, such as decomposition. We predicted that road salts would negatively affect stream decomposition rates. We conducted field surveys and manipulative experiments by incubating cotton strips in streams and testing their tensile strength. We found that road salts decreased decomposition in a rural stream but had little effect in an urban stream, and the urban site had lower decomposition under low salt conditions. Our results suggest that salt pollution affects stream biofilms and reduces rates of decomposition.

POSTER SESSION 2 – ROOM 310 A/B – 11 A.M.-11:45 A.M. & 1:30 P.M.- 2:15 P.M.

Autumn Olive, an Invasive Shrub, Alters Deer Mouse Activity

Paul Wozniak

Brian Connolly, faculty mentor

Predation risk is a central force acting on patterns of prey activity; however, it is not fully understood how invasive shrubs might alter this relationship. In a forest heavily invaded by autumn olive (*Elaeagnus umbellata*), we deployed seven camera traps for two months to record deer mouse activity patterns in plots cleared of invasive shrubs and control, uncleared plots. We found that this invasive shrub causes temporal homogenization of mouse activity and an overall increase of nocturnal mouse activity. Our study provides evidence that shrubby invasions could generate community-level consequences by modifying mouse behavior.

POSTER SESSION 2 – ROOM 310 A/B – 11 A.M.-11:45 A.M. & 1:30 P.M.- 2:15 P.M.

Utilization of Homoplasmy-free SINE Markers to Resolve the Phylogeny of *Peromyscus* Species

Alec Wroblewski

David Kass, faculty mentor

The *Peromyscus* genus consists of over 50 recognized species, providing a rare opportunity to study evolutionary mechanisms of mammalian speciation. We propose utilizing short interspersed DNA elements (SINEs), as these markers provide a “molecular fossil record” since shared genomic integrations of elements correspond to shared common ancestors. We have identified “young” SINEs present in *P. aztecus*. Of six SINE-containing loci analyzed, only one integration was shared with *P. boylii*, supporting the potential of SINEs as phylogenetic markers. Five other loci are specific to *P. aztecus*, consistent with these SINEs being young and suggesting continued activity and role in speciation.

POSTER SESSION 3 – ROOM 310 A/B – 2:45 P.M.- 4:15 P.M.

Effect of Tumor Growth on Body Fat, Body Size, and Stress Response in *C. elegans*

Reem Yassine

Hannah Seidel, faculty mentor

Tumorous growth affects nearby healthy tissues, as seen in wasting disease experienced by cancer patients, but the underlying mechanisms are not well understood. We studied tumor growth in *C. elegans*, a microscopic worm that shares many genes with humans and has the ability to grow tumors in its reproductive system. To test whether tumors cause stress in nearby tissues, we used genetic crosses to create strains containing tumors and fluorescent-based stress reporters. Our main finding is that tumorous tissue does not increase stress response in nearby tissues but instead inhibits it. We also compared body size as well as fat content differences between wildtype and tumorous worms.

ORAL SESSION D — ROOM 352 — 3:45 P.M.

DEPARTMENT OF CHEMISTRY

Determining the cooperative histone binding properties of the TTD and PHD domains of UHRF2

Sara Abdrabbo

Brittany Albaugh, faculty mentor

UHRF2 is a protein that varies in expression in several types of cancer and its histone binding properties are poorly characterized. Previous studies showed that mutating either the TTD or the PHD domains of UHRF2 partially disrupted its ability to bind histone H3, suggesting that both domains participate in binding. We tested the hypothesis that the TTD and PHD work together to bind H3 by creating UHRF2 double domain mutations and measured the overall binding affinity of using fluorescence polarization. This study will provide us essential information on the role these sites have in histone binding, and may lead toward a better understanding of UHRF2's role in cancer.

POSTER SESSION 1 – ROOM 310 A/B – 9 A.M.- 10:30 A.M.

The Dissolution of Aragonite: A Conductivity Probe Experiment for High School

Adjoa Aniapam

Larry Kolopajlo, faculty mentor

The dissolution of aragonite, a mineral containing calcium carbonate, was studied at room temperature for ten hours or more using a Vernier conductivity probe by immersing a mineral specimen in dilute hydrochloric acid. From the data, a rate constant was calculated, and a chemical reaction equation was derived. Surface and mass changes were observed. The experiment is of value in a high school curriculum because it is interdisciplinary in the areas of earth science and chemistry. Although aragonite is inexpensive, the experiment does require using a Vernier conductivity GoDirect sensor which only costs about \$100, and can be used with a smartphone, reducing the cost of a computer interface.

POSTER SESSION 3 – ROOM 310 A/B – 2:45 P.M.- 4:15 P.M.

A CSI Murder Mystery Activity for High School Students

Sydney Begeman

Larry Kolopajlo, faculty mentor

Using NGSS, a novel CSI outreach activity has been developed for high school students from the perspective a person who has performed actual police work in firearms and drugs. The activity engages students in collecting and analyzing data, and using the scientific method. Mass spectrometry, qualitative chemical analysis, and physical properties are among the chemical topics covered.

POSTER SESSION 3 – ROOM 310 A/B – 2:45 P.M.- 4:15 P.M.

Salt Effects on Nanoparticle Formation

Andrew Bower and Darrian Lovett

Timothy Brewer, faculty mentor

This project explored the shape selective effects of potassium salts on a nanoparticle forming reaction. A novel method was developed to study this reaction because of the instability of some of the reactants such as hydrogen peroxide and sodium borohydride. The salt anions (chloride, bromide, and iodide) greatly influenced both the rate and size of the final nanoparticle product. Chloride produced the slowest reaction of the anions and allowed for extensive studies of the transformation of silver from spheres into prisms. Studies showed salt concentration was also influential in the rate of formation and type of nanoparticle.

POSTER SESSION 3 – ROOM 310 A/B – 2:45 P.M.- 4:15 P.M.

Effects of Chemical Pretreatments on Rock Art Binding Media and Implications for Radiocarbon Dating

Andrew Bower

Ruth Ann Armitage, faculty mentor

Knowing the age of rock paintings helps archaeologists better understand the people who made them. For most paintings, dating is only possible on the binding medium; this can be contaminated with adhering soil, etc. We are investigating the efficacy of the base wash pretreatment used in dating of rock paintings. We will describe the use of direct analysis in real time mass spectrometry (DART-MS) to study the effect of chemical pretreatments on binding media in mock up paint samples. The results of this study will aid in the investigation of authentic rock painting samples from Africa and Central America.

POSTER SESSION 2 – ROOM 310 A/B – 11 A.M.-11:45 A.M. & 1:30 P.M.- 2:15 P.M.

A Comparison between Linear- and Nonlinear- Least Squares Rate Constant Calculations

Glenise Burks

Larry Kolopajlo, faculty mentor

Rate Constants for the Nitrien²⁺-bipyridine reaction were determined using both linear regression using Microsoft Excel, and nonlinear regression using Microsoft Excel Solver and Minitab. Rate constants extracted from the three methods are compared and contrasted.

POSTER SESSION 3 – ROOM 310 A/B – 2:45 P.M.- 4:15 P.M.

A Chemical Kinetics Analysis of the Nitrien²⁺- bipy reaction

Glenise Burks

Larry Kolopajlo, faculty mentor

Data for the kinetics of the reaction between Ni(trien)²⁺ and bipyridine was analyzed. Plots of $\ln[\text{Ni}(\text{trien})^{2+}]$ vs time showed the reaction to be first-order in Ni(trien)²⁺. Plots of rate constant k versus bipyridine concentration at constant pH were linear showing the reaction to be first-order in bipyridine. A rate law and rate constant were formulated.

POSTER SESSION 3 – ROOM 310 A/B – 2:45 P.M.- 4:15 P.M.

Understanding the Role of Atg7 in Autophagy

Ronith Chakraborty

Steven K Backues, faculty mentor

Autophagy is the process by which cytosolic components are trafficked to and degraded by the vacuole or lysosome. It plays a critical role in cellular health, aging, cancer, and neurodegenerative diseases. Atg7 (Autophagy Related Protein 7) is an enzyme required for the autophagic process in *Saccharomyces cerevisiae*. In this study, we show, using western blot and electron microscopy analysis, that Atg7 increases the size and number of autophagosomes. In addition, we look at the significance of these results in the context of a therapeutic understanding of autophagy in humans.

ORAL SESSION A — ROOM 350 — 9:45 A.M.

A Green Silver Nanoparticle Experiment for High School

Mariah Ford

Larry Kolopajlo, faculty mentor

Silver nanoparticles (AgNP) were synthesized from silver nitrate and green tea. Green tea substitutes for sodium borohydride, which is both dangerous and expensive. Various kinds of green tea were used. Visible and uv spectra were recorded allowing an estimation of AgNP size. Some kinetic data on the rate of formation of AgNP was collected. Solution properties such as pH were measured. A laser was used to demonstrate that particles existed in solution. A lab procedure was written so that the experiment can be disseminated to teachers and students.

POSTER SESSION 3 – ROOM 310 A/B – 2:45 P.M.- 4:15 P.M.

Characterization of Histone Binding Properties of D363 UHRF2 Mutants by Fluorescence Polarization

Marisa E. Gilliam

Brittany Albaugh, faculty mentor

UHRF2 is an epigenetic protein involved in cancer regulation. The goal is to determine the amino acids in UHRF2 involved in histone binding. D363 UHRF2 mutants (D363A, D363K and D363N) were generated within the linked TTD-PHD and individual PHD domains by PCR. The protein was expressed in E.Coli with a Glutathione S-transferase tag and purified through column affinity chromatography purification using a glutathione resin. Fluorescence polarization was used to determine the binding affinity of the protein against H3K9me3 and unmodified H3 histone peptides. The resulting K_d values suggest that the mutant binds weakly to the H3K9me3 histone but shows no binding toward unmodified H3.

POSTER SESSION 1 – ROOM 310 A/B – 9 A.M.- 10:30 A.M.

Histone Binding Properties of a Mutant UHRF2 Protein

Tom Gillis and Andrew Glaza

Brittany Albaugh, faculty mentor

UHRF2 is a protein with potential oncogene and tumor suppressor activities. Our goal is to determine which amino acid residues are important for interacting with H3. We hypothesized that an Aspartate (D134) and Arginine (R134) in the TTD-PHD region are important for H3 binding. To test this hypothesis, D134R and D134R/R325D mutants were generated and their ability to bind H3 was measured using fluorescence polarization. These results provide insights into the histone binding properties of UHRF2.

POSTER SESSION 1 – ROOM 310 A/B – 9 A.M.- 10:30 A.M.

Identifying the Amino Acids Responsible for Atg11 Binding to its Partners via Yeast-two Hybrid Assay

Alex Kilgore and Kiri Gilruth

Steven Backues, faculty mentor

Autophagy is a regulatory cellular process by which a cell packages material & ships it to the lysosome/vacuole for breakdown. Atg11 is a key autophagy protein that is thought to be a central organizer of other Atg proteins. We aim to understand its binding with its partners to get an idea of its structure & function by finding the amino acids responsible. A series of mutations was performed on possible binding sites on Atg11. These mutants were then grown in yeast & tested via a Yeast-2-hybrid binding assay which shows if Atg11 and a partner protein are binding or not. Our data suggests that two amino acids, Y565 & I562, are key for Atg11 binding or its overall structure.

POSTER SESSION 1 – ROOM 310 A/B – 9 A.M.- 10:30 A.M.

Examining Binding of Humanin Fragments to Amyloid- β through Molecular Dynamics and Quantum Mechanics

Alexis Marsh

Maria C. Milletti, faculty mentor

Dimerization of the humanin peptide with the neurotoxic protein amyloid- β defends against Alzheimer's disease. In this project, we examine this binding interaction with molecular modeling methods. To determine important residues, we focus on two humanin analogs: a fragment between amino acids 5-15 of the wild type and a mutated fragment of the same region where amino acid 11 (leucine in the wild type) is replaced with serine. Simulated dimer interactions are used to determine the bonding affinities between the humanin fragments and amyloid- β . This information provides insight into humanin's interactions with amyloid- β 's cell signaling pathways.

POSTER SESSION 2 – ROOM 310 A/B – 11 A.M.-11:45 A.M. & 1:30 P.M.- 2:15 P.M.

To Bind or Not to Bind: Identifying Necessary Binding Sites on Atg11, a Selective Autophagy Protein

Mitchell Meyer

Non-Presenting student authors: Alex Kilgore, Mukiri Gilruth and Jasmine Winzeler

Steven K Backues, faculty mentor

Autophagy is the cellular method of degrading unnecessary cellular material. This process is crucial for maintaining cell health and thus, autophagy is a key component in preventing neurodegenerative diseases such as Alzheimer's. The autophagic pathway contains dozens of autophagy-related proteins (Atg) which work together to quarantine target material. Atg11, a critical protein in the selective autophagy pathway, includes a coiled-coil domain, CC2, which contains amino acids needed for interaction with a variety of partners. To determine specific interaction sites we tested the binding ability of a series of directed CC2 mutants against multiple partners using a Yeast-2-Hybrid Screen.

ORAL SESSION A — ROOM 350 — 10 A.M.

The Effect of Autophagy Related Proteins 3 and 10 on Autophagosome Size and Number

Jacquelyn Roberts and Nadia Rahman

Steven Backues, faculty mentor

Autophagy is a process of cellular metabolism by which cellular contents are encapsulated by a membrane vesicle, or autophagosome, and delivered to the vacuole to be degraded and recycled. Autophagy is implicated in aging, neurodegenerative diseases, and cancer. Autophagy is mediated by over 40 Autophagy-related (Atg) proteins. Atg3 and Atg10 are two proteins parallel in a cascade that results in expansion of the autophagosome. From previous studies we hypothesize that Atg10 and Atg3 have unique functions. Here we determine the effect of Atg3 and Atg10 on autophagic activity with ALP assays, and their effect on downstream protein products using western blots.

POSTER SESSION 1 – ROOM 310 A/B – 9 A.M.- 10:30 A.M.

Antibiotic Production is Increased by Various Simple Sugars in Media

Mel Roberts

Paul Price and Cory Emal, faculty mentors

There is a growing need to discover novel classes of antibiotics due to the rise in multi-drug resistant microorganisms. Our lab has previously identified soil microbes, including *Streptomyces* sp. and *Pseudomonas* sp., that produce antibiotics effective against carbapenem-resistant Enterobacteriaceae (CRE) and methicillin-resistant *Staphylococcus aureus* (MRSA) in complex environments. We have found that changing simple sugars during the fermentation process can help induce antibiotic production in liquid media in simplified environments.

ORAL SESSION A — ROOM 204 — 9:45 A.M.

Studies Towards Improvement in Bioavailability of Inhibitors of Plasminogen Activator Inhibitor-1

Micaela R. Schempf and Sarah R. Schmidt

Cory Emal, faculty mentor

Plasminogen activator inhibitor-1 (PAI-1) is a mammalian protein involved in the regulation of multiple biochemical pathways, including fibrinolysis. Low levels of PAI-1 are required for proper blood clot formation and dissolution, but elevated levels of PAI-1 are associated with pathological conditions such as stroke, myocardial infarction, and certain forms of cancer. New pharmaceuticals for the treatment of these conditions via the inhibition of PAI-1 are of great interest. This study focuses on the modification of existing inhibitors of PAI-1 with the intention of improving their solubility profile and resulting ability to target PAI-1 in vivo.

POSTER SESSION 2 – ROOM 310 A/B – 11 A.M.-11:45 A.M. & 1:30 P.M.- 2:15 P.M.

Stereoselectivity in the Synthesis of a Pyrrolidine with no Protecting Group at the Nitrogen

Terrence Stahl

Non-presenting student author: Jalen Williams

Maria Milletti, faculty mentor

Pyrrolidines are found in the structure of many useful pharmaceuticals. The synthesis of a pyrrolidine utilizing a tandem aza-Cope Mannich reaction is examined to determine its selectivity among four possible isomers. Computational methods are used to delineate the four energy pathways of this reaction involving a pyrrolidine that lacks a protecting group at the nitrogen center. In the absence of a protecting group, ZnCl₂, the catalyst, coordinates at that location, causing an intramolecular proton transfer. This results in higher activation barriers for the Mannich cyclization step and overall good selectivity.

ORAL SESSION A — ROOM 350 — 9:30 A.M.

Anti-Cancer Activity of Truncated Cysteine-Deleted Tachyplesin Analogs with a Hyaluronan Sequence

Jaylen E. Taylor

Deborah Heyl-Clegg, Hedeel Evans, and Jeff Guthrie, faculty mentors

Cysteine deleted tachyplesin (CDT) is a modified peptide analog of Tachyplesin, a peptide derived from the hemocytes of the Japanese horseshoe crab. CDT demonstrates anti-microbial activity against various types of bacteria, but does not appear to damage normal mammalian cells. CDT also possesses anti-cancer properties against A549 lung cancer cells. Truncated CDT analogs in both D- and L-forms that retain a common hyaluronan binding sequence were synthesized using solid phase peptide synthesis. The peptides were tested against A549 cells with the intention of enhancing anti-cancer efficacy, identifying the anti-cancer mechanism of action, and determining key amino acids for the mechanism.

ORAL SESSION D — ROOM 352 — 3:15 P.M.

Effects of Imine Concentration, Salts, and Reaction Temperature on Aza-Prins Product Yield

Hope Vaughan

Harriet Lindsay, faculty mentor

Imines are chemical compounds that can be made from other chemicals in an environmentally-friendly process. One product imines can form through cyclization is a piperidine, which is a ring composed of 5 carbon and a nitrogen. Piperidines are potentially useful building blocks for pharmaceuticals such as Paxil (an antidepressant), Ebastine (an antiallergen/antiasthmatic) and others. We use a new version of the Aza-Prins cyclization reaction to form piperidines. In this project, we are investigating the effects of varying drying agents, imine concentrations and reaction temperatures on the amount of desired piperidine product versus the amount of undesired side product produced.

POSTER SESSION 2 – ROOM 310 A/B – 11 A.M.-11:45 A.M. & 1:30 P.M.- 2:15 P.M.

Mathematical Simulation of Packed Spheres to Measure Autophagy in Yeast

Patrick Wall

Steven Backues, Dave Pawlowski, and Andrew Ross, faculty mentors

Autophagy is a process in which cells break down parts of themselves for health maintenance and to ward off starvation. In the yeast *S. cerevisiae*, the autophagic material is packaged in the cell body and sent to a compartment, the vacuole, for degradation. With electron microscopy, we can measure the size and number of these autophagic packages inside of the vacuole. Unfortunately, these images only show us a 2D “slice” of a fundamentally 3D process. By simulating the arrangement of objects in a virtual vacuole and taking measurements on virtual slices, this project aims to develop better methods for estimating information about the size and number of these packages from the 2D data.

POSTER SESSION 1 – ROOM 310 A/B – 9 A.M.- 10:30 A.M.

SCHOOL OF COMMUNICATION, MEDIA & THEATRE ARTS

Fox Mask, Wolf as “Granny” Mask

Chayton Bobee

Melanie Bond, faculty mentor

Project work in EDT 256 Costume Construction and Crafts resulted in two masks, a fox and a wolf. The display will detail information about the process—which included research, building the bases, creating the features, and doing final decorative work—and the materials used—which included cardboard, thermoplastics, glue, papier mache, yarn, paint, and fabric.

DESIGN EXPO – ROOMS 300/301/302 – 9 A.M.- 4 P.M.

The 17-Year-Old Game Super Smash Bros. Melee Lives On in Washtenaw County

Will Bogen

Sadaf Ali, faculty mentor

The purpose of this project is to familiarize people with the Super Smash Bros. community and show how important it is to Washtenaw County. This was a joint project with CTAT 334: Radio-TV Newswriting and WEMU. The audio piece was aired on WEMU with a multimedia segment on WEMU’s website.

ORAL SESSION A — STUDENT ART GALLERY — 9:15 A.M.

Rhetorical Themes in Bojack Horseman’s “Free Churro”

Hannah Brenneman

Raymond Quiel, faculty mentor

This analysis of Netflix Original Bojack Horseman’s “Free Churro,” utilizes rhetorical scholar Kenneth Burke’s Dramatistic Pentad as a methodology to highlight how the titular character eulogizes his mother and why he does so. With emphasis on pentadic ratios, this analysis of Bojack’s eulogy provides clarity to the nature of him as a character as well as implications for the nature of humanity.

ORAL SESSION A — STUDENT ART GALLERY — 9 A.M.

An Ongoing Crisis: STDs in the LGBTQ+ Community

Amber Brenton

Dennis O’Grady and Patrick Seick, faculty mentors

LGBTQ+ health discrimination has been no secret in the years following the AIDs crisis. Although many seem to believe that the effectiveness of antiretroviral drug cocktails has ended the sexual health crisis in this nation, there is still much to be done. STDs have reached their record high for the fourth consecutive year, and the LGBTQ+ is being disproportionately affected once again. The purpose of this study is to delve into the causes behind this disparity in the hope that education can shift the societal influences that continue to perpetuate this frightening reality.

POSTER SESSION 2 – ROOM 310 A/B – 11 A.M.-11:45 A.M. & 1:30 P.M.- 2:15 P.M.

The Journey of Sonder

Hannah Burke

Elena SV Flys, faculty mentor

Sonder is defined as “the realization that each random passerby is living a life as vivid and complex as your own—populated with their own ambitions, friends, routines, worries, and inherited craziness” (Dictionary of Obscure Sorrows). This exhibit will present the data collected during this past semester from people stopping, thinking, and answering varied prompts. Prompts were asked via interactive displays in frequently visited locations. My hope is that in interacting with this project, passers-by will recognize the similarities and differences amongst strangers and open their eyes to the complexity of the lives around them.

DESIGN EXPO – ROOMS 300/301/302 – 9 A.M.- 4 P.M.

Jumping off the Jungle Gym: The Link between Sex Education and Sexual Assaults Among Adolescents

Shayla Card-Nowlin

Susan Booth, faculty mentor

"Indeed, in relation to sexual assault, it is particularly important to know how individuals communicate and interpret nonconsent, as nonconsent that is not recognized and honored by a partner could lead to sexual assault" (Jozkowski et al. 913). As the federal government continues to fund programs that center their curriculum around abstinence, the topic of consent remains either surface level or untouched until children reach prepubescent age. This research explores the connection between types of sex education in public programming and minor's understanding of unwanted sexual contact. Data collected and curriculums will be compared along with responses to deem which teachings are effective.

POSTER SESSION 3 – ROOM 310 A/B – 2:45 P.M.- 4:15 P.M.

The Electronic Media and Film Studies Program at EMU:

A Documentary

Camren Clouthier

Keith Damron, faculty mentor

This project is a self-produced documentary that will provide viewers with a concrete understanding of the Electronic Media and Film Studies program here at EMU. I will accomplish the goal of my film by discussing and showcasing the vast opportunities, both in class and in extracurricular opportunities available to students. I will focus on specific aspects of the program such as production and theory classes, as well as outside-the-classroom activities such as E-TV, Eagle Radio, Eagle Filmmakers Association (EFA) and more. My hope for this video will be to raise awareness for and improve the overall visibility of the program itself, while seeking to attract prospective students as well.

DESIGN EXPO – ROOMS 300/301/302 – 9 A.M.- 4 P.M.

Modernizing Cultivation Theory: Social Media and The Impact on Self-Esteem Through Social Comparison

Elana Graessley

Tsai-Shan Shen, faculty mentor

This study investigates cultivation theory through social media usage and its impact on self-esteem through social comparison. Social media is a modern form of communication that has transformed how influencers and users communicate. Research has shown negative effects of social media on different aspects of individual's psyche, including self-esteem. Self-esteem is affected by upward and downward social comparisons. Users of social media engage in social comparison to the influencers they see online, leading to a change in their self-esteem. An abundance of media consumption warps users' perception into believing what they see online reflects real life, as explained in cultivation theory.

ORAL SESSION A — STUDENT ART GALLERY — 10 A.M.

Beauty as Portrayed in the Media and its Effects on Development of Body Image

Alexis Hatchard

Tsai-Shan Shen, faculty mentor

This study explores the effects of social media use on a person's body image. Literature shows that the use of social networking sites is linked to body dissatisfaction. People often post their most aesthetic, "ideal" selves, for their peers to see, which often becomes internalized by the viewer, making them feel as though they must "live up to" these beauty ideals. A survey was designed to test the hypothesis that there is a negative association between the level of one's social media consumption and their reported body satisfaction. Information such as age, sex, how often social media is used by each individual, platforms used, and reported body satisfaction was collected.

ORAL SESSION D — ROOM 350 — 3:30 P.M.

United Nations Resolution 242: An Examination of Cross-Cultural Communication

Alissa Kennedy

Tsai-Shan Shen, faculty mentor

This paper examines the misuse of cross-cultural communication that occurs in the United Nations. By examining the drafting process and the translation of United Nations Resolution 242, we can see where the miscommunication took place, how it could have been avoided, and why cross-cultural communication is vital for international organizations. This study aims to provide an in depth look into the cross-cultural communication in the United Nations to allow further research. Results show several miscommunications in the translation from both an English and French speakers perspective, with implications resulting in lack of enforcement and aggressions into modern day.

ORAL SESSION C — ROOM 352 — 2:15 P.M.

Operation Menstruation

Amber Killingbeck and Gwenyth Deiter

Susan Badger Booth, faculty mentor

"On average a woman will annually spend \$70 on pads and \$90 on tampons" annually (Bustle). The purpose of this research project was to spread awareness regarding the high cost of feminine hygiene products for impoverished women. In fact, "around the world only 12% of young people with periods have access to the products they need, including 50,000 homeless women," (Bustle). In turn, we looked to design a way to provide a reusable, sustainable, one-time expense product for free in medical clinics around Ypsilanti, MI.

POSTER SESSION 3 – ROOM 310 A/B – 2:45 P.M.- 4:15 P.M.

Creating an Accessible Theatre Experience

Max Leidlein

Elena SV Flays, faculty mentor

This interactive exhibit presents the process of designing, creating and evaluating three accessible performances of James and the Giant Peach at EMU Theatre. The exhibit displays an informational poster, materials used by patrons with and without disabilities, and feedback from audience members, production team, and committee of advisors. This is the first time EMU Theatre has provided fully accessible shows and thus, learning about the process and the outcomes will improve the chances of creating future accessible shows in and outside EMU. The interaction with this exhibit will give viewers an understanding of what accessibility in the arts is and the different access tools we can use.

DESIGN EXPO – ROOMS 300/301/302 – 9 A.M.- 4 P.M.

Queer Educators and Leaders: Centering LGBTQ+ Leadership Development

Lorant Peeler

Dennis O'Grady, faculty mentor

Queer Educators and Leaders is a student organization born out of an Honors College senior creative project meant to bring members of the LGBTQ+ community together for personal, professional, and leadership development tailored to us. This session will explore why leadership development centered on LGBTQ+ identity is important as well as the current state of the organization and future plans. This session will include descriptions of how members promote anti-oppression and work against hierarchical leadership to best serve our entire community and sustain an organization made up of some of the busiest and most involved students on campus.

ORAL SESSION D — ROOM 304 — 3:30 P.M.

Accessibility and Inclusion in Theatre: A Documentary

Sarah Poteracki

Elena SV Flays, faculty mentor

This documentary explores the current situation of accessibility and inclusion in theatre. The goal is to share with our viewers how accessibility is included in theatre productions, how theatre can or cannot be inclusive, and some of the challenges we still have to overcome. Data will be collected through video interviews with professionals and advisors on accessibility and inclusion topics, and with EMU faculty and students involved in James and the Giant Peach's accessible productions. The accessible documentary will include captions, audio description, and a potential video of a sign language interpreter, as well as an accompanying write-up in the style of an informative news article.

DESIGN EXPO – ROOMS 300/301/302 – 9 A.M.- 4 P.M.

NASCO Institute 2018 Radio Report

Julia Selig

Sadaf Ali, faculty mentor

NASCO Institute, an educational conference, has been hosted by the North American Students for Cooperation (NASCO) together with the Inter-Cooperative Council at the University of Michigan (ICC Ann Arbor) since 1978. NASCO celebrated its 50th anniversary during NASCO Institute 2018 in Ann Arbor. In this report piece, produced with WEMU, NASCO Institute organizers and attendees discuss their experience in the cooperative movement.

DESIGN EXPO – ROOMS 300/301/302 – 9 A.M.- 4 P.M.

Barack Obama's 2016 speech at the United State of Women Summit: Neo-Aristotelian Rhetorical Analysis

Jessica Cheyenne Sherwood

Anke Wolbert, faculty mentor

In 2016, at the first ever United State of Women Summit, President Barack Obama gave a speech on feminism and gender equality. He discussed progress that had been made, specifically by his administration, towards gender equality and listed his ideas for further progression of the feminist movement. This paper looks at how a man in power was able to give a speech from his perspective on feminism and still connect to his mostly female audience. Through a Neo-Aristotelian lens of rhetorical criticism, this analysis focuses on Barack Obama's use of credibility (ethos), emotional appeals (pathos), and logical arguments (logos) to relate to his audience and connect his view of feminism to theirs.

ORAL SESSION D — AUDITORIUM — 3 P.M.

Virtual Reality and Theatre: An Enriched Experience of the Production Process

Jacquelin Stauder

Jeromy Hopgood, faculty mentor

In the theater, artistic and intellectual thinkers come together to create an experience for audiences. Before the production is open to the public, the production team must create the experience through research, construction, and rehearsal. Within the process of creating a production, differences in ways of thinking can cause miscommunication of ideas. Scenic designers must provide something concrete for the director and other team members to interact with. 2D drawings and 3D models are helpful, but they do not fully represent the space as a whole. The use of virtual reality technology helps bridge the gap and allows any individual to experience a design before it takes physical form.

DESIGN EXPO – ROOMS 300/301/302 – 9 A.M.- 4 P.M.

She said... and he reacted: Apparent gender-bias and inequality at the 2018 U.S. Women's Open Finals

Julia Stevenson

Anke Wolbert, faculty mentor

At the 2018 U.S. Women's Open Finals, Serena Williams displayed verbal and nonverbal behavior that resulted in umpire Carlos Ramos imposing penalties for code violations. Umpires can give soft warnings or hard penalties. Unlike soft warnings given to men in similar situations, Williams received hard penalties which she perceived as a result of gender bias. The ensuing rhetorical situation warranted a variety of responses that will be analyzed. The responses include Williams' post-match interview, a statement by the umpire's association, and a male tennis player's reaction. The analysis suggests that arguments provided by the various rhetors were fitting.

ORAL SESSION D — AUDITORIUM — 3:15 P.M.

Anxiety Journal

James Wohlfert and Kathryn McIntyre

Susan Badger Booth, faculty mentor

Anxiety is a major problem affecting college students. There are many ways to reduce anxiety including therapy and medication. However, when you are attending college it's not always possible to visit your therapist, and medication is not always a permanent solution. Based on previous research, we have developed an Anxiety Journal for college students ages 18-23 with different activities that can help reduce student's anxiety such as color patterns, solve puzzles, or do yoga. We have positive reminders and journal pages strategically spaced throughout the journal to allow students to track how they feel, while using the journal to measure whether progress is being made to manage their stress.

DESIGN EXPO – ROOMS 300/301/302 – 9 A.M.- 4 P.M.

Media Narratives and Confirmation Bias

Angela Zielinski

Carol Schlagheck, faculty mentor

The aim of this research is to illustrate how people's behavior with news media affects public opinion. It aims to explain how narrative-driven media affects confirmation bias, which is the act of interpreting new information as if it confirms his or her existing beliefs, and how confirmation bias drives the narrative on social media. The research explores how aware those who read or listen to news are of their confirmation biases. Surveyed participants are residents of the United States who consume news media at least once per week, who paid attention to the confirmation hearings for Supreme Court Justice Brett Kavanaugh, and who identify with a political ideology.

ORAL SESSION A — STUDENT ART GALLERY — 9:45 A.M.

DEPARTMENT OF COMPUTER SCIENCE

AI Integration: An Analysis of Current Research and Public Opinion

Randy V. Andrews

Zenia Bahorski, faculty mentor

In recent decades, the utilization of artificial intelligence (AI) has been debated throughout various science and technology research communities. Although previous literature highlights AI's considerable benefits, there is an underlying fear throughout society of AI technology stemming from concerns of safety, employment and policy. This presentation seeks to examine different beliefs held by researchers and consumers concerning AI whilst analyzing current and future applications of the technology.

ORAL SESSION B — ROOM 304 — 11:30 A.M.

Ethical Considerations in International Computing

Gwenyth Andrusiak

Zenia C. Bahorski, faculty mentor

In the last decade our lives have become more digital, and as a result we now live in a much more global community than generations before us. While this has connected us more to the world, this transition has not been without its issues. In the last decade we have seen both China and Russia impose heavy censorship on the internet, the European Union enact the controversial Article 13 copyright directive, and the possibility of net neutrality being repealed in both the USA and Canada to name a few. Through the issues of international internet governance, I will provide an exploration of ethical standards in computing, ethical questions inherent in a global digital society, and what the effect such issues will have on how countries and citizens relate to each other internationally.

ORAL SESSION C — ROOM 320 — 2 P.M.

Security in the Internet of Things

Anthony Bean

Bishu Panja, faculty mentor

Technology as we know it has been evolving for centuries. It first began as simplistic tools, like wheels, clubs, maps, etc. Over time, simplistic things became more complex, and at some point, the birth of computing devices became. Just like other tools, computers also have evolved over time. At this point in time, we're able to allow communications between devices within computers to allow the sharing of data. While this capability is helpful in many ways, it can also be harmful, and thus the birth of this analysis of security in internet capable devices, or the Internet of Things.

POSTER SESSION 1 – ROOM 310 A/B – 9 A.M.- 10:30 A.M.

Security in Autonomous Vehicles

William Burrows and Jack Jurczynszyn

Bishu Panja, faculty mentor

The development of self-driving vehicles is a major undertaking being researched by automotive manufacturers around the world, but the communication systems of many vehicles on the road today opt for speed over security. In this report, eight articles are analyzed on progress made in the developing field of security in autonomous vehicles. It also offers potential solutions through updated Vehicle-to-Internet standards and a Vehicle Communication Verification system. This report provides an understanding of the challenges and advances in current autonomous vehicle research.

POSTER SESSION 1 – ROOM 310 A/B – 9 A.M.- 10:30 A.M.

The A-maze-ing Robot

Jeremiah Drabik, Dakota VanFleteren and Asher Watkins

Non-presenting author: Marvin Zavala

Krish Narayanan, faculty mentor

Our project is a maze solver robot built with the ActivityBot platform and programmed in the Propeller C language. It uses ultrasonic and infrared sensors, and a variation of the Pledge maze-solving algorithm to navigate a wooden maze. The project was originally developed for the class COSC 106 Introduction to Robotics as our final project for that class. Please note that a floor space of at least 5 feet by 5 feet will be needed to accommodate the maze we are using.

DESIGN EXPO – ROOMS 300/301/302 – 9 A.M.- 4 P.M.

WEMU Cloud-Integrated Database for Music Metadata

Mitchell Henschel and Sarah Yaw

Andrii Kashliev, faculty mentor

The campus radio station, WEMU, is in need of a way to better organize their material. Currently data is stored in a Microsoft Access database with no standardization when artists are entered into the database, some data is incomplete, and there is no playback history. The objectives of this project is the design of a database to organize the music catalog of WEMU and design innovative user-friendly visual interface standardizing data entry. The presentation will detail project implementation and how it stands against the original database.

POSTER SESSION 1 – ROOM 310 A/B – 9 A.M.- 10:30 A.M.

Security in Embedded Systems

Ismet Khan and Adam Flickema

Bishu Panja, faculty mentor

Embedded systems are becoming more prevalent in our society from phones to cars and even coffee pots and with this comes an ever-changing threat landscape for these systems as well. Threats and vulnerabilities are ever present on these systems and security requirements are becoming a necessity. In this paper, we discuss the vulnerabilities and threats that affect our embedded systems and specifically what can happen from buffer overflow attacks. We try to bring to light the ways that a developer writing in the C language can protect their code from these attacks.

POSTER SESSION 1 – ROOM 310 A/B – 9 A.M.- 10:30 A.M.

Managing and Automating Emails Sent To Honors Students

Kelly Mayhew and Zachariah Pelletier

Krish Narayanan, faculty mentor

Automatic, and staff triggered emailing systems are integrated into every one of the Honors College web applications. Previously, administrators had to go through a time-consuming process to make any changes to emails sent by these systems. In order to make this easier and more efficient, we have built a web app using Javascript, PHP, and MySQL to integrate the managing and editing of emails. Features include an email editor, an email selector for checkpoints, and integration with all other apps. In this presentation, we will discuss how we integrated the email app with an existing web app to email FastTrack students.

ORAL SESSION D — STUDENT ART GALLERY — 3:45 P.M.

Applying Agile Concepts to Develop a Software Application

Nikolaos Papanastasopoulos, Evan Graessley and Craig Campbell

Non-presenting student authors: Michael Sturza, Jeremiah Reyer

Krish Narayanan, faculty mentor

iCompute is an event for upper elementary students in the Washtenaw Elementary Science Olympiad. Teams are tested on their knowledge of computer science basics and programming. In our capstone class, COSC 481W - Software Engineering and Senior Project, our goal as a group of eight, was to apply agile concepts to develop a web application to automate the test taking and grading for iCompute. We will discuss how we used agile principles, such as, Scrum and Pair Programming, collaborative tools such as, Trello and Discord, and developmental tools such as, Angular JS framework to develop this software. We will also discuss how this project helped enhance our soft skills.

ORAL SESSION B — ROOM 304 — 11 A.M.

Graph Coloring Problem

Joshua Thonnissen

S. Maniccam, faculty mentor

Graph coloring is a well-known problem in computer science and mathematics. The problem is to assign labels to nodes in a network such that any two adjacent nodes have distinct labels, and do so with as few labels as possible. Nobody has found a polynomial time algorithm to solve this problem and it is considered a difficult problem. Algorithms that find an exact solution to this problem take prohibitively long time. In this work, we study algorithms that find an approximate solution relatively fast. We study various greedy type algorithms. We also study genetic algorithm which is based on evolutionary biology. We write programs for the algorithms and evaluate them experimentally.

POSTER SESSION 1 – ROOM 310 A/B – 9 A.M.- 10:30 A.M.

DEPARTMENT OF ECONOMICS

Defensive Medicine's Role in Healthcare Spending

Hallie Barkume

James Thornton, faculty mentor

Unnecessary care is care administered by physicians that a well-informed patient would not elect to use. A subcategory of unnecessary care, defensive medicine is a practice that many physicians both consciously and unconsciously engage in in order to reduce their liability and avoid malpractice lawsuits. This presentation examines the effects of defensive medicine, motivations to practice defensively, and possible solutions to the problem.

ORAL SESSION B — ROOM 350 — 11:15 A.M.

State Health Disparities Across the United States: A Cross-Sectional Study of Variation in Life Expectancy

Evan Delcamp

Thomas Taylor, faculty mentor

The purpose of this study was to determine the magnitude of differences in health across the United States and what may be contributing to these differences. Using linear regression, the study focused on life expectancy as the dependent variable and included independent variables such as doctors per capita, income, health expenditures and infant mortality rates. The main findings suggest that a future focus on improving infant mortality rates and lifestyle behaviors could significantly improve The United States' comparatively low life expectancy for a country that spends so much on health.

ORAL SESSION B — ROOM 350 — 11 A.M.

A Study on the Effects of Imports and Exports on Life-Expectancy in Post-Communist Poland

David Nichols

Mehmet Yaya, faculty mentor

The purpose of this paper was to determine whether a growth in import and export quantities in Poland after it transitioned from a command economy to a market economy in 1989, had any effect on the life expectancy of Polish citizens. While there was an increase in life expectancy, and the quantity of goods traded, it appeared that only the growth of imports had a significant effect on the life expectancy of Polish citizens. I analyzed the data using an econometric model and regression analysis. The growth of imports was found to be positively correlated with life expectancy at the 10% significance level (P-value = 0.081). The R² was 0.36, meaning the model accounted for 36% of the variance.

ORAL SESSION C — ROOM 320 — 1:45 P.M.

DEPARTMENT OF ENGLISH LANGUAGE AND LITERATURE

Manifest This Gay Ass

Austin Book

Christine Hume, faculty mentor

"Manifest This Gay Ass" is a manifesto consisting of 10 page-long pieces, each responding to the way our culture represents queer people. The pieces privilege an array of voices: honest, deceptive, funny, brash, vulnerable, guarded. I don't shy away from the everyday atrocities queer people face – I lean in. The truth of my queer experience lies within the composite. No piece is a "perfect" example of the queer experience; no one piece can encapsulate the intricacies of being queer; no one voice can or should represent the experience of being queer. As a gay man, I want fuller and more complex representation and more representation in general of queer people in film and literature.

ORAL SESSION B — ROOM 352 — 10:45 A.M.

Teach What You Preach: Practical Applications for English Language Arts Social Justice Curriculum

Scout Bostley and Mackensi Crenshaw

Rebecca Sipe, faculty mentor

A social justice curriculum is one that is shaped by a critical pedagogy, wherein both students and teachers learn about and question the construction of the world around them. In English Education this means disrupting the literary canon and centering student voice, to guide critical analysis of history, power, and identity. This presentation intends to model the ways in which secondary English courses can develop 21st century literacies and critical analysis skills in small scale academic units and daily lessons. Such examples will demonstrate how content state standards can be met while also responding to students' diverse cultural backgrounds and learning needs.

ORAL SESSION D — ROOM 204 — 3:15 P.M.

Folktales in Action: How the Comic Books of Today Depict the Legends of Yesterday

Leah Brooks

Andre Peltier, faculty mentor

Since the beginning of the Golden Age of comics, many of the stories told have been deeply rooted in mythology and folklore from different cultures, such as Thor from Norse myth or Anansi the Spider from West African myth. With the rise in popularity of the Black Panther phenomenon, a new generation of people are discovering the universe of Black superheroes, many based in African mythology and the concept of Afrofuturism. Through comic books from the Marvel and DC Universes and other independent publishers, folklore and legends from around the world are available to readers in comic book form. In this presentation, I will be examining several original folktales and how they are depicted and represented in comics today.

ORAL SESSION C — ROOM 304 — 1:45 P.M.

Sarah Orne Jewett's *The Country of the Pointed Firs* parallel to Dante's *Alighieri's Divine Comedy*

T. Dante Del Pizzo

Joseph Csicsila, faculty mentor

I intend to prove that Sarah Orne Jewett's *The Country of the Pointed Firs* was written as a parallel to Dante Alighieri's *Divine Comedy*. Both texts articulate a story of mysterious narrators who are guided through the spiritual divisions of Hell, Purgatory, and Heaven. The majority of Jewett's friends, companions, mentors, and professional acquaintances were a part of or had direct personal relationships with prominent figures in "the world of Dante." These professionals were fixated on the translations of the *Divine Comedy* and were also instrumental in organizing the Dante Society. Through these influences, Jewett created a spiritual parallel comparable to the *Divine Comedy*.

ORAL SESSION C — ROOM 304 — 1:30 P.M.

Answers and Echoes

Larissa Diem-Conlen

Christine Neufeld, faculty mentor

The science fiction genre and the fashion industry have supplemented one another, pushing boundaries in both fields. Sci-fi has dictated how we imagine the future and fashion has worked to manifest the aesthetics of those stories. This paper will argue that fashion has impacted the genre of sci-fi by way of costume design, creating the visuals that have come to define the genre, and also that sci-fi has drawn attention to societal vulnerabilities that fashion may be able to help resolve. Furthermore, in the future, fashion will have to look to the technology imagined in sci-fi in order to move into a more sustainable era.

ORAL SESSION C — ROOM 304 — 2 P.M.

The Ethical Steward: Jane Austen's Redefinition of Masculinity Through Mr. Darcy

Joan Kwaske

Laura George, faculty mentor

Published in 1813, Jane Austen's *Pride and Prejudice* remains a staple of the romance genre, with Elizabeth Bennet and Fitzwilliam Darcy serving as pop culture icons. While the modern popularity of Elizabeth Bennet can easily be attributed to her independent wit and confidence, Darcy's lasting legacy is often misunderstood given his reputation as a cold, aloof snob. This presentation will first debunk that misinterpretation of Darcy, then explore Austen's redefinition of masculinity through his true qualities as a steward. In turn, this may help explain why modern readers continue to enjoy the 200-year-old novel, as well as why Darcy remains a prominent trope in the romance genre.

ORAL SESSION C — ROOM 350 — 1:30 P.M.

The Biological Interpretive Analysis of *The Metamorphosis* by Franz Kafka

Jared Marsh

Elisabeth Daumer, faculty mentor

The Metamorphosis by Franz Kafka has been subject to extensive analysis through countless literary lenses. I, however, interpret the work through a novel perspective: biologically. Kafka includes specific anatomical and behavioral details about Gregor's "metamorphosis," a word which itself has a different meaning scientifically than its common vernacular or literary usage would indicate. The exploration of Gregor's insectoid body's anatomy, the behavioral adaptation of himself and his loved-ones to his new form, his sister Grete's anatomical changes, and other details of biological significance will offer an expanded understanding of this literary work from a unique perspective.

ORAL SESSION C — ROOM 304 — 2:15 P.M.

Walls of stone or straw? Jane Austen's Legacy

Daniel Patrick

Laura George, faculty mentor

Great novels can make us question our lives, our societies, even humanity itself. But as time passes, our thoughts and feelings about a novel can change. Some works that were once considered required reading have fallen into obscurity or become a short-lived fad. Though there are many classics that have stood the test of time, few have reached the legendary status that Jane Austen's collection has seemed to climb. But is the praise these works have garnered deserving, or is the brand built around them to thank for the love that still exists over 200 years later? This paper delves into Austen's characters, prose, narrative style, and even the society she wrote them in to find the answer.

ORAL SESSION C — ROOM 350 — 2 P.M.

Anti-Feminist Stereotypes in Jane Austen Novels

Jasmine Riehl

Laura George, faculty mentor

Northanger Abbey by Jane Austen is a satire of the gothic novel. Emma by Jane Austen is a novel of manners. While both novels are of different genres, the female characters in both are written as stereotypes, from their actions to the way they talk. The descriptions of the female characters in both novels poke fun at the stereotypical personalities and the language used by them. The language used is often described as talking too much without actually talking about anything of substance. In Northanger Abbey and Emma women are written and described using anti-feminist stereotypes based on the language used in regards to their character and the roles prescribed to them based on their gender.

ORAL SESSION C — ROOM 350 — 1:45 P.M.

Language and its Agentive Potential in Gender Discourses:

Contemporary Pronominal Intervention

Marri Visscher

Daniel Seely, faculty mentor

Verbal and written communication are indicative of human capacity for language within the mind. In this talk I will be exploring how language houses within it the potential for stimulating social, political, and personal change. I will focus on the nature of gender in language, and then discuss the potential for reform within gender discourses by making conscious changes to the language we speak and write. In the case of gendered language, reform is taking place largely in the arena of pronoun use, and this presentation will be examining the recent integration of the use of alternative pronouns which seek to liberate language from historically held assumptions of gender.

ORAL SESSION B — ROOM 352 — 11:15 A.M.

Jane Austen and Her Depictions of Clergyman: The Good, the Bad, the Morally Flawed

Marie Williamson

Laura George, faculty mentor

Throughout Jane Austen's novels, clergymen re-occur as morally flawed men or as the least romantic of Austen's heroes. By looking at the "good" hero clergymen, Mr. Tilney and Edmund Bertram, and their "bad" rejected counterparts, Mr. Collins and Mr. Elton, we can understand them through their patriarchal relationship with women. Each of the clergy characters can be seen as morally flawed, tending toward a complacent sense of moral superiority that allows them to lecture and instruct women they do not find equal in mind or morality.

ORAL SESSION C — ROOM 350 — 2:15 P.M.

DEPARTMENT OF GEOGRAPHY AND GEOLOGY

The use of Geospatial Technology to Identify Remnant Prairies Areas for Restoration in Michigan

Aysia Booth

Xining Yang, faculty mentor

The restoration of remnant prairies can foster species diversity and healthy ecological systems. As extirpating land for human use has become common, prairies have been demolished greatly. Due to the constraint of accessibility and time, it has been a challenge for Ecologists to conduct fieldwork and restoration on locating prairies. Geospatial technology brings alternative means to identify remnant prairies and locate potential areas for restoration. Using datasets like historic prairies, elevation models, railroads, soil composition, tree coverage, and agricultural land use, I will find potential prairies for restoration in Michigan by conducting a series of spatial analyses through GIS.

ORAL SESSION D — ROOM 320 — 3:30 P.M.

Source Tracking of Chemical and Microbiological Contaminants in Millers Creek

Kelly Brown

Christopher A. Gellasch, faculty mentor

Previous research of Millers Creek revealed elevated concentrations of inorganic contaminants that have negative impacts on the ecosystem. This current research project involves data collection from multiple sites along the creek to find the most likely source of contamination, such as road salt. Samples were tested in the field with a handheld pH/Conductivity/Temperature meter and analyzed in the laboratory for several inorganic constituents along with turbidity. Comparison of electrical conductivity and chloride concentrations revealed a strong correlation, indicating chloride as the primary contaminant in the creek. Temporal and spatial trends indicate a source other than road salt.

POSTER SESSION 2 – ROOM 310 A/B – 11 A.M.-11:45 A.M. & 1:30 P.M.- 2:15 P.M.

Possible Link Between Trackless Zircons and Regional Volcanism in Northern Australia

Sloane Kennedy

Eric W. Portenga, faculty mentor

Radioactive decay damages zircon minerals, producing tracks that heal when zircons are exposed to high temperatures. Trackless zircons were extracted from a sediment core in Northern Australia, where a possible heat source is regional volcanism. I assessed the likelihood the trackless zircons come from volcanic eruptions by using the Smithsonian Institution Global Volcanism Program to produce eruption histories of nearby volcanoes. Multiple volcanoes erupted at the same time as the most recently buried trackless zircons, meaning volcanism may be a source. Links between volcanism and longer-buried trackless zircons are uncertain without more detailed dated eruption histories.

POSTER SESSION 2 – ROOM 310 A/B – 11 A.M.-11:45 A.M. & 1:30 P.M.- 2:15 P.M.

Automating Identification of Pumping-Induced Groundwater Fluctuations from a Large Data Set

Dillon Kilroy

Christopher A. Gellasch, faculty mentor

Previous research at several public supply well sites generated large amounts of time-series data, which revealed unusual fluctuations in groundwater levels due to pumping. The goal of the current research project is to create a computer program to automate analysis of these data in order to identify water-level fluctuations and to calculate both their magnitude and duration. The program will replace the previous method of graphing and manually identifying the groundwater fluctuations contained in these large data sets. The result will be a quicker and easier way to analyze these data to determine relationships that may influence well vulnerability to contamination.

POSTER SESSION 2 – ROOM 310 A/B – 11 A.M.-11:45 A.M. & 1:30 P.M.- 2:15 P.M.

Using Exploratory Spatial Analysis to Study Noise Pollution's Effect on Health in the United States

Aya Lakkis

Xining Yang, faculty mentor

Noise is a prominent pollution from the environment. Compared to other forms of environmental pollution such as air, water, and soil, noise pollution is not widely perceived as a leading factor correlated to our health outcomes. Limited number of studies on the relationship between noise pollution and health are reported in United States. To fill the gap, this presentation will study noise pollution distribution and its correlation to health outcomes. With noise data collected from airports and transportation volume, case studies in United States will be presented using exploratory spatial analysis to show the distribution of noise pollution and its influences on our health.

ORAL SESSION D — ROOM 320 — 3:45 P.M.

Old and Deer: A Study of the Upper Peninsula's Deer Lake Peridotite

Rachel Merz

Christine M. Clark, faculty mentor

The Deer Lake Peridotite is a formation of Archean-aged, mafic-ultramafic rocks found in the Upper Peninsula of Michigan, uncommon due to their age and to the relative rarity of ultramafic rocks in general. I have collected samples of this formation from two different outcrops in Marquette and Ishpeming, and have studied them optically and with XRF analysis. The goal of this research is to analyze the extent of the alteration of the serpentinites within the formation, and to establish the Archean environment in which the rocks, and the surrounding area, formed.

POSTER SESSION 2 – ROOM 310 A/B – 11 A.M.-11:45 A.M. & 1:30 P.M.- 2:15 P.M.

Categorizing the Weathering of Volcanic Ash Using SEM and XRD Analysis

Emily Nowacki

Christine M. Clark, faculty mentor

Volcanic ash begins to weather upon deposition, a complex process resulting in the deposition of clay minerals within the pore spaces of volcanic material. A weathering classification scheme developed by Almquist (2011) and O'Dowd (2017) consists of volcanic material analyzed by Scanning Electron Microscopy (SEM) and X-Ray Diffraction (XRD) from two locations and shows the variation in weathering between terrestrial and marine deposits. Using similar methods, we have examined additional samples that differ in climate and time of deposition. By factoring in more variables, this allows a broadening of the classification scheme in order to create a useful tool for researchers.

ORAL SESSION C — STUDENT ART GALLERY — 1:45 P.M.

Using ^{10}Be to Understand the Glacial History of Isle Royale National Park, Michigan

Stephen L. Ogden, Jr.

Eric W. Portenga, faculty mentor

Isle Royale National Park's landscape was shaped by the Laurentide Ice Sheet (LIS), most recently retreating from the region 23,000 years ago. Isle Royale's glacial landforms have been mapped but not dated; thus, the National Park does not know when exactly the LIS retreated from the island. Measuring the isotope ^{10}Be in ice-transported rocks allows geologists to date glacial landscapes. In this study, I collected 11 samples for ^{10}Be dating, from which I will be able to date Isle Royale's glacial landscapes. This study will be the first to provide direct dates of LIS retreat from Isle Royale, providing the National Park with a more comprehensive understanding of its glacial history.

ORAL SESSION C — STUDENT ART GALLERY — 2 P.M.

Paleoenvironmental Changes at the Blake Outer Ridge During the MIS 13-12 Time Interval

Stephanie Overla

M. Serena Poli, faculty mentor

Using the benthic foraminiferal record held within sediment samples of 450,000-500,000 years in age, we were able to reconstruct the paleoenvironment at the Blake Outer Ridge and track changes in the climate during a time of extreme change. Benthic foraminifera have been abundant throughout geologic history and their tests are preserved in the sediments. As different species have different environmental preferences, past environments and climatic changes are recorded by the variation of tests of benthic foraminifera species found in sediment core samples.

POSTER SESSION 2 – ROOM 310 A/B – 11 A.M.-11:45 A.M. & 1:30 P.M.- 2:15 P.M.

Interpreting “Difficult History” in the Context of 21st Century Museums

Sean Ryan

Matthew Cook, faculty mentor

In our research, we sought to analyze ways that museums portray current social issues and interpret “difficult histories.” The major questions are: How and in what ways do museums connect with their community? How do they choose whose histories to tell? and How they interpret these histories? To answer these questions, we visited and documented five museums and conducted five in-depth semi-structured interviews. We found that the staff of these sites were very eager to interpret these difficult histories, but they feel that they can only change their narrative gradually because current visitors need time to process interpretations that challenge conventional understandings of history.

ORAL SESSION D — ROOM 330 — 3:15 P.M.

Investigating a 420-Million Year Old Fossil Specimen Using Cutting-Edge Analytical Tools

Shawn Steckenfinger

Steven LoDuca and Thomas Mast, faculty mentors

The wide availability of high-speed desktop computers and high-resolution digital imaging has opened new doors in the field of paleontology. In this study we utilized polarizing filters, infrared photography, and scanning electron microscopy to obtain previously unknown details from a well-preserved fossil from the Silurian Period (420-million years old). The ultimate aim was to determine whether the fossil specimen represented the remains of a plant or animal. By analyzing data acquired from the fossil, a 3-D reconstruction was developed using digital modeling software. Comparison of the model with living species has provided new insights into the biology of this long extinct organism.

ORAL SESSION D — ROOM 330 — 3:45 P.M.

Analysis of Meteoric and In-situ ¹⁰Be Denudation Rates in the Georges River, Tasmania, Australia

Leah VanLandingham

Eric W. Portenga, faculty mentor

This study assesses how well denudation rates derived from meteoric ¹⁰-beryllium (¹⁰Be) using a newly developed method replicate denudation rates derived using a well-accepted in-situ ¹⁰Be method. Meteoric and in-situ ¹⁰Be denudation rates were derived for nine catchments in the Georges River basin, Tasmania. Meteoric ¹⁰Be denudation rates derived from five of eight analyzed samples replicate in-situ ¹⁰Be denudation rates; three samples do not, potentially due to erosion following rapid deforestation. The meteoric ¹⁰Be rates, which replicate the in-situ ¹⁰Be rates support the use of the meteoric ¹⁰Be method to understand landscape change in areas where the in-situ ¹⁰Be method cannot be used.

POSTER SESSION 2 – ROOM 310 A/B – 11 A.M.-11:45 A.M. & 1:30 P.M.- 2:15 P.M.

DEPARTMENT OF HISTORY AND PHILOSOPHY

A Bayesian Justification for Movement in Pedagogic Practices

Natalia Anderson

W. John Koolage, faculty mentor

This paper introduces concepts in philosophy of science, which are used to defend the use of movement in the elementary school classroom. I use Bayesian epistemology to show that the best available theory is to include movement, if the goal is retention of information and higher test scores. Richard Royall proposes an interesting concern for my Bayesian case because this inference pattern is not strong enough to make conclusions about action. It cannot tell us that we ought to care about student learning, for example. Helen Longino’s conception of objectivity addresses this shortcoming. Finally, I briefly discuss the utility of movement even in our ‘teach to the test’ environment.

ORAL SESSION D — ROOM 204 — 4 P.M.

Understanding Sharī’ah: Islamic Law in its Historical Context

Sister Maria Benedicta Bete

Mark Whitters, faculty mentor

The rise of the Islamic State and other radical Islamic groups, as well as the prevalence of Islam as the second largest world religion, has made Sharī’ah a household term. However, many members of western culture have little understanding of what Sharī’ah means or of the different schools of thought regarding its interpretation. The Hanafi school of law is the most prevalent in modern Islamic countries, whose jurists use the basis of the ninth century methods of Abu Hanifa and Abu Yusuf to interpret Sharī’ah even today. An understanding of Islamic law and its historical roots is crucial for westerners to understand better many countries in the modern world and their legal decisions.

ORAL SESSION A — ROOM 304 — 9:15 A.M.

A Comparison of Scientific Pluralism and Taoist Synchronicity

Bradley Birkle

W. John Koolage, faculty mentor

In this paper, I combine two philosophical perspectives, one Eastern and one Western, to understand 'ontological enrichment' as described by Stephanie Ruphy in her book *Scientific Pluralism Reconsidered*. I consider Ian Hacking's notion of styles of scientific reasoning and how it helps explain Ruphy's idea of 'ontological enrichment'. I then go on to relate the Taoist idea of synchronicity to scientific pluralism and in doing so, create a more objective understanding of Ruphy's claim.

ORAL SESSION A — ROOM 350 — 9:15 A.M.

What Impact Did the Detroit Riot of 1967 Have On the Kerner Commission's Report of 1968?

Joshua Campeau

Mark Higbee, faculty mentor

In this presentation, I argue that the events in Detroit were very fundamental to the Commission's ominous conclusion "Our nation is moving toward two societies: One black, one white--separate and unequal." I examine the role of Black Power, disputing the notion that it was responsible for riots. I show that fifty years after the commission's report, many of the things it warned about remain unaddressed. Only by addressing these problems can we truly understand the riots. For the paper I draw upon a huge variety of works, including Thomas J. Sugrue's *The Origins of the Urban Crisis: Race and Inequality in Post War Detroit*.

ORAL SESSION A — ROOM 320 — 9:30 A.M.

Dodging the Bullet: African American Draft Resistance in Canada During the Vietnam War

Mia Colavito

Mary-Elizabeth Murphy, faculty mentor

Between 1964 and 1975, an estimated 100,000 American draft resisters migrated to Canada to seek refuge from military conscription during the Vietnam War. Only 1000, or 1%, were black. Social pressures from within black communities and economic constraints acted as a deterrent from migration. The Canadian immigration system was also inherently racist, as the merit-based program latently excluded people of color. Once in Canada, African American draft resisters struggled to find community with other resisters or the Canadian black community, who perpetuated the black criminal narrative. As a result, African American draft resisters encouraged their black peers to seek refuge elsewhere.

ORAL SESSION B — ROOM 204 — 10:45 A.M.

West Africans and the Italo-Ethiopian Crisis, 1935-1936

Jimmy Davis

Joseph Engwenyu, faculty mentor

In 1896, Ethiopia became the first black nation to defeat a European power and prevent imperialism in the country. This defeat fueled Italian leader Mussolini to launch the Italo-Ethiopian War of revenge against Ethiopia in 1935. This war combined elements of racial discrimination, an extension of late nineteenth century imperialism and the failure of the League of Nations to abide by its own rules in order to appease the fascist dictatorship in Italy. This paper documents these contradictions and highlights how Africans in West Africa, and throughout the Diaspora, launched a radical pan-African Nationalist protest in solidarity with Ethiopia until the liberation of the country in 1941.

ORAL SESSION C — ROOM 204 — 2 P.M.

Fish Lake: A History of Restoration

Sarah Fisher

Richard Nation, faculty mentor

Fish Lake was the site of one of the region's largest lumber mills, with the land around it nearly completely clear cut of jack pine, with a half-century of agricultural use leaving much of it bare. My research focuses on what environmental restoration efforts have been made by owners of the property, including Eastern Michigan University, which now runs it as its Environmental Education Center.

ORAL SESSION D — ROOM 320 — 3:15 P.M.

"You Have to Be Careful of the After-clap:" Changing Attitudes to Rural School Modernization

Maxwell Harrison

Richard Nation, faculty mentor

In the first decades of the last century, the end of the traditional one-room rural school in Michigan was believed to be imminent. By 1920, the pace of organization of consolidated schools slowed and was replaced with a push to modernize and improve rural country schools. Most explanations are rooted in ideas of rural conservatism, suggesting that opposition manifested from a fear of the loss of local control or anger at higher taxes. I argue that rural communities took advantage of growing regulation over school building design, course of study, teacher education and other factors to "catch up" to many of the advantages that had previously been limited to the consolidated schools.

ORAL SESSION D — STUDENT ART GALLERY — 4 P.M.

Environmental Mismanagement and Development in the Tunica, Mississippi Delta Floodplain, 1850-2010

Emily Marcil

Richard Nation and Bruce Conforth, faculty mentors

This presentation examines how human attempts to control the environment, together with a continued misunderstanding of that environment, led to the unalterable change of one of the most valuable natural environments in Tunica County, Mississippi, the Mississippi Delta floodplain. For generations, powerful interests have ignored or attempted to control the floodplain, with disastrous results. In the process, these interests have destroyed land, people's lives, and their culture, while never learning from prior mistakes. This mismanagement has allowed the impacts of racism and land degradation to rise while politicians and greedy entrepreneurs exploited people and the environment.

ORAL SESSION D — ROOM 320 — 4 P.M.

Cold and Crude: American Oil During the Suez Crisis

Rebecca Murphy

Mary-Elizabeth Murphy, faculty mentor

In 1956, American gas and oil prices rose in response to the Suez oil crisis. While many scholars have examined the Arabian oil crisis in 1973, few have analyzed the 1956 oil crisis caused by the Suez Canal closure. I argue through illogical price rises, suspicious oil industry leaders, and investigations in the Senate and Department of Justice that the prices were artificial, allowing oil companies to illegally profit off American affluence and mass consumption in the car-centric society of the 1950s. Through a diasporic approach, I examined the movement of oil from the United States to Britain, discovering forms of capitalism and oil regulation that affect how these operate today.

ORAL SESSION C — ROOM 320 — 2:30 P.M.

Religious Studies and New Testament Textual Criticism: A Summary of How We Get Our Bibles Today

Sam Nesbitt

Philip Schmitz, faculty mentor

In this presentation, I will share the knowledge and research I obtained of New Testament Textual Criticism in a Theories and Methods for the Study of Religion class project, taught by Dr. Philip Schmitz. Gathered from J. Harold Greenlee's *Scribes, Scrolls, and Scripture: A Student's Guide to New Testament Textual Criticism*, I will explain what textual criticism is as a science, describe the objects of study, provide textual variant examples and their corresponding solutions, and conclude with the implications of textual criticism and why it is so important for biblical studies.

ORAL SESSION A — ROOM 304 — 9:30 A.M.

"Leaders Of Today": Local Queer History and Student Groups in the Modern Gay Rights Movement

Natalie Osbourne

John McCurdy, faculty mentor

Very little research has been done on student groups when studying the modern gay rights movement. However, the subject is an untapped wealth of information, and student groups were influential in the national push for gay rights. Using local primary sources and national secondary sources, extensive research was done to show how students at Eastern Michigan University pushed forward local gay rights, and how other student groups helped advance gay rights on a national scale. This research is only scratching the surface of students and their contributions, and they should not be overlooked when future historians construct queer history.

ORAL SESSION D — ROOM 304 — 3:15 P.M.

An Introduction to the Science of Hadith

Ali Qazwini

Philip Schmitz, faculty mentor

This presentation offers an overview of the history of Hadith, Hadith terminology, and the categories of Hadith. Hadith are narrations and/or reports passed down from the Prophet Muhammed and serve as the most significant source of Islamic jurisprudence and creed following the Qur'an. Early Islamic scholars developed a sophisticated method of categorizing and gauging the authenticity of Hadith and the transmitters of Hadith. Topics explored include terminology, classification of reports, stages of Hadith compilation, and methods of verification.

ORAL SESSION A — ROOM 304 — 9:45 A.M.

Female Nationalist Activists, Askari, and Guerilla Girls of Kenya and Zimbabwe

Collin Rafferty

Joseph Engwenyu, faculty mentor

The primary research question addressed in this paper was comparing and contrasting the cultural, social, and economic factors, which encouraged the women of Kenya and Zimbabwe to join their countries' nationalist movements for national independence from colonial rule. The primary findings of this paper suggest the women who contributed to the Kenyan nationalist movement were mostly from the Kikuyu ethnic group, whereas female participation in Zimbabwe was much larger in scope. Also, the women of Zimbabwe participated in much larger numbers in combatant roles as guerilla girls compared to the women of Kenya who served in mostly noncombatant roles, such as cooks, nurses, etc.

ORAL SESSION D — AUDITORIUM — 3:45 P.M.

La Convivencia: An Unusual Definition of Tolerance

Alexander Schwehofer

Mark Whitters, faculty mentor

The Jews of al-Andalus experienced a cultural and religious golden age under the exceptionally tolerant rule of the Umayyad Muslims between the 9th and 11th centuries. Convivencia (coexistence) is a modern term, and the “tolerance” between Muslims, Christians, and Jews did not always include tolerance of religious expression or equal treatment under law. This presentation will focus on the meaning and motivations of religious convivencia to the Muslims in power, explain how true tolerance was never met, and show the effects on Jewish culture.

ORAL SESSION A — ROOM 304 — 9 A.M.

Keep Calm and Carry the Empire: Colonial Propaganda in WWII-Africa

Josh Sheppard

Joseph Engwenyu, faculty mentor

This paper explores how the British used propaganda in their African colonies during WWII, with a special case study from the Gold Coast colony. The Gold Coast Information Department drew on lessons from World War I to wage their propaganda during World War II. The high illiteracy rates in the colony caused officials to circulate propaganda through radio and cinema. Official statistics, oral histories, and government documents reveal mixed results. In this paper, I argue that empty promises, troop experiences abroad, and media infrastructure inadvertently laid a foundation for African nationalist politics of protest during the post-war era.

ORAL SESSION C — ROOM 204 — 1:45 P.M.

Marital Affection in Two Poems by Ashvaghosha

Makoto Takata

James Egge, faculty mentor

This talk discusses views of marital love found in two epics by the 2nd century Buddhist poet Ashvaghosha. In his narratives of Siddhartha Gautama’s enlightenment (Buddhacharitra) and of his brother Nanda’s conversion (Saundarananda), love and sex are the main sources of the disillusionment of the two protagonists, but his characterization of marital partnership is more nuanced than it may appear, particularly when we examine his treatment of Siddhartha’s wife Yashodara and Nanda’s wife Sundari. The presentation will discuss how Ashvaghosha’s poems reflect contradictory, complex attitudes towards love in early Buddhist thought.

ORAL SESSION C — ROOM 304 — 2:30 P.M.

Ancient Magic and Wisdom of Italian Renaissance Magi: Hermeticism and Cabalism of Christian Humanists

Blake Trinske

Ronald Delph, faculty mentor

In Renaissance Italy, humanists sought to uncover the true knowledge of God, turning to obscure works, such as the Cabala, as well as little known texts from the ancient world. They believed that these ancient texts were in close proximity to the knowledge held by the first man, Adam. The texts known as the Corpus Hermeticum and Asclepius by an ancient Egyptian sage named Hermes Trismegistus, captured the attention of these humanists. Those who studied these texts and other ancient mystical works were called magi. In this paper, I will examine how some of these magi were influenced by and further expanded both the Hermetic tradition and the wisdom of the Cabala.

ORAL SESSION A — ROOM 304 — 10 A.M.

The Growing Pains of Revolution: The Turbulent Decade of 1960’s Cuba

Isaac Vanderwal

Mary-Elizabeth Murphy and Richard Stahler-Sholk, faculty mentors

This project assesses Cuban economic development in its first decade as a socialist state. To understand the extent to which the country’s development was dictated by the Cold War context, versus Cuba’s own agency in its development, the project draws upon primary newspaper sources, as well as analysis from historians and scholars of Latin America. Understanding Cuba’s methods and objectives in the 1960s gives insight into socialist paths for developing nations.

ORAL SESSION B — ROOM 320 — 10:45 A.M.

Womyn and Other Contested Identities: Attendance Policies at the Michigan Womyn’s Music Festival

Catherine Waldecker

John McCurdy and Mary-Elizabeth Murphy, faculty mentors

The Michigan Womyn’s Music Festival was a week-long, annual festival that ran from 1976 to 2015. The festival’s women-only policy created both a perceived safe space for female attendees of the festival, as well as a symbol of oppression for transgender women who felt that the policy disrespected their identities. Controversy over this policy forced a movement born of sex-based Second-Wave feminism to confront the identity-based politics of Third-Wave feminism, creating stress that was ultimately unsustainable. The female-only space of the Michigan Womyn’s Music Festival significantly contributed to the festival’s longevity and popularity, as well as its disrepute and decline.

ORAL SESSION B — ROOM 352 — 11 A.M.

The Unsteady Transition: South Africa From Apartheid to Democracy, 1989-1994

Jasmyn Williams

Joseph Engwenyu, faculty mentor

Between 1989 and 1994, the Apartheid South African government became ungovernable. A major economic recession, population shifts, and the changing post-Cold War world, all exerted pressures for a democratic transition. On one hand, the last Apartheid leader, F.W. de Klerk of the National Party, pursued a dual agenda of appeasing his white constituency and promising them continued white privilege even under minority status. On the other hand, Nelson Mandela, representing the African National Congress, never wavered in his commitment to a peaceful non-racial democratic South Africa. This paper documents the conflicting objectives of de Klerk and Mandela and the ensuing violence, which punctuated and threatened to derail the unsteady transition to South African democracy in 1994.

ORAL SESSION C — ROOM 204 — 2:15 P.M.

Self-Identification: First-Person Authority or Negotiative Theory?

Lauren Williams

Peter Higgins, faculty mentor

I argue that Burkay Ozturk, in his article "The Negotiative Theory of Gender and Identity and the Limits of First-Person Authority," fails to adequately defeat the dominant view of first-person authority as a means of accepting or rejecting an individual's self-identification. I argue that the cases he presents to indicate a problem with first-person authority are not similar enough to carry the weight that he wants. I will elucidate disanalogies in Ozturk's series of cases that could explain why the cases should be treated differently, address possible objections, and respond accordingly to demonstrate that the analogies between his cases do not hold.

Oral Session D — Room 350 — 4 p.m.

Julius Nyerere on Socialism, Unity, and Development: Parallels with Kwanza

Artero Wilson

Joseph Engwenyu, faculty mentor

During the 1960s, Tanzanian President Julius Nyerere crafted policies of self-determination for his citizens by using the traditional principles of land use, Fabian socialist ideology and human decency. This paper argues that Nyerere's ideas of African Socialism and humanism has long come to America, specifically through the holiday of Kwanza. This paper narrates Nyerere's principles on African Socialism, Unity, Development, and relates them to those of Dr. Maulana Karenga the apparent "founder" of the holiday of Kwanza. This paper begins to open up leads on who exactly should be the founding father of Kwanza.

ORAL SESSION C — ROOM 204 — 1:30 P.M.

The Genocide of the Highlanders: The Jacobite Rebellion of 1745

Leigh Young

Roger Long, faculty mentor

My paper chronicles the Jacobite Rebellion of 1745 and examines the events that escalated the Jacobite fight through the eighteenth-century. From the joining of the kingdoms of England and Scotland by Queen Anne in 1707 with the Acts of Union, to the failed rebellion in 1715, I try to give a well-rounded portrayal of, both the causes that led up to this final battle, as well as the fallout and aftermath that faced the Scottish people, specifically the Highlanders, after 1746. For those who are familiar with and interested in this period in Scotland and England's collective history, I hope this essay will help to fill in gaps that may exist in their knowledge.

ORAL SESSION C — ROOM 320 — 11:30 A.M.

DEPARTMENT OF MATHEMATICS & STATISTICS

Solar Storms Effect on Temperature Throughout Near-Earth Space Plasma Sheet

Matthew R. Floyd

Roxanne Katus, faculty mentor

A coronal mass ejection (CME) can be detected through its corresponding geomagnetic storm. By better understanding the effect of CMEs on the geomagnetic field, we can understand the effects CMEs have on Earth. Using the Two Wide-angle Imaging Neutral-atom Spectrometers (TWINS) energetic neutral atom (ENA) measurements, specifically around peak storm intervals, the temperature throughout the region can be calculated via flux measurements. Each data set corresponds to 10 minutes of collection, this gives us a temporal and spatial picture of how the near-earth plasma changes with reference to the evolution of the geomagnetic storm. The goal of this project is to validate the physical interpretation of the system using statistical analysis over the curve-fitted temperatures.

POSTER SESSION 3 – ROOM 310 A/B – 2:45 P.M.- 4:15 P.M.

Descriptive Analysis of Health Insurance Coverage: An Overview of Current and Recent Census Data

Nicholas Garska

Khairul Islam, faculty mentor

Having a health insurance coverage has a positive correlation with improved health outcome due to timely access to health care services. However, discrepancies in health insurance coverage might influence health outcomes among patients. In this study, we employed a descriptive analysis of health insurance discrepancies using current and recent census data. In particular, we investigate possible correlation and discrepancies between health insurance coverage due to exposure to different types of socio-economic characteristics, such as race, gender, education, income, age, work status, etc.

ORAL SESSION C — ROOM 330 — 2 P.M.

Modeling Cost of Auto Insurance: An Application of Polynomial Regression Model

Emma Krietemeyer

Khairul Islam, faculty mentor

Polynomials of varying degrees will be studied in relation to fitting models to cost of auto insurance data. This model will be used to interpolate and extrapolate cost of insurance at desired time point. The goodness of fitted model will be assessed using the coefficient of determination and other related criteria. An open source software R will be utilized for computational aid.

ORAL SESSION C — ROOM 330 — 2 :15 P.M.

Identifying and Interpreting Predictors of Credit Default via Random Forest and Logistic Regression

Joseph Sturm

Khairul Islam, faculty mentor

What information can lenders use to assess a borrower's risk of credit default? In this study, we explore credit data to identify and interpret predictors of credit default. We identify the most significant predictors using a random forest model and interpret them using logistic regression. Predictors are interpreted using the odds ratio, a result of logistic regression that quantifies the additional risk of credit default associated with each predictor.

ORAL SESSION B — ROOM 304 — 11:15 A.M.

The Bimodality of Old Faithful Geyser Eruptions

Lilly Vael

Tanweer Shapla, faculty mentor

The Old Faithful geyser in the Yellowstone National Park has been one of the most famous tourist attractions and probably the most stable geyser in the world. The National Park service puts a sign for the visitors when the next eruption may occur. However, the bimodal nature of the waiting time until next eruption makes it tricky to predict the time interval consistently and with a desired accuracy. In this presentation, we explore interesting facts about the time interval and duration of eruptions by means of various graphs. An attempt has been made to compare the predicted waiting time until next eruption based on several approaches including a fitted regression function.

ORAL SESSION C — STUDENT ART GALLERY — 2:15 P.M.

Diagnostics in Simple Linear Regression Model by Means of Graphs and Formal Tests

Sadia Sarker

Tanweer Shapla, faculty mentor

While fitting a simple linear regression model, a set of assumptions such as linearity of the regression function, normality and independence of error terms, constancy of error variance are assumed to be appropriate for the particular data at hand. However, the violation of one or several of these assumptions may convey misleading or invalid inferences regarding the regression parameters. Therefore, it is important to check the assumptions before attempting to fit a regression function. In this presentation, we explore some of the graphical approaches as well as available numerical tests to check the appropriateness of the assumptions in relation to real life data.

ORAL SESSION B — ROOM 304 — 10:30 A.M.

An Exploratory Data Analysis of Lung Cancer Patients Using SEER Data

Sadia Sarker

Khairul Islam, faculty mentor

An exploratory data analysis (EDA) refers to exploring and summarizing characteristics of data with visual aids. For example, cancer patients diagnosed at different stages may have different impact on cancer treatment or survival. An attempt to explore and summarize impact of stages of diagnosis of cancer on treatment or survival is an EDA. This study uses Surveillance, Epidemiology, and End Results (SEER) data to perform an EDA of lung cancer patients using various graphical aids, which contributes to the recommendation of significant modeling strategies.

ORAL SESSION D — ROOM 352 — 3 P.M.

MCNAIR PROJECTS

The Refugee Crisis: A Report for Local Business in Host-Countries

Shayla Card-Nowlin, Chocolate Brooks, Perrece Hamilton,
and Bree Robinson

Heather Neff, faculty mentor

Statistically, at present 68.5 million people are displaced from their homes; 25.4 million are refugees and 3.1 million are asylum seekers (The UN Refugee Agency, 2018, n.d.). As the refugee crisis intensifies, the challenge to provide solutions for immigrants will escalate. Our research will examine approaches taken by businesses in Kenya and the United States to provide employment, professional development and social services such as food assistance, housing, and educational skills. Our research will focus on (1) employment trends, (2) wages, (3) immigrant economic standing, (4) family size, and the (5) immigrants' transferable skills.

ORAL SESSION B — STUDENT ART GALLERY — 10:45 A.M.

Surviving Refugee Status: Three Innovative Approaches to Addressing the Needs of Refugees

Jaylen E. Taylor, Ayanda Brydie, Avery Dumas and David DeLisle

Heather Neff, faculty mentor

The World Health Organization estimates that there are approximately one billion migrants worldwide (WHO, 2018). The quality of life of refugees could be improved with increased access to medical care, clean water and hygiene tools. This can be accomplished by engineering easy to use, transportable devices and tools that require minimal device maintenance or training. With the development of a hand-held time-release airborne vaccine, a water filtration and storage device, and a non-harsh all-purpose soap, improvements to the quality of life of migrants and refugees could be provided.

ORAL SESSION B — STUDENT ART GALLERY — 10:30 A.M.

SCHOOL OF MUSIC AND DANCE

The Study of Beethoven Piano Sonata Op. 31

Megan Angriawan

Garik Pedersen, faculty mentor

Ludwig van Beethoven was a famous German composer who played a crucial role in the transition between Classical and Romantic eras. This study is limited to the three sonatas of Beethoven's Op. 31, each of which has a unique position in Beethoven's output, with different perspectives, purposes, and personalities. Different characters, backgrounds, and ideas made unique contributions to Beethoven's search for new and unconventional ideas at the beginning of his middle period of composition.

ORAL SESSION B — AUDITORIUM — 10:45 A.M.

Rediscovering Opera through New Works and Individual Approaches to Characters

Olivia Barnaclo and Austin Hadwick

Robert Peavler, faculty mentor

EMU Opera Workshop class is performing Michael Ching's ever changing opera, *Speed Dating Tonight!* This presentation demonstrates how two performers can explore, develop, perform, and relate to the same character regardless of gender. In its world-premiere performance of a new duet, two singers will present their own interpretation of each character, switching roles every performance. This 21st-century gender-fluid casting and characterization lets the singers delve deeper into the nuance of each role, shifting not only the plot, but the societal norms audiences expect in traditional opera.

ORAL SESSION B — AUDITORIUM — 11:30 A.M.

Pioneering Women of Marimba Performance: Keiko Abe, Vida Chenoweth, and Ruth Stuber Jeanne

Claire Castle

John Dorsey, faculty mentor

In different cultures throughout ancient history, women playing drums or other percussion instruments was a common and approved practice. The opposite was true in modern society until the middle of the 20th century when pioneering women such as Vida Chenoweth, Ruth Stuber Jeanne and Keiko Abe forged new inroads through their performances, compositions and arrangements for marimba. Today's presentation includes a performance of *Going Home* (from *New World Symphony*) by Dvorak, arranged for marimba by Ruth Stuber Jeanne, *Out of the Depths, I Cry to Thee*, melody by Martin Luther, harmonized by Bach and adapted for marimba by Vida Chenoweth, and *Memories of the Seashore* written by Keiko Abe.

ORAL SESSION B — AUDITORIUM — 10:30 A.M.

The Unmeasured Preludes of Louis Couperin: Performance Practice

Emily Katynski

Michael Burkhardt, faculty mentor

In 1650, French composer Louis Couperin (1626-1661) composed unmeasured preludes for the harpsichord. These pieces have no measures, time signatures, or rhythms; it is up to performers to create their own interpretation, governed by stylistic norms. This study will examine how aspects of early keyboard music (such as treatment of ornamentations and non-harmonic tones, and performance practices of the early Baroque period) are combined to create a contextual interpretation, followed by a performance of a prelude.

ORAL SESSION A — AUDITORIUM — 10 A.M.

Thematic Development in Mozart's Clarinet Concerto in A Major, K. 622

James Rayle

Sandra Jackson, faculty mentor

The Concerto for Clarinet in A Major, K. 622, by Wolfgang Amadeus Mozart (1756-1791), was written in October of 1791, shortly before Mozart's death. The concerto was written for Austrian clarinet virtuoso Anton Stadler, a close friend of Mozart's for nearly a decade, and is considered one of the most important pieces in the clarinet repertoire. The concerto has three movements: Allegro, Adagio, and Rondo. Each of the three movements presents an opening theme, which is then developed throughout the movement. Along with a performance of the themes present in the first two movements, their later appearances will be discussed and demonstrated.

ORAL SESSION B — AUDITORIUM — 11 A.M.

New Works by Student Composers: Fanfare for Woodwind Quintet, Daughter of the Sea, and Color Rays

Alexandria Sikora, Geoffrey Kelm, and Robert Thorburn

Whitney Prince, faculty mentor

These three works were written by students in MUSC 416 Compositional Skills. Fanfare for Woodwind Quintet by Alexandria Sikora is based on three recurring motives. Highly energetic at first, the music eventually takes on a softer, more gentle character by the end. Daughter of the Sea by Geoffrey Kelm uses text from the novel Warbringers, adapting a lullaby sung to the protagonist as a child. The haunting minor tone foreshadows the harsh realities of life following her father's death. Color Rays by Robert Thorburn uses musical flourishes and sudden shifts in harmonic and instrumental color to sonically portray the circular movement and varying temperatures of light rays.

ORAL SESSION B — AUDITORIUM — 11:15 A.M.

The Effects of the French Music School on Composers Aaron Copland and Karel Husa

Louis Vajda

Mary Schneider, faculty mentor

Aaron Copland, born in Brooklyn, NY, struggled with the task of identifying the American style of composition while studying in Paris. Karel Husa, born in Prague, Czechoslovakia, was exiled from his home country during the rise of communism and sought refuge in Paris before being invited to teach at Cornell University in the U.S. During their time in Paris, both composers were profoundly affected by their struggle with national identity in music. This presentation discusses the effect of the French school of music on the two composers, examines compositional style and personal accounts, and will consider political views of the United States, France, and Czechoslovakia in the 20th century.

ORAL SESSION A — AUDITORIUM — 9:45 A.M.

DEPARTMENT OF PHYSICS AND ASTRONOMY

An Affordable Physical Pendulum for Introductory Physics Laboratories

Emily Stimson

Ernest Behringer, faculty mentor

The introductory mechanics course includes the study of mechanical oscillators, and studying oscillators with more than one control variable allows students to explore more complex systems. We therefore built physical pendulums from sections of PVC pipe. We measured the period of small amplitude oscillations using a stopwatch and a video camera and found that pipes shorter than 45 cm have measured periods that agree with a simple theoretical model. Pipes longer than 45 cm have periods that are greater than predicted and the discrepancy grows when the pipe length increases. We will discuss these discrepancies and their implications for using pipe pendulums in the student laboratory.

ORAL SESSION B — ROOM 304 — 10:45 A.M.

DEPARTMENT OF POLITICAL SCIENCE

Factors Impacting American Perception of Globalization and its Effects on Society

Fadwa Ashur

Barbara Patrick, faculty mentor

Globalization has affected many aspects of Americans' lives. Advocates argue these advancements have positively promoted the country's interest and interactions with others around the world. Opponents claim globalization has caused many people to lose their jobs and created a disconnect between communities and families. In the current political climate, it is important that policymakers are aware of citizens' views so that they might inform policy decisions. This research will investigate perceptions of globalization, using national survey data to assess how citizens' age, level of education, and political orientation affects their views on expanding globalization in the United States.

ORAL SESSION C — ROOM 320 — 2:15 P.M.

The Petition Process: Why You Should Care

Edin Bukva

Beth Henschen, faculty mentor

Safety standards for cars and trucks matter to all of us. Who creates these standards matters too. Requests for rules related to safety often come to the National Highway Traffic Safety Administration (NHTSA) through the petition process. We know very little, however, about who uses this process to affect regulations. This research identifies the range of participants—from individual citizens to “repeat players” such as big auto companies—that submit petitions for rulemaking to the NHTSA. The study provides a window into how democratic principles are reflected in the earliest stages of administrative policymaking.

ORAL SESSION C — ROOM 330 — 1:30 P.M.

State Civil Rights Commissions: Agendas and Decisions

Madelaine Coy

Barry Pyle and Barbara Patrick, faculty mentors

Civil rights commissions and similar institutions play an important role in the creation and implementation of anti-discrimination policy in U.S. states. We examine the institutional and structural components of various state civil rights commissions, as well as the demographics and backgrounds of commission members. Ultimately, we seek to determine whether institutional and commission member characteristics impact the type of issues they address and the outcome of their decisions.

ORAL SESSION A — ROOM 320 — 9:45 A.M.

Wiping Dust under the Carpet: A Look into Poverty in America

Omar B. Davidson II

Richard Stahler-Sholk, faculty mentor

This project considers whether institutions like governments and non-profits are in fact addressing the root causes or merely the surface symptoms of poverty in the United States. The study examines what sort of power structures reinforce poverty in the United States, and whether these institutions are truly making poverty alleviation their primary goal. This analysis will highlight the importance of improving domestic policy in reforming poverty alleviation. Through case studies, we will study particular parts of the population in the United States where poverty is prevalent. This research will shed light on the actual causes of systemic poverty.

ORAL SESSION C — AUDITORIUM — 2:30 P.M.

Holocaust and Civil Rights Memorials: Memory and Legitimization

Savannah C. Ferrante

Jeffrey L. Bernstein, faculty mentor

This research compares Holocaust memorials and Civil Rights memorials and the differences in how and where they are placed within society. By choosing memorials that were built to commemorate events that took place internationally and domestically, I evaluate the underlying themes of legitimization and power that these memorials portray to U.S. citizens themselves, as well as how people in the United States view this country and foreign countries. How we remember events, and how these memories evolve, tells an important story with many social implications.

ORAL SESSION D — ROOM 330 — 3:30 P.M.

Latin American Social Movements under a Rising Right

Andrew Lawrence

Richard Stahler-Sholk, faculty mentor

Globalization was met with fierce resistance in Latin America during the 1990s, and many left-wing, indigenous groups were organized into social movements, reform parties, or rebel groups. Today we are witnessing a rise in right-wing authoritarianism throughout the region despite the efforts of these organizations. This project examines how popular indigenous social movements have changed or maintained their strategies and goals in a new era. The patterns are relevant for understanding party/state/social movement dynamics more generally.

POSTER SESSION 3 – ROOM 310 A/B – 2:45 P.M.- 4:15 P.M.

Dropping Nuclear Bombs on Japan: The Decision that Shaped the Post-War World Order

Sarah Maier

Richard Stahler-Sholk, faculty mentor

Why did the United States drop two nuclear bombs on Japan; and in turn why did Japan surrender after the nuclear bombs of Hiroshima and Nagasaki? There are numerous competing theories on why the United States used two nuclear bombs in quick succession instead of conventional bombing. They range from ensuring a Japanese surrender to the United States instead of the Soviet Union, to testing new nuclear weaponry. To answer this question, we will closely examine historical documents and political decision making at the time in both the United States and Japan. The use of nuclear weapons in international warfare set a new, dangerous precedent, and will impact how future wars will be fought.

ORAL SESSION B — ROOM 320 — 11:15 A.M.

Considering Abolition: The Role of Police and Prisons in the United States

Alexander Nuttle

Richard Stahler-Sholk, faculty mentor

What are the historical roles of police and prisons? Is it possible to abolish police and prisons within the current society? The hypotheses of this presentation are 1) police and prisons have been used to serve the interests of the ruling class in the United States rather than protect the common people, and 2) while it would take a lot of work to move towards making police abolition possible, it is possible to move towards prison abolition. This presentation uses historical analysis and literature review to evaluate these hypotheses. Because policing and prisons impact our everyday lives, there needs to be an informed discussion about policy regarding police and prisons.

ORAL SESSION B — ROOM 320 — 11 A.M.

The Impact of the Candidate's Race on Voter Opinion

Yssis Patterson

Jeffrey L. Bernstein, faculty mentor

Race has always played a role in politics, but is its role as significant as we think? To understand whether race does play a significant role in politics, I developed a survey to determine whether a candidate's race impacts a voter's perception. This survey asked respondents to rate candidates of different races and party identification across a range of dimensions, in order to examine the role of race and politics in the campaign season. The survey revealed that political party identification mattered more in these ratings than other factors, including race. In this particular investigation, race did not have as much of a significant impact as we might have thought.

ORAL SESSION B — ROOM 330 — 11:30 A.M.

The Environment: Should the Government Make It More of a Priority?

Lillian Pellerito

Barbara Patrick, faculty mentor

The environment is a crucial component of life that influences and affects every person, no matter their differences. As such, many deem it necessary to conserve and protect it, and strongly advocate that the government should play a key role in this. Three critical factors that influence perceptions of the environment and the extent of the government's role are levels of education, party identification, and residency. This presentation will address how these three variables relate to agreement or disagreement with the government's prioritization of the environment, and how expectations of the government role may align or differ from reality.

ORAL SESSION C — STUDENT ART GALLERY — 1:30 P.M.

Arts and Peacebuilding: Poems versus Weapons in Contemporary Somalia

María Paula Perdomo García

Richard Stahler-Sholk, faculty mentor

Since 1991, the Somali conflict has cost human lives and international monetary resources. Despite military interventions from two UN peacekeeping missions and from the United States, Turkey and the African Union, history shows that militarized foreign solutions fuel the violence they seek to deter. As an alternative, this research evaluates how art addresses the cultural and historical causes of the Somali conflict, Somali identity, clan-based competition, and the Somali individual's way of understanding conflicts in relation to resource scarcity that fuels a hostile environment among people. The study assesses how "cultures of peace" enhance post-conflict peacebuilding.

ORAL SESSION B — STUDENT ART GALLERY — 11:15 A.M.

Mormons in Politics: The Viability of Minority Religious Candidates

Stephen Rathje

Barry Pyle, faculty mentor

The relationship between religion and American politics has a complicated history, best illustrated by the relationship between certain minority religions and national political campaigns. I analyze the candidacies of Mitt Romney, John F. Kennedy, and others to reveal that Americans tend to have difficulty separating their interests within mainline Protestantism when asked to side with political candidates who express different religious values. I argue that US voters respond more to the public's understanding of a candidate's religion than to the actual religious beliefs of a specific candidate.

ORAL SESSION B — ROOM 330 — 11:15 A.M.

African Colonialism's Causal Relationship with Conflict and Regime Type

Clayton E. Sigmann

Richard Stahler-Sholk, faculty mentor

Africa, a continent of 54 states, has experienced large amounts of conflict. This research will analyze the continuing impact of colonial factors in post-colonial conflict throughout the continent. It will look specifically at several factors across regions such as ethnic divides, resource disputes, and oppressive states, to see the deeper structures behind the conflict. This research will help understand the role of good governance and sustainable development in conflict prevention.

POSTER SESSION 3 – ROOM 310 A/B – 2:45 P.M. – 4:15 P.M.

The Keys to Life: A More Humane Policy Prescription for Global Pharmaceutical Trade and Manufacture

Ethan Smith

Richard Stahler-Sholk, faculty mentor

Pharmaceutical manufacturers with a monopoly on research and development in the Global North offer states, NGOs, and industry in the Global South drug prices that limit access for the majority due to a lack of purchasing power. Furthermore, low state capacity, lack of infrastructure, corruption, and violence within LDCs also limit pharmaceutical access. This study compares ex-manufacturer pharmaceutical pricing to pharmaceutical access across and within Canada, Ghana, and India using the 2018 WHO Access to Medicine Index. I use this data to analyze the extent to which access to medicine can be expanded through lower prices, and finally propose some policy prescriptions intended to do so.

ORAL SESSION A — ROOM 204 — 9 A.M.

An Analysis of Metro Detroit and Strategic Budget Planning after the Great Recession

Jack Swartzinski

Barbara Patrick, faculty mentor

Since the Great Recession and the continued flight of automotive companies from Detroit, it has become increasingly difficult for local governments to adjust and maintain communities and budgets. What are the lingering effects of the Great Recession, and how did state actions positively and negatively affect these communities? Also, how does the desire to preserve a sense of pride or self in these communities affect how the community might grow in the future? What impact does public safety have on the budget? Do these communities have the tools to create a balanced budget in the first place?

ORAL SESSION B — ROOM 330 — 10:45 A.M.

The Impact of Foreign Election Intervention on Domestic Politics

Avinash Vivekanandan

Judith Kullberg, faculty mentor

Russia's intervention in the 2016 US presidential election has negatively affected American politics and has ultimately caused democratic erosion within the United States. While many believe that election intervention is a new tool used by states to exert influence on other states, electoral interventions have in fact been used by various states for many decades. It has been hypothesized that electoral interventions can cause partisan polarization. This project will aim to estimate the degree of partisan polarization in US politics caused by Russia's intervention in the 2016 presidential elections through a case study.

ORAL SESSION B — ROOM 330 — 11 A.M.

Cyber Security: Russia and China's Erosion of 21st Century U.S. Hegemony

Cyril Yancey

Richard Stahler-Sholk, faculty mentor

With Russia and China emerging as challengers to U.S. hegemony, the use of cyber warfare could tilt the current balance of power in either of their favors. Using various methods, hackers can acquire sensitive information and destroy online infrastructure. In the development of cyber warfare, China has become a seasoned veteran with computer virus operations dating back to 1997. Russia has emerged as a cyber aggressor as seen in Russia's cyber-attacks on several countries in the last decade. This paper argues that with the growth of foreign cyber technology, the probability of cyber space being used as a military front by state or non-state actors against the United States increases.

ORAL SESSION C — ROOM 320 — 1:30 P.M.

United States Intervention in Latin America and its Impact on Human Development

Hannah Zwolensky

Connor Sutton, faculty mentor

There have been numerous instances of United States intervention in Latin America. These interventions have lasting consequences on the development of Latin American states and societies. In this work, I explore the impact of U.S. interventions on the development across Latin America, using Human Development Index and Varieties of Democracy data. My findings suggest that U.S. interventions have a complicated – and sometimes detrimental – relationship with development in Latin America.

ORAL SESSION B — ROOM 330 — 10:30 A.M.

DEPARTMENT OF PSYCHOLOGY

Masculinity Ideology, Pubertal Status, and Depression Among Adolescent Boys

Sean Beckom II

Chong Man Chow, faculty mentor

Greater conformity to masculinity was associated with increased depressive symptoms during middle school (Rogers, Delay, & Martin, 2017). Identity development and physical development associations are stronger than identity development and age (Jones, Dick, Coyl-Shepherd, & Ogletree, 2014). The current study samples boys ages 11-18 years old. Adolescents completed online questionnaire about health behaviors, psychological, and demographic variables. We hypothesized pubertal status, masculinity, and depression would all be correlated. Results indicated masculinity and depression were positively correlated ($r = .29, p < .01$); but, pubertal status was not related to either other variable.

POSTER SESSION 3 – ROOM 310 A/B – 2:45 P.M.- 4:15 P.M.

Do Parenting Styles Affect Productivity?

Austin J. Boynton

Rusty McIntyre, faculty mentor

The study tests whether parenting styles affect productivity, by examining self-report and observational data. Participants will report the parenting styles they believed their parents raised them under. Each parenting style will be assessed for its influence on reported job satisfaction, life satisfaction, and productivity. In addition, the independent relationship between satisfaction levels and productivity will be used to examine success within workplace. Personality traits (including the big 5 and self-monitoring scale) will be included to assess the influence of personality as well. This research is ongoing as an online and in-person study.

ORAL SESSION A — ROOM 352 — 9:30 A.M.

Can Normative Influence Ease the Effects of Social Exclusion?

Autumn Chall

Rusty McIntyre, Ph.D., faculty mentor

The project examines how reactions to social exclusion can be eased by reading about a role model who experienced, but overcame, similar forms of exclusion. Participants (Ps) were either included or excluded during an online task. All Ps then reported their level of fulfillment of social needs (control, belongingness, meaningfulness, and esteem). Ps who were excluded either reported shortly after exclusion, after reading a neutral essay, or after reading a role model essay. Ps who were included had higher reports of social needs. Ps reading of a role model reported more similarly to those who were included, whereas excluded Ps not reading of a role model had lower reports of these needs.

ORAL SESSION B — ROOM 352 — 10:30 A.M.

Brain Activity Associated with the Motor Function of Children with ASD: A Systematic Review

Noelle Ditchfield, Frantzy Acluche and Alyssa Augustiniak

Jin Bo, faculty mentor

Because motor dysfunction is a key symptom of Autism Spectrum Disorder (ASD), research is needed to understand how this relates to brain function in children with ASD. Thus, we conducted a systematic review of studies comparing motor dysfunction to brain function that used electroencephalography (EEG) techniques. The review aimed to: (1) describe and compare different EEG techniques and research methods; and (2) describe and compare brain activity associated with motor function. Searches were conducted via PubMed, PsychInfo, and Web of Science, for the terms electroencephalography OR eeg ; autis* OR ASD ; motor; and child OR childhood OR children. 154 articles were reviewed in total.

POSTER SESSION 1 – ROOM 310 A/B – 9 A.M.- 10:30 A.M.

Orthorexia Nervosa Among College Students: Examining Links Among Eating, Exercise, and Distress

Alyssa Lawson

Karen Saules, faculty mentor

The present study investigated an eating disorder classified as Orthorexia Nervosa (ON). ON is defined as an unhealthy obsession with eating healthy food (Bratman, 2000). It was hypothesized that significant associations between orthorexic tendencies and depression, anxiety, and obsessive-compulsive features would occur. Results indicate that ON, anxiety, and obsessive-compulsive features are related, but ON and depression are not. It was hypothesized those with orthorexic tendencies would be more inclined to excessively exercise when they eat something that causes them extreme guilt; ON and exercise were related, but this was not mediated by fear of food, guilt, or obsessive-compulsive features.

ORAL SESSION D — ROOM 350 — 3:45 P.M.

How Subtle and Overt Social Influences Affect Test-Taking Behaviors and Perceptions

Stefaney O'Chel

Rusty McIntyre, faculty mentor

It is hypothesized that people are influenced by both implicit and explicit social cues. My research examined both cues in relation to test taking using a group of four "students" (2 participants (Ps) & 2 confederates). Ps interacted with confederates performing subtle nonverbal cues (e.g. hand gestures). In half the trials confederates did not show these cues. Then all "students" took a 20-item test. In half the trials the confederates finished in a short amount of time; in the other trials, they took the whole time. Ps test behaviors, nonverbal behaviors, and test perceptions were tested to see if both subtle and overt social cues influenced these "students" in a "classroom."

ORAL SESSION D — ROOM 350 — 3:15 P.M.

Environmental Tobacco Smoke Exposure and Health Outcomes in African American Preschool Children

Janay Patterson

Heather Janisse, faculty mentor

Laws prohibiting smoking in certain areas has led to a decrease in exposure to tobacco smoke over recent years. However, many individuals of low socioeconomic status still experience high exposure to second hand smoke. In children, second hand smoke is known to increase the likelihood of sudden infant death, asthma attacks, ear infections, and respiratory problems. Therefore, the goal of the current study is to examine environmental tobacco smoke (ETS) exposure in relation to health outcomes in children. Participants included African American mothers and children from preschool centers in Detroit. Highlighting the impact of ETS exposure on child health can improve parent health awareness.

POSTER SESSION 1 – ROOM 310 A/B – 9 A.M.- 10:30 A.M.

Association between Childhood Experiences, Socioeconomic Status, Access to Care and Depression

Sierra Powdhar

Jamie Lawler, faculty mentor

In the U.S. 45% of adults experience at least one adverse childhood experience (ACE; Sacks, 2018). ACEs are strongly related to the development of a wide range of health problems, including depression (SAMHA, 2018; CDC, 2016). The purpose of this study is to determine whether socioeconomic status (SES) and access to care account for the relationship between ACEs and depression. Participants will complete multiple questionnaires. I hypothesize that higher number of reported ACEs will be associated with lower SES and less access to care, and these factors will predict an increased risk of depression.

ORAL SESSION C — AUDITORIUM — 2 P.M.

Mindfulness-Based Meditation and Its Effects on College Students

Jordan B. Sieja

Ellen Koch, faculty mentor

The current study focuses on understanding undergraduate students' changes in stress, attitudes, mindfulness, and compliance from practicing mindfulness meditation between students who have previous experience with mindfulness meditation versus students with no experience. Participants partook in an intervention by completing various questionnaires and in-person meditation practices in small groups. The importance of understanding changing perceptions when using mindfulness meditation as an effective coping strategy for high-stress populations such as college students is discussed.

ORAL SESSION D — ROOM 350 — 3 P.M.

Augmented Reality Exposure Treatment for Specific Phobias

Jordan B. Sieja

Ellen Koch, faculty mentor

Specific phobias are the most prevalent of anxiety disorders and are one of the most common mental health conditions (Kessler et al., 2010). Augmented reality (AR) exposure treatment is an emerging approach to treat specific phobias. Due to the promising efficacy of AR exposure treatment, it is important to expand research on the topic to enhance treatment for specific anxiety and phobia treatments already in place. The current study provides data for an initial treatment participant for a larger study examining AR exposure treatment versus a waitlist control group. Future implications of AR exposure treatment to expand and create options for anxiety and phobia treatments are considered.

POSTER SESSION 1 – ROOM 310 A/B – 9 A.M.- 10:30 A.M.

The Relationship Between Maltreatment and Self-Regulation Trajectories: A Multimethod Approach

Grayson Sturgis

Dean Lauterbach, faculty mentor

Self-regulation is the ability to monitor, evaluate, and modify one's affect and behaviors to reduce unpleasant emotions (Gratz & Roemer, 2004). These skills develop during early relationships with caregivers. Maltreatment by caregivers has been found to adversely affect self-regulation (Kim-Spoon et al., 2013). The goal of this study was to examine the relationship between maltreatment and the development of self-regulation skills over time, using archival data collected as part of the Longitudinal Studies of Child Abuse and Neglect (LONGSCAN) consortium (Runyan et al., 2011) and applying advanced statistical modeling techniques.

POSTER SESSION 3 – ROOM 310 A/B – 2:45 P.M.- 4:15 P.M.

Veterans' Path to Reintegration

Anthony D. Terry

Ellen Koch, faculty mentor

Military service members transitioning to civilian life in general and college specifically may experience significant difficulty losing their identity as a service member. This project examined how veterans' sense of identity can change throughout their process of reintegrating into civilian life and the problems that surround this change for the veteran and their family. This study addresses these general problems and suggests tactics to further increase the chances of successful reintegration. Specific attention is directed to successful transition to college and strategies for facilitating effective educational achievement for veterans.

Oral Session C — Auditorium — 1:45 p.m.

Race, Skin Color, and Friendship

Bria White

Stephen Jefferson, faculty mentor

Perceived approachability and friendliness are influenced by the skin tone and race of a person's associates. Research has shown that, when the picture of a Black man is presented with that of a White man described as his friend, the Black man is deemed more approachable than when he is presented with another Black man as his friend. The current study extends this original work, with a Black woman and three associates (light and dark-skinned Black women and a White woman). We hypothesize that respondents evaluate the woman as more or less approachable by the skin tone of the friend with whom she is presented. Findings are expected to parallel original results; implications will be discussed.

ORAL SESSION A — ROOM 320 — 9:15 A.M.

Meta-analytic Review of Nature Exposure's Effects on Attention

Christian Wiget

Rusty McIntyre, faculty mentor

Research on nature exposure (e.g. being in a park) has found emotional benefits. Theory also postulates effects on cognition and attention. The current study uses meta-analytic methods to assess the effects of nature on attentional outcomes. Seventeen publications with 24 results are included. Specifically, the study examines the reliability and magnitude of outcomes involving attention, as well as the impact of study design features (e.g. real vs virtual nature; passive vs active nature interaction; participant demographics). These results will better inform theoretical explanations for nature exposure.

POSTER SESSION 3 – ROOM 310 A/B – 2:45 P.M.- 4:15 P.M.

DEPARTMENT OF SOCIOLOGY, ANTHROPOLOGY AND CRIMINOLOGY

The US Army Total Institution: Mortification of the Self and the Military to Civilian Transition Process

Dallas Ford

Tricia McTague, faculty mentor

Total Institutions often share strikingly similar characteristics, and examples of a total institution include mental hospitals, prisons, and the militaries. In the total institution, identity pre-total institution is mortified, considered a hindrance to the functioning of the institution. Using this theory to frame the discussion, the results total institutions have on individuals upon leaving the total institution are discussed. Employing an auto-ethnographic style, I cite examples from the US Army, then discuss identity after separation and transition from a total institution.

ORAL SESSION C — AUDITORIUM — 1:30 P.M.

Bridewealth as an Exchange for Wives' Socioeconomic Contribution Among the Yi in Southwest China

Pariss Gray

Xianghong Feng, faculty mentor

Modern labor migration influences on income associated with exchange at marriage. Through a case study of the Yi ethnic minority in China based on literature review, I argue that Yi women's bridewealth is set by her status perceived by her community and family which is remittance for future as a mother and laborer. This is likely payment for her future output and reason for increase over the past century, which is due to growing gross income that Yi women bring to a family on average.

ORAL SESSION D — AUDITORIUM — 4 P.M.

Child Sex Trafficking: Global and Domestic Perspectives

Kayla Harvey

Peter Wood, faculty mentor

This research shines light on the epidemic of human trafficking across the globe, with a special focus on sex trafficking in America. The United States is a primary destination for many children taken from their home countries for sex trafficking. 600,000- 800,000 people are trafficked internationally each year, about half of whom are victims of sex trafficking. Approximately 17,000 children are subject to sex trafficking in the United States each year. A review of the research literature reveals the causes and risks of sex trafficking, why and how children are trafficked into the United States, and laws in place to help fight trafficking.

ORAL SESSION B — ROOM 320 — 10:30 A.M.

Bisexual Discrimination: Eliminating Biphobia and Bi-Erasure

Julia Kops

Keiko Kishida, faculty mentor

Bisexual individuals experience unique double discrimination from heterosexual, gay and lesbian people. This lack of communal space to fully develop an identity can lead to a higher risk for depression, anxiety, suicide ideation and low self-esteem, with further challenges arising when bisexual individuals seek help. A survey of self-identifying bisexual individuals has shown that bisexuals perceived the most prejudice from gays, lesbians and potential partners. Discrimination often takes the form of biphobia and bi-erasure. This study discusses the implications of such discrimination, as well as considerations to be taken when combating false societal perceptions of bisexuality.

ORAL SESSION D — ROOM 304 — 3 P.M.

Intersex and the Human Skeleton: Sexual Polymorphism Rather than Dimorphism

Gabrielle Mace

Megan Moore, faculty mentor

Sex estimation from the skeleton is part of constructing a biological profile. Limited information can be determined from a set of remains that fall intermediately between male and female values. This is problematic when performing sex estimation on skeletal remains. Studies have been done on the hormonal effects and differences associated with sex development disorders and in people of intermediate genders, yet how these hormonal differences affect bone morphology is unknown. After performing a literature review, it has been predicted that these individuals will be more likely to fall within the intermediate category of pelvic measurements in the process of sex estimation.

POSTER SESSION 3 – ROOM 310 A/B – 2:45 P.M.- 4:15 P.M.

Alzheimer's Disease and Related Dementias (ADRD) and the Arab-American Community

Laith Quasem

Kristine Ajrouch, faculty mentor

This study engages with the Arab American community, a particularly underrepresented population in regard to Alzheimer's disease and related dementias (ADRD) research. Data (n=40) from participants who attended community health learning events were analyzed to discern topics participants would like to see addressed at future ADRD meetings. Qualitative coding of narrative responses revealed the following themes: Outreach, Scientific Progress, Cultural Issues, Chain-effects, Post-Diagnosis-Related-Issues, and Preventative Strategies. Results provide key insight and a foundation for planning future events, and are discussed to highlight unique issues pertinent to Arab Americans.

ORAL SESSION B — ROOM 350 — 11:30 A.M.

The Biocultural Evolution of Inflammatory Bowel Disease

Amanda Rielinger

Megan Moore, faculty mentor

Inflammatory bowel disease (IBD) (i.e. Crohn's disease or ulcerative colitis) is described as a chronic, abnormal immune response to the gut microbiota. The etiology of IBD is unknown; however, it is associated with Western, industrialized societies and is quickly becoming a global disease. A better understanding of the origins and treatments of IBD can lead to improved health outcomes. This study examines IBD from a cultural, environmental, and evolutionary perspective. We suggest that IBD is a maladaptive inflammatory response to microbial ecosystem changes in the gut brought about by external factors.

ORAL SESSION B — ROOM 350 — 10:30 A.M.

Queer Eugenics: From Pathologization to Homonationalism

Marri Visscher

Ronald Rich, faculty mentor

Eugenics refers to a model of social change by means of manipulating social characteristics which are falsely presented as being heritable, and is often examined in terms of racial prejudices and discrimination. In addition to race, gender and sex are sites of eugenic manipulation, where we have seen the development of biologized notions of sexuality and gender, known now as heteronormativity. Sexual and gender minorities have historically been understood as harboring socially undesirable traits and were targeted to be institutionally, legally, and socially eradicated. This exclusion from society is seen today in terms of homonationalism and the neoliberal assimilation.

ORAL SESSION D — ROOM 304 — 4 P.M.

DEPARTMENT OF WOMEN'S AND GENDER STUDIES

Erasure of Black Women from the Feminist Movement

Danisha L. Grier

Mary Elizabeth Murphy, faculty mentor

As intersectional social movements continue to form, the accuracy of our current platforms are tested. The feminist movement, noted as one of the oldest social revolts in History, has long lacked Diversity and inclusivity. In this paper, I will discuss the history of feminism as a social movement and its area of social change. I ask, should an ideology lacking complexity be at the center of our histories and school curricula?

ORAL SESSION B — ROOM 204 — 10:30 A.M.

Imagining Queer Futures to Ensure Queer Survival

Leah Minadeo

Ashley Glassburn Falzetti & Suzanne Gray, faculty mentors

For Lee Edelman, queers' lack of future is an extension of the dominant social narrative that reduces queerness to same-sex object-choice. That narrative renders queers strictly non-reproductive and aligns queerness with death and against life. The quality of queer lives is shaped by how queer futures are collectively imagined, so it takes a collective reimagination to ensure queer survival. I call on literary figures Moll Cutpurse of *The Roaring Girl* (1611) and Jess Goldberg of *Stone Butch Blues* (1993) to consider how the ways they stretch possibilities for embodiment and desire represent the non-biological ways queers reproduce and contribute to queer futures.

ORAL SESSION D — ROOM 304 — 3:45 P.M.

DEPARTMENT OF WORLD LANGUAGES

Teaching and Learning at Estabrook Elementary School

Autumn Chall

Cynthia Macknish, faculty mentor

This presentation will discuss the outcomes of an after-school program for young English language learners (ELs) conducted by EMU students. The EMU students taught new vocabulary and writing skills to the theme of attending college. The learning and test scores of 2nd-5th grade ELs as well as the teaching and learning of the college students who led the program will be discussed. The Estabrook learners showed vast improvement, with no one receiving a lower score on the post-test than the pre-test. The EMU students also showed improvements in their teaching and discovered their potential for growth. There are many potential reasons for this success. These factors as well as potential limitations will be discussed.

ORAL SESSION D — ROOM 204 — 3:30 P.M.

From Bonjour to Hello: The Motivational Key to Success

Aimee D'Amico

Wendy Wang, faculty mentor

This presentation discusses the importance of motivation in successful second language learning in the case study of a proficient English language learner. Beginning her language studies in France, the participant in the study attained a high level of English proficiency before relocating to the United States in order to teach French at the university level. Aspects of integrative and instrumental motivation are examined in the context of an Expanding Circle country— where English is studied as a foreign language— as well as the sociocultural impact and role of investment in language learning.

ORAL SESSION C — ROOM 352 — 2 P.M.

The Early Stages of Compound Bilingualism

Kelsey Madary

Wendy Wang, faculty mentor

A compound bilingual refers to someone whose two languages are learned in the same context and at the same time. While each case is unique, this specific study of a young compound bilingual learner exemplifies how age, code mixing, code switching, and creativity interact in the development process of bilingualism. The rate at which the basic interpersonal communication skills (BICS) and cognitive academic language proficiency (CALP) form was also observed. These findings will help ESL teachers accommodate their pedagogical strategies for those who share commonalities with this compound bilingual learner and, more importantly, aid in the prevention of subtractive bilingualism.

ORAL SESSION C — ROOM 352 — 1:45 P.M.

The Art of Teaching the English Language Through Motion: Strategies for an ESL Classroom

Hannah Reynolds

Ildiko Porter-Szucs, faculty mentor

This presentation will focus on the use of kinesthetic movement or dance as an effective engagement tool in ESL classrooms, from K-12 through adults. Benefits of kinesthetic movement will be given in the language and content areas of classrooms showing that movement makes language learning more accessible and longer lasting. Examples of how movement can be used at every age and proficiency level across content areas will be shared. Participants will be invited to engage in a small movement-based strategy during the session, so they can truly understand how the research can be applied. Opportunities to ask questions during the presentation will be provided.

POSTER SESSION 3 – ROOM 310 A/B – 2:45 P.M.- 4:15 P.M.

Comparative Study of Arab Rappers in America and Germany Through the Female Lens

Mariam Samir

Carla Damiano, faculty mentor

This research builds on a previous study of the impact of the Arab Spring on German Hip-Hop. The unrest in the Middle East resulted in thousands of Arabs and Muslims seeking refuge in Germany, and the response by Germans has been both welcoming and hostile. In response, many Arabs have turned to music to voice their frustrations. This comparative study focuses on the voices of Arab women rappers in both Germany and the U.S. and more specifically on how they express these concerns through a female lens.

ORAL SESSION A — ROOM 330 — 9 A.M.

Features of Englañol: The Outer Circle English of the Inner Circle

Alexander Schwehofer

Wendy Wang, faculty mentor

English and Spanish in Puerto Rico exert cross-linguistic influences upon each other, creating a unique variety of English known as Englañol. This presentation is a linguistic analysis of the distinctive features of Englañol at the lexical, phonological, and syntactical levels.

POSTER SESSION 3 – ROOM 310 A/B – 2:45 P.M.- 4:15 P.M.

Englañol and the Puerto Rican Identity

Alexander Schwehofer

Wendy Wang, faculty mentor

Puerto Rico, an island in the Northeast Caribbean, has a rich history that shapes the culture of its inhabitants today. This presentation analyzes the situations in which English, Spanish, and Englañol are used by puertorriqueños, how they shape their sociocultural identities, and the resulting implications on language education in Puerto Rico.

ORAL SESSION C — ROOM 352 — 1:30 P.M.

COLLEGE OF BUSINESS

DEPARTMENT OF MANAGEMENT

Undergraduate Employees: Unseen Resources of the University

Hannah Brenneman

Crissie Frye, Faculty Mentor

At Eastern Michigan University, there are countless undergraduate students who are employed by the university while obtaining their degrees. Utilizing an organizational socialization model, this research will examine the process by which these employees are socialized as well as how factors such as a millennial communication style and contingent status affect employment. This presentation will then give practical suggestions for managers and implications for the university.

POSTER SESSION 2 – ROOM 310 A/B – 11 A.M.-11:45 A.M. & 1:30 P.M.- 2:15 P.M.

Rhetorical Analysis of the Cruise Industry's Sustainability Practices

Jadyn S. Guess

David A. Victor, faculty mentor

The Cruise Line International Association reports that over 21 million passengers take part in cruises annually [CLIA 2015 p.13]. As the industry grows, the need for accountability around environmental practices has become an issue of utmost importance. This paper will analyze the cruise industry's rhetoric on sustainability as shown in their annual reports, through an analysis both of the types of pollution they create and the industry's claims to mitigate pollution through innovative approaches.

ORAL SESSION C — ROOM 330 — 1:45 P.M.

COLLEGE OF EDUCATION

DEPARTMENT OF LEADERSHIP & COUNSELING

Suicide in the Black Community: Potential Ways to Support African Americans Who Lose Someone to Suicide

Desmine Robinson

Devika Ditya Choudhuri and Kate Curley, faculty mentors

Separate communities and cultures discuss and deal with suicide loss differently. Guided by the Systems Theory and my positionality with suicide loss, this research attempts to raise awareness of interventions to effectively support the African American Community with suicide loss. This analysis is informed by surveying members of the community on their experience and knowledge of resources, academic literature, and Critical Race Theory. I hope to raise awareness of supportive practices, offer resources to participants, and contribute to the amelioration of mental health stigma in the African American community.

ORAL SESSION A — ROOM 320 — 9 A.M.

DEPARTMENT OF SPECIAL EDUCATION

The Relationship Between Short-Term Memory & Phonological Vocabulary Learning in Adults

Madeleine Cherney and Ani Balavitch

Naomi Hashimoto, faculty mentor

This study examined the relationship between short-term memory abilities and vocabulary learning in young-aged and older-aged adults. Digit Span, Nonword Repetition, and Vocabulary Learning tests were administered to participants in these age groups. The test results for both age groups indicated a significant relationship between Digit Span and Vocabulary Learning, and Nonword Repetition and Vocabulary Learning, but not between Digit Span and Nonword Repetition. These findings suggest that the patterns of relationship between short-term memory abilities and vocabulary learning are fundamental aspects of the human cognitive architecture, which extend through development into adulthood.

POSTER SESSION 2 – ROOM 310 A/B – 11 A.M.-11:45 A.M. & 1:30 P.M.- 2:15 P.M.

Effects of Social Stories on Students with Autism in Resource Rooms

Blake Collins

Jacquelyn McGinnis, faculty mentor

Anecdotal observation of one elementary student with moderate Autism prompted intervention with a social story. The social story was created to redirect off-task, distracting behaviors that were occurring in both general education and special education settings using meaningful and relevant images and text to refocus target behaviors to sensory activities. While in the resource room, the student read the story with teacher verbal prompting and was observed to ask for desired sensory stimulation, returning to on-task behavior afterward. Continued use of the social story is recommended to maintain and generalize the new behavior and may be effective for other behaviors as well.

POSTER SESSION 2 – ROOM 310 A/B – 11 A.M.-11:45 A.M. & 1:30 P.M.- 2:15 P.M.

The Joy of Raising a Child with Special Needs

T. Dante Del Pizzo

Jacquelyn McGinnis, faculty mentor

This presentation communicates the results of a study centered around the joy and favorable aspects of raising a child with disabilities. The student researcher has interviewed parents and family members of children with special needs, recording their stories of times they laughed, times they celebrated, and the reasons they would not change their life for anything in the world. These joyous stories will be shared so that others might understand that raising a child with special needs is worth looking at from a positive perspective.

ORAL SESSION A — ROOM 352 — 9 A.M.

The Importance of Friendship Between People With and Without Disabilities

Jennifer Pifer

Jacquelyn McGinnis, faculty mentor

This poster will highlight what I have learned from participating in an academic service learning project in the class, Introduction to Cognitive Impairment (CI). This project requires future special education teachers in the area of CI to spend 20 hours with a student on campus who has a disability, engaging in a variety of recreational/leisure activities. Because my student did not use much oral language, I was challenged to communicate in new ways in order to truly get to know her and interact. This experience has impacted me as a pre-service teacher because I better understand the importance for everyone, regardless of age or abilities, to experience quality social interaction and friendship.

POSTER SESSION 2 – ROOM 310 A/B – 11 A.M.-11:45 A.M. & 1:30 P.M.- 2:15 P.M.

A Life Worth Living

Aaron Rosebrock

Jacquelyn McGinnis, faculty mentor

Some countries are presently taking it upon themselves to “cure” their societies of Down syndrome through terminating nearly 100% of pregnancies in which it is detected. Whether this is the fault of a deeply ableist mindset or just sheer ignorance about that which they have had little to no experience, this practice should not be ignored. Those with Down syndrome can experience full and rewarding lives as much as those not born with that genetic variation. This presentation shares the story of my brother Bob, who is truly happy and makes those around him happy as well. Shouldn't it be up to him to decide if he has “quality of life”... if his life is truly worth living?

ORAL SESSION A — ROOM 352 — 9:15 A.M.

Assessment and Treatment of English Language Learners for Speech-Language Pathologists

Melinda Yax

Audrey Farrugia, faculty mentor

The field of speech-language pathology severely lacks diversity in its clinicians and therapists, yet speech-language pathologists (SLPs) are serving increasingly more diverse clientele. English language learners (ELLs) account for a large percentage of individuals requiring services; however, the research on how to best serve this population is scarce. This exhibition will present three major components to contribute to the growing body of literature on SLP assistance to ELLs: a literature review, an assessment and treatment resource guide, and practical case studies.

POSTER SESSION 2 – ROOM 310 A/B – 11 A.M.-11:45 A.M. & 1:30 P.M.- 2:15 P.M.

DEPARTMENT OF TEACHER EDUCATION

Assistive Technology in the Core Classroom: The Importance of Accommodating All Learners

Danny Collins and Lillia Sheline

Rebecca Sipe, faculty mentor

A common goal in most schools is the inclusion of students with special needs in the general education classroom. Because some of today's general education teachers may not have been fully trained on inclusion, the responsibility of finding appropriate accommodations often falls to the special education teacher. In order to improve upon this, we must inform our general education teachers of the opportunities available for their students. Assistive technology (AT), which is any device or service to help people with disabilities succeed, can be taught to the general education teaching community in order to encourage growth of learning ability in students with special needs.

ORAL SESSION D — ROOM 204 — 3 P.M.

The Ypsilanti Photo Voice Project

Christian Fayak and Katie Webb

Non-presenting authors: Paige Gallinger, Michael Mayes and Dani Schaub
Imandeep Grewal, faculty mentor

Critical concepts/ideas about community belonging and cultural/social/political/economic/environmental justice can inform a practice that is critically aware and honors the local community. Tapping into the lived experiences of YCS students allowed the presenters to: create curriculum that is grounded in connections to students' lives and communities; begin to see community strengths instead of deficits; begin to place and understand community challenges within a complex interaction of history, politics, and culture; and examine their stereotypes and preconceived notions about Ypsilanti. Therefore, presenters will share their photo voice projects and reflections during this session.

POSTER SESSION 2 – ROOM 310 A/B – 11 A.M.-11:45 A.M. & 1:30 P.M.- 2:15 P.M.

Are 'Work Samples' Value-Added?

Carolynn Lynn Lofton

Martha Baiyee, faculty mentor

Are "Work Samples" value-added as a performance-based assessment for early childhood development? Many strategies can be used to conduct performance-based evaluation such as games, directed assignment, interviews, contract, projects, etc. Performance-based assessment with young children has been a constant theme among educators. This presentation will take an in-depth look at work samples, a particular type of performance-based assessment, as an alternative assessment for early childhood development.

ORAL SESSION D — STUDENT ART GALLERY — 3:30 P.M.

Run for Your Life: Popular Music & Rape Culture

Chadwick Noellert

Christopher G. Robbins, faculty mentor

There is a dialectical relationship between culture and artifacts. Artifacts emerge from a cultural context, and in turn inform the ways in which their cultural context changes over time. This presentation looks at recorded popular music as an artifact in this regard; in particular it considers how the lyrics of many popular songs reinforce and normalize rape culture. The Women's Center at Marshall University defines rape culture as "an environment in which rape is prevalent and in which sexual violence against women is normalized and excused in the media and popular culture." A number of well-known songs are discussed as examples of thusly problematic lyrics.

ORAL SESSION A — ROOM 330 — 9:15 A.M.

Concepts to Go!: Extending Early Literacy Practice to the Home

Melanie Prince

Christina Mirtes, faculty mentor

"Concepts to Go!" is a funded project which includes 80 custom bags containing developmentally appropriate early childhood education (PreK-3) books and materials to support early literacy and intentional teaching in the content areas (Language Arts, Science, Social Studies, etc.). This presentation will focus on an extension of the bags to preschool children and their families. Data will be gathered on current at-home reading practices and on the understanding of reading practices at home with children after having experienced the "Concepts to Go!" literacy exercise. Current research on promoting early literacy and family engagement along with findings of the project will be shared.

ORAL SESSION D — ROOM 204 — 3:45 P.M.

COLLEGE OF HEALTH AND HUMAN SERVICES

SCHOOL OF HEALTH PROMOTION AND HUMAN PERFORMANCE

Mechanism and Prevention of Overuse Injury Among Youth

Female Gymnasts

Hallee Ellefson

Anthony Moreno, faculty mentor

An estimated 4.8 million female youth athletes participate in the sport of gymnastics, many of whom begin at a young age. Exposure to repetitive and dynamic movements in combination with long hours of training gives rise to the risk of injury, specifically overuse injuries. This injury risk creates a great concern for athletes, parents, coaches, and those within the sports medicine community. The purpose of this epidemiological review is to assess mechanisms, incidence, and frequency of overuse injury among female youth gymnasts. Understanding these injury mechanisms may help in the development of injury prevention programs and reduce the number of overuse injuries associated with this sport.

ORAL SESSION D — AUDITORIUM — 3:30 P.M.

Effective Mindfulness: Parenting Interventions for Improving the Parent-Child Relationship

Dakota Gurskey

Tricia Foster & Jennifer Farley, faculty mentors

Recent research on mindfulness programming suggests its effectiveness in improving parental mental health and parent-child relationships. Young mothers may benefit from mindfulness programs as they are vulnerable to decreased wellbeing. This literature review aims to identify effective mindfulness interventions to support mothers and strengthen the parent-child relationship. The review will prioritize articles that include interventions for high risk, young mothers with children six years or younger. The results will be used to aid in the development of a mindfulness-based program to support young, high risk mothers and their children affiliated with local community organizations.

POSTER SESSION 3 – ROOM 310 A/B – 2:45 P.M.- 4:15 P.M.

Marijuana: History, Medical Uses, and Future Challenges

Addison Jendza

Joan Cowdery, faculty mentor

Marijuana consists of the dried leaves of the cannabis plant. Cannabis can be used as a material for clothing and rope and can even be a component in health and beauty products. Marijuana's complicated history in the United States began with it being included as an ingredient in medicines. Eventually, marijuana became highly taboo and illegal, but it is slowly becoming legalized medically and recreationally. Legal barriers prevent research on marijuana, making it difficult for all its benefits and detriments to be known and proven. This presentation will explore the political, health, and societal issues surrounding marijuana and the challenges it will present in the future.

ORAL SESSION A — ROOM 204 — 9:30 A.M.

Influence of Jump Landing Condition on Ground Reaction Force (GRF) and Knee Joint Flexion

Emily Klinkman

Anthony Moreno, faculty mentor

Injury to the Anterior Cruciate Ligament (ACL) is a traumatic sports-related condition. About 1 in 3000 people in the United States suffer an ACL tear every year. At highest risk are active, young, females with a two- to ten-fold greater risk than their male counterparts. Injury to the ACL is associated with knee pain, instability, and long-term disability. The purpose of this study is to examine biomechanical factors of the knee among recreational female participants, performing jumps with both anticipated and unanticipated landing conditions. Results will contribute to understanding the injury mechanism and guide appropriate injury prevention strategies in the sport and clinical setting.

POSTER SESSION 1 – ROOM 310 A/B – 9 A.M.- 10:30 A.M.

The Food Desert of Ypsilanti, Michigan – What We Can Do

Maria Tout

Jeffrey Schulz, faculty mentor

Food insecurity as defined by the USDA is the status of being unable to obtain food to meet the needs of the members of a household or uncertainty of one's ability to do so. In 2017, 11.8% of households in the United States fell under this definition of food insecurity at some point of the year. Within Michigan itself, over a million residents of the state are food insecure. According to the Robert Wood Johnson Foundation's County health rankings, Washtenaw ranks 4th out of 83 counties for health outcomes. However, many geographical disparities exist within Washtenaw county itself, shown especially in the neighboring cities of Ann Arbor and Ypsilanti. This project will evaluate the severity of the food desert in Ypsilanti. With this information, we will propose policy changes as well incentives for businesses in the area to help solve the food insecurity of Ypsilanti, Michigan.

POSTER SESSION 1 – ROOM 310 A/B – 9 A.M.- 10:30 A.M.

SCHOOL OF HEALTH SCIENCES

Dietary and Lifestyle Behaviors of Bangladeshi-Americans in Southeast Michigan

Dina Haque

Anahita Mistry, faculty mentor

The Metro-Detroit area is home to one of the largest populations of Bangladeshi-Americans in the US. Immigrants from South Asia typically have a greater risk for chronic diseases such as diabetes and cardiovascular disease. However, there is not much known about the overall health or lifestyle of the Bangladeshi population of Michigan. The aim of this study was to investigate the dietary and lifestyle behaviors of this population and compare them with the recommended federal guidelines. A culturally appropriate survey was designed and completed by adult residents of Bangladeshi descent from Michigan. Findings on the health status, diet and lifestyle habits of participants will be presented.

POSTER SESSION 1 – ROOM 310 A/B – 9 A.M.- 10:30 A.M.

Health Outcomes for Low-Income Older Adults with Diabetes who Receive Services from Meals on Wheels

Monyca L. Johnson

Sarah E. Walsh, faculty mentor

The purpose of this study is to determine how factors such as income, race, and receiving services from Meals on Wheels impact the hospitalization rate of older adults with diabetes. For this presentation, data from National Health and Aging Trends Study (NHATS) will be used to test our hypothesis that among older adults with diabetes, low-income individuals are more likely to be hospitalized, but support services like Meals on Wheels may help offset that excess risk. As the population continues to age, and more and more older Americans face one or more chronic diseases like diabetes, it is imperative to have an understanding of the risks this particular population faces.

ORAL SESSION B — ROOM 350 — 10:45 A.M.

An Antimicrobial Agent Found in Over-The-Counter Nasal Sprays

Carolyn Lammers

Lynne Shetron-Rama, faculty mentor

Over-The-Counter moisturizing nasal sprays were tested to investigate antimicrobial properties. The active ingredient of one spray was tested against various microorganisms commonly found in the nose, including *Streptococcus pneumoniae* and Methicillin-resistant *Staphylococcus aureus* (MRSA). Using a 5 hour time kill, a disc diffusion, and a minimum inhibitory concentration assay it was discovered that the ingredient shows antimicrobial activity against MRSA, *Klebsiella pneumoniae*, and *S. pneumoniae*. These results indicate that this could perhaps be a promising tool against drug-resistant pathogens such as MRSA, which present a growing threat to human health.

POSTER SESSION 2 – ROOM 310 A/B – 11 A.M.-11:45 A.M. & 1:30 P.M.- 2:15 P.M.

Multi-Drug Resistant Bacteria and Their Impact on Healthcare

Carolyn Lammers

Beverly Mihalko, faculty mentor

Multi-drug resistant (MDR) microorganisms are a critical threat to human health. These organisms arise through a variety of mechanisms and can spread rapidly. Thousands of people die each year from MDR infections, many of which are hospital acquired. Without intervention and the discovery of new antimicrobial agents, an estimated ten million people will die annually of drug-resistant infections by the year 2050. I will discuss the mechanisms of antibiotic resistance, how resistance spreads, notable MDR organisms and their impact on healthcare, and the outlook for the future.

ORAL SESSION A — ROOM 204 — 9:15 A.M.

SCHOOL OF NURSING

Arteriovenous Malformation of the Uterine Cervix During Pregnancy

Irene D. Hagen

Vicki Washington, faculty mentor

Arteriovenous malformation (AVM) of the uterine cervix is an extremely rare condition with only two documented cases of occurrence during pregnancy. AVM is an abnormal connection between an artery and a vein resulting in an enlarged blood vessel on the cervix. The AVM condition may be asymptomatic. However, in a pregnant uterus AVM can lead to massive hemorrhage during or after childbirth. Bleeding was the first indicator of the condition in both documented cases. Cervical AVM is detected via X-ray after injecting dye into the blood vessel. Treatment consists of sealing the blood vessel with constriction or an adhesive. Surgery is avoided to prevent bleeding and loss of fertility.

POSTER SESSION 1 – ROOM 310 A/B – 9 A.M.- 10:30 A.M.

Nurse to Patient Ratio Effects on Patient Readmission Rates

Griffen Hemingsen

Jennifer Avery and Franklin Schaller, faculty mentors

Large hospitals are always trying to find ways to save money. One way of saving money is by giving nurses more patients to take care of; however, increasing nurse patient ratios can actually cost hospitals more money. The purpose of this poster is to demonstrate how nurse patient ratios relate to patient outcomes. When nurse patient ratios increase so do patient readmission rates which can cost billions each year. A number of articles show lower nurse patient ratios result in saving money for hospitals and better results for patients.

POSTER SESSION 3 – ROOM 310 A/B – 2:45 P.M.- 4:15 P.M.

Peripherally Inserted Central Catheters, Complications, and the Nurses' Role in Risk Reduction

Laura Laurenzano

Jennifer Avery and Frank Schaller, faculty mentors

Peripherally Inserted Central Catheters (PICCs) have become a popular choice due to the incorrect perception the central line associated bloodstream infection (CLAB-SI) rates were lower than traditional central venous devices. Recently an effective and standardized protocol was created and instituted by the Institute for Health Improvement (IHI) in collaboration with the Joint Commission (TJC). Although risks associated with PICCs are high, this poster will demonstrate by understanding them, identifying their causes, and following proper training and evidence-based practices nurses can significantly reduce negative outcomes for their patients.

POSTER SESSION 3 – ROOM 310 A/B – 2:45 P.M.- 4:15 P.M.

Non-Pharmacological Solutions to Improving Hypertension

Jessica Moore

Jennifer Avery and Frank Schaller, faculty mentors

Recently, there has been an upward trend of clients using homeopathic methods to treat illnesses, rather than treating them solely with pharmacological solutions. Specifically, nurses can play a large role with this paradigm shift as it relates to hypertension. This is important because hypertension is a common disease that affects many people and homeopathic treatments could have huge impacts for the lifestyle of the patient. The purpose of this poster is to demonstrate some ways to supplement medicinal solutions to hypertension such as maintaining a healthy diet, becoming more active, and consuming flax seed.

POSTER SESSION 3 – ROOM 310 A/B – 2:45 P.M.- 4:15 P.M.

SCHOOL OF SOCIAL WORK

Benefits of Person-Center Planning in a Community Mental Health Setting

Alex Barich

Cristina Marsack-Topolewski, faculty mentor

This project will be an oral presentation describing person-centered planning. Person-center planning is a method that is essential to effective social work practice. This presentation will explain what person-centered planning is, how and why it is used, and in what settings it is typically used. The information presented will be obtained from peer-reviewed journal articles and based on my field practicum experiences interning as a social work intern case manager for Lenawee Community Mental Health Authority.

ORAL SESSION A — ROOM 352 — 10 A.M.

From Intervention to Impact: Exploring the Impact of Mentoring in K-12 Schools

Desiree Drake

Celeste Hawkins, faculty mentor

The Making Youth Matter Mentoring Program is program implemented by Dr. Celeste Hawkins and Dr. Sarah VanZoeren, developed as an intervention to interrupt the school-to-prison pipeline. This term describes the way failing education systems channel poor and minority youth toward a future of crime and incarceration. Research shows the importance of this issue by providing interventions such as mentoring, after-school programs or in school behavioral interventions to counter this alarming trend. This literature review will focus on zero tolerance policies, the school-to-prison pipeline, and the impact of mentoring as an intervention with students in K-12 schools who may face challenges.

ORAL SESSION D — STUDENT ART GALLERY — 3:15 P.M.

The Impact of Mentoring on Youth Facing Challenges in School

Brianna M. Jones

Celeste Hawkins, faculty mentor

This project will examine the impact of mentoring as an intervention to support students who are facing academic, social, or emotional challenges in school and are at greater risk of entering the school-to-prison pipeline (STPP). There is a gap in the literature on how mentoring can promote positive outcomes among students in and out of school who are at greater risk of entering the STPP. This literature review will focus on zero-tolerance policies, STPP, and the impact of mentoring on school aged youth as an intervention to support students who are facing challenges in school.

ORAL SESSION D — STUDENT ART GALLERY — 3 P.M.

The Importance of Volunteerism

Victoria Anne Rife

Robert Miller, faculty mentor

For organizations and communities, recruiting and retaining volunteers is crucial. In recent years, rates of volunteering have been slightly dropping and that is a problem for agencies and organizations that rely heavily on the free services given through active volunteerism. The question becomes: How do we encourage volunteerism? The importance of volunteering, recruiting, and volunteer retention techniques will be discussed.

POSTER SESSION 1 – ROOM 310 A/B – 9 A.M.- 10:30 A.M.

Child Sex Tourism and Its Effect on Youth

Shannon Straub

David L. Manville, faculty mentor

CST is the commercial sexual exploitation of children, and affects millions of children each year. It is a growing problem in which persons may travel to another country to engage in sex with a minor child. The research presented will cover the issue itself and the direct and collateral consequences it causes for the children and the rest of society. Viewers will see how this affects everyone, including why advocates are fighting for a change in the terminology surrounding this global issue. Viewers will gain insight on how CST is actively being fought, understand the vast numbers of affected persons and receive information on how to join the fight against human trafficking itself.

POSTER SESSION 1 – ROOM 310 A/B – 9 A.M.- 10:30 A.M.

Homelessness Among College Students: A Literature Review

John Wilkerson

Caren Putzu, faculty mentor

Homelessness is a pervasive problem in the United States. One population that is often overlooked is college students. This literature review will explore what is known about homelessness among college students including causes and consequences, and the relevant policies. It will also discuss what is not known about this issue.

ORAL SESSION C — AUDITORIUM — 2:15 P.M.

The Caregiver's Guide to Down Syndrome: Supporting and Celebrating Loved Ones with Trisomy 21

Madeleine Ruth Wolfe

Christina N. Marsack- Topolewski, faculty mentor

Although Down syndrome affects more than 400,000 Americans, it remains clouded by bias and misinformation. In place of support and celebration of new life, diagnoses are too often met with awkwardness and negativity in both healthcare and general society. Every medical appointment exposes caregivers to an overwhelming flood of information filled with jargon, causing undue anxiety and even despair. This guide, a literary analysis written in layman's terms, aims to serve three purposes: To provide accurate information in accessible language, to offer a positive perspective as a counterbalance to negative stereotypes, and to uphold the dignity of individuals with Down syndrome.

ORAL SESSION A — ROOM 352 — 9:45 A.M.

COLLEGE OF TECHNOLOGY

SCHOOL OF ENGINEERING TECHNOLOGY

3D Printed Polypropylene Transtibial Sockets: Mechanical Behavior

Avery Dumas

Lamar Stewart, faculty mentor

This project illustrates the material behavior of a transtibial socket made from polypropylene and manufactured from the fused deposition modeling (FDM) additive manufacturing process. As part of this investigation, a tensile test specimen was stamped from 7 lower limb prosthetic sockets perpendicular to the printed direction and tested according to ASTM D638. From the measured load-elongation data, stress-strain curves and the corresponding material properties were determined, including: modulus of elasticity E , Poisson's ratio ν , yield strength S_y , and ultimate strength S_u . The average values for each of these material properties were 477 MPa, 0.2, 9.7 MPa, and 16.4 MPa, respectively.

POSTER SESSION 2 – ROOM 310 A/B – 11 A.M.-11:45 A.M. & 1:30 P.M.- 2:15 P.M.

SCHOOL OF INFORMATION SECURITY & APPLIED COMPUTING

Characterization and Uses of 3D Animation in Film and Comics

Alex Peplinski

Bilquis Ferdousi, faculty mentor

The new field of 3D computer design is an ambitious form of art production that conserves human energy in creation of film and comics. Computers can produce pre-visualization 3D sample that will completely revolutionize art production and activity allowing rapid high quality production in other forms of art as well. Using mobile phones, 3D design is possible in still and animated forms simultaneously in comic books. In present work, we investigate the 3D design process and implementation into art media. This presentation will focus on: 1) How 3D computer design is implemented in art production, 2) How pre-visualization using 3D rendered samples can be a base planning tool to save time and energy in creation of art.

ORAL SESSION A — STUDENT ART GALLERY — 9:30 A.M.

SCHOOL OF VISUAL & BUILT ENVIRONMENTS

Green Shelter

Louis Beaubien and Hannah Pickett

Shinming Shyu, faculty mentor

The Green Shelter is a project designed to be transportable and easily set up after a massive natural disaster. It is built to be self-sustaining, solar panels along the roof to power the house and the appliances inside, a butterfly shape for the roof is built to catch and filter rainwater and the flat half of the roof allows for a garden space to be made. This project also has to be ADA-compliant. It needs to be a space for anyone to use so a ramp is placed to allow for wheelchair access. The interior space has a modern design and uses renewable materials to make replacements cheaper.

DESIGN EXPO – ROOMS 300/301/302 – 9 A.M.- 4 P.M.

The Black and Beautiful Club: The Fashion Culture of the Harlem Renaissance

Jasmine Annette Billings

Holly Mosher and Julie Becker, faculty mentors

My independent study project is a PowerPoint presentation on me giving history of the fashion of the black renaissance era. I will discuss the significant role fashion played in the Harlem renaissance for African Americans during this era and how it plays a significant role in today's era.

ORAL SESSION B — STUDENT ART GALLERY — 11 A.M.

Sustainable Home 3D Maquette

Alondra Chavez and Christin Kikkert

Shinming Shyu, faculty mentor

The sustainable shelter design is intended to serve families who have lost their home to natural disasters such as a hurricane, tornado, or wildfire. With dimensions of 60' long by 14' wide, this home can be transported via highway system. The shelter incorporates solar panels to generate renewable energy, and a rain collection system for plant irrigation. Fixtures and appliances have earned either Energy Star or WaterSense status. Further, the design uses only recyclable materials. The comfort of the design will be able to provide a stable family home for as long as needed.

DESIGN EXPO – ROOMS 300/301/302 – 9 A.M.- 4 P.M.

Sustainable Shelter

Kelly Dykstra and Alaa Bakkar

Shinming Shyu, faculty mentor

The proposed project is designed for families who lost their homes to natural disasters. This shelter can be transported via highway system. To address the environmental challenges and natural resource scarcity, the design adopts sustainable strategies, such as energy efficiency, passive design and reusable materials. This shelter also includes renewable energy generation equipment like solar panels to reduce reliance on the grid system. Further, to facilitate the potential use by persons with disability, this house is designed to be ADA accessible.

DESIGN EXPO – ROOMS 300/301/302 – 9 A.M.- 4 P.M.

A Study of Residential Design Trends in Office Environments

Elizabeth Ehinger

Jiang Lu and Diane Guevara, faculty mentors

This project focuses on how office design has been influenced by residential design trends over the past two decades. Research evidence will be provided to show the social and technological factors that have driven the shift toward offices with a residential atmosphere. Virtual reality will be used so that the viewer can experience firsthand an office that incorporates residential design themes.

DESIGN EXPO – ROOMS 300/301/302 – 9 A.M.- 4 P.M.

Jacket: From 2D to 3D, using CAD to Design Clothing

Brenna Eldridge

Julie Becker, faculty mentor

A presentation on using CAD Gerber Software to take a jacket from pattern to product. Each step is documented — designing the pattern pieces, digitally inputting pattern pieces, completing an order, setting the pattern marker and the final three-dimensional product created from paper.

DESIGN EXPO – ROOMS 300/301/302 – 9 A.M.- 4 P.M.

Bag Design Using Computer Aided Design (CAD) Software - From Idea Inception to Prototype Fruition

Timothy J. Healy

Julie Becker, faculty mentor

With the creation of CAD software, the design industry has evolved, and greatly influences the work done in a plethora of industries including automobiles, medicine, architecture, and apparel. At Eastern Michigan University, the Apparel, Textiles, & Merchandising program offers students the technology to learn CAD for use within the apparel and textile industry. Using the Gerber CAD Software, students explore the design and prototype creation process from a technology based perspective. Here, you will see the creative process involved in the new wave of design using the Gerber CAD Software, from inception to fruition.

DESIGN EXPO – ROOMS 300/301/302 – 9 A.M.- 4 P.M.

Building Renovation of Lane Hall

Holly Jasinski and Haley Harris

Shinming Shyu, faculty mentor

Lane Hall is located at The University of Michigan and is used for women's studies. The goal was to integrate new design schemes and purpose. Our plan involves creating a place where people can come to enhance their lifestyle through balance. We chose to use an octagon as a recurring element to symbolize regeneration, rebirth, and transition. Because rebirth is the main theme it's appropriate for people to be able to walk into this building and have the resources to recreate themselves in a positive and healthy way. The color scheme includes a mix of earthy-tones, textures, and warmth. The new design is perfect for those looking to shake up their lifestyle or continue on a healthy path.

DESIGN EXPO – ROOMS 300/301/302 – 9 A.M.- 4 P.M.

Transportation of the Future: An Analysis of Hyperloop Technology Integration

Kai Le

Paul Majeske, faculty mentor

In June of 2000, the California High-Speed Rail Authority (CHSRA) released a business plan detailing the implementation of a high-speed rail system in California to reduce traffic between San Francisco and Los Angeles (California High-Speed Rail Authority, 2019). In response to the proposed "high speed bullet train," Elon Musk published 'Hyperloop Alpha' (2013), a white paper revealing hyperloop, a theoretical mass transit system that is faster than the proposed bullet train. This research seeks to analyze issues concerning the cost, safety and environmental impact of bullet trains while highlighting the benefits of utilizing hyperloop technology in place of the California High-Speed Rail.

POSTER SESSION 3 – ROOM 310 A/B – 2:45 P.M.- 4:15 P.M.

Fashion Forecasting and Winter 2019 Collection

Lauren McDonald

Holly Mosher, faculty mentor

The focus of my research is on the use of fashion and trend forecasting in the apparel industry. I am studying the products and services that fashion forecasting companies offer to their clients and how they influence what consumers buy throughout each year. With the use of the products from Doneger and Pantone I have created a winter collection of clothing to show how forecasting can directly influence a designer and their future consumers.

DESIGN EXPO – ROOMS 300/301/302 – 9 A.M.- 4 P.M.

2D/3D Space Development

Eveline Que

Deborah deLaski-Smith, faculty mentor

2D/3D Space Development tests students to design a model following The Golden Mean for proportions and Kevin Lynch's components (paths, edges, districts, nodes, landmarks), while keeping human scale in mind. This model includes a circular path of movement around the pond, shown by benches, pavilion, and trees. The benches and pavilion create an edge to the design, limiting how far guests may go. Districts are represented by the pavilion and two triangular corner benches. The waterfall and stepping stones are portrayed as nodes, as they are key focal points. Including the waterfall and pavilion onto this model creates landmarks, as these are the two areas that will attract the most people.

DESIGN EXPO – ROOMS 300/301/302 – 9 A.M.- 4 P.M.

2D/3D Space Development Model

Lena Thornton

Deb deLaski-Smith, faculty mentor

The aim of this project was to use a grid of golden section (1:1.618) to create a public outdoor area that encompasses Kevin Lynch's elements of legibility: paths, edges, districts, nodes, and landmarks. Paths, or clearly defined channels of travel, are incorporated to and from the various areas within the space. Edges, or boundaries that preclude travel, are formed by the covered areas, half walls, and borders of the pool. Districts, or large readily identifiable elements, are the pool, garden, and covered areas. Nodes, or well-known points, include the pool and seating areas. Finally, landmarks, or easy to see elements used for location orientation, are represented by the flower pots.

DESIGN EXPO – ROOMS 300/301/302 – 9 A.M.- 4 P.M.

The Showroom VR: an Introduction to Building in Virtual Reality

Macallan Winning

Pamela Speelman and Corbin Reeves, faculty mentors

Virtual Reality (VR) simulations allow the user to access experiences they might otherwise not be able to. For example, VR could allow a user to visit a virtual showroom to view an automobile they might be interested in purchasing, even if they couldn't physically make it to an actual showroom. We have constructed such a virtual showroom, in which users can select a car model from a menu. The selected model then appears full scale on a platform that can be rotated through 360 degrees and therefore viewed from any angle. We will be presenting a demonstration of the showroom while describing its utility.

DESIGN EXPO – ROOMS 300/301/302 – 9 A.M.- 4 P.M.

Whispering Rock Multi-Use Facility

Justin C. Wright

Shinming Shyu, faculty mentor

Adaptive reuse has been identified as a principal measure to minimize construction waste. The present project "Whispering Rock" is a design intended to repurpose the function of Lane Hall located in downtown Ann Arbor into a multi-use facility. The goal of the project is to promote healthy lifestyle and to enhance awareness of different cultures on the planet. Through the introduction of a centrally located rock-climbing wall, the concept of Whispering Rock is materialized. Further, the design is able to bring natural light in, reduce lighting energy use and provide generous views of the city.

DESIGN EXPO – ROOMS 300/301/302 – 9 A.M.- 4 P.M.

THANK YOU

Our appreciation is extended to the following Eastern Michigan University offices and individuals who contribute annually to the success of the event:

Elijah Bobo and Emmalene Meyers, graphic design student designers, and faculty mentor Leslie Atzmon, Art & Design

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We extend a special thank you to Steinway Piano Gallery of Detroit for their support to provide a Steinway piano for student performances.

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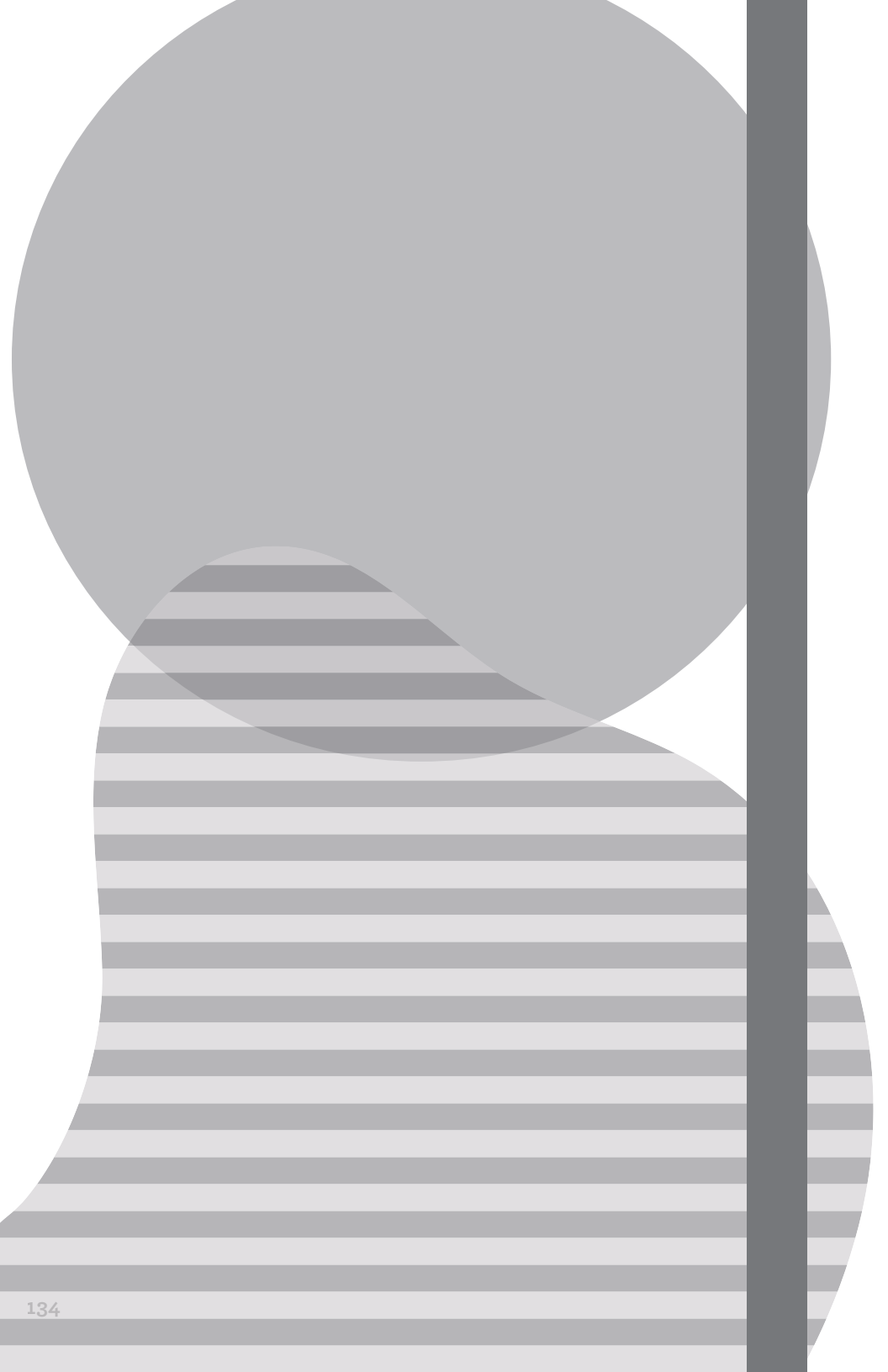
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INDEX

Abdrabbo, Sara	Poster Session 1 – Room 310 A/B – 9 a.m.- 10:30 a.m.	51
Acluche, Frantzy	Poster Session 1 – Room 310 A/B – 9 a.m.- 10:30 a.m.	98
Ali, Khaled	Oral Session A — Room 204 — 10 a.m.	40
Anderson, Natalia	Oral Session D — Room 204 — 4 p.m.	77
Andrews, Randy V.	Oral Session B — Room 304 — 11:30 a.m.	65
Andrusiak, Gwentyth	Oral Session C — Room 320 — 2 p.m.	65
Angriawan, Megan	Oral Session B — Auditorium — 10:45 a.m.	88
Aniapam, Adjoa	Poster Session 3 – Room 310 A/B – 2:45 p.m.- 4:15 p.m.	51
Ashur, Fadwa	Oral Session C — Room 320 — 2:15 p.m.	91
Augustiniak, Alyssa	Poster Session 1 – Room 310 A/B – 9 a.m.- 10:30 a.m.	98
Baghdadi, Sara	Poster Session 1 – Rooms 310 A/B – 9 a.m. – 10:30 a.m.	36
Bakkar, Alaa	Design Expo – Rooms 300/301/302 – 9 a.m.- 4 p.m.	122
Balavitch, Ani	Poster Session 2 – Room 310 A/B – 11 a.m.-11:45 a.m. & 1:30 p.m.- 2:15 p.m.	109
Barich, Alex	Oral Session A — Room 352 — 10 a.m.	118
Barkume, Hallie	Oral Session B — Room 350 — 11:15 a.m.	68
Barnaclo, Olivia	Oral Session B — Auditorium — 11:30 a.m.	88
Bean, Anthony	Poster Session 1 – Room 310 A/B – 9 a.m.- 10:30 a.m.	65
Beaubien, Louis	Design Expo – Rooms 300/301/302 – 9 a.m.- 4 p.m.	121
Beckom II, Sean	Poster Session 3 – Room 310 A/B – 2:45 p.m.- 4:15 p.m.	97
Begeman, Sydney	Poster Session 3 – Room 310 A/B – 2:45 p.m.- 4:15 p.m.	51
Beggs, Amanda	Design Expo – Rooms 300/301/302 – 9 a.m.- 4 p.m.	34
Benson, Breanna	Design Expo – Rooms 300/301/302 – 9 a.m.- 4 p.m.	30
Berger, Bethany	Design Expo – Rooms 300/301/302 – 9 a.m. – 4 p.m.	33
Bernstein, Shanti N.G.	Oral Session D — Room 352 — 3:30 p.m.	37
Bertram, Sarah	Oral Session A — Room 330 — 10 a.m.	30
Bete, Sister Maria Benedicta	Oral Session A — Room 304 — 9:15 a.m.	77
Billings, Jasmine Annette	Oral Session B — Student Art Gallery — 11 a.m.	121
Birkle, Bradley	Oral Session A — Room 350 — 9:15 a.m.	78
Bobee, Chayton	Design Expo – Rooms 300/301/302 – 9 a.m.- 4 p.m.	58
Bobo, Elijah	Design Expo – Rooms 300/301/302 – 9 a.m.- 4p.m.	34
Bogen, Will	Oral Session A — Student Art Gallery — 9:15 a.m.	58
Bolton, Christine	Oral Session A — Room 330 — 9:30 a.m.	31
Book, Austin	Oral Session B — Room 352 — 10:45 a.m.	69
Booth, Aysia	Oral Session D — Room 320 — 3:30 p.m.	73
Bostley, Scout	Oral Session D — Room 204 — 3:15 p.m.	69
Bower, Andrew	Poster Session 2 – Room 310 A/B – 11 a.m.-11:45 a.m. & 1:30 p.m.- 2:15 p.m.	52
Bower, Andrew	Poster Session 3 – Room 310 A/B – 2:45 p.m.- 4:15 p.m.	52
Boynnton, Austin J.	Oral Session A — Room 352 — 9:30 a.m.	98
Brenneman, Hannah	Oral Session A — Student Art Gallery — 9 a.m.	59
Brenneman, Hannah	Poster Session 2 – Room 310 A/B – 11 a.m.-11:45 a.m. & 1:30 p.m.- 2:15 p.m.	108
Brenton, Amber	Poster Session 2 – Room 310 A/B – 11 a.m.-11:45 a.m. & 1:30 p.m.- 2:15 p.m.	59
Brooks, Chocolate	Oral Session B — Student Art Gallery — 10:45 a.m.	87

Brooks, Leah	Oral Session C — Room 304 — 1:45 p.m.	70	Dumas, Avery	Poster Session 2 – Room 310 A/B – 11 a.m.-11:45 a.m. & 1:30 p.m.- 2:15 p.m.	120
Brown, Kelly	Poster Session 2 – Room 310 A/B – 11 a.m.-11:45 a.m. & 1:30 p.m.- 2:15 p.m.	73	Dykstra, Kelly	Design Expo – Rooms 300/301/302 – 9 a.m.- 4 p.m.	122
Brydie, Ayanda	Oral Session B — Student Art Gallery — 10:30 a.m.	88	Eaton, Valerie	Design Expo – Rooms 300/301/302 – 9 a.m.- 4 p.m.	35
Bukva, Edin	Oral Session C — Room 330 — 1:30 p.m.	92	Ebersole, Wolfgang	Poster Session 2 – Room 310 A/B – 11 a.m.- 11:45 a.m. & 1:30 p.m. – 2:15 p.m.	39
Burke, Hannah	Design Expo – Rooms 300/301/302 – 9 a.m.- 4 p.m.	59	Ehinger, Elizabeth	Design Expo – Rooms 300/301/302 – 9 a.m.- 4 p.m.	122
Burks, Glenise	Poster Session 3 – Room 310 A/B – 2:45 p.m.- 4:15 p.m.	52	Eldridge, Brenna	Design Expo – Rooms 300/301/302 – 9 a.m.- 4 p.m.	122
Burks, Glenise	Poster Session 3 – Room 310 A/B – 2:45 p.m.- 4:15 p.m.	53	Ellefsen, Hallee	Oral Session D — Auditorium — 3:30 p.m.	113
Bush, Nailah	Oral Session D — Room 330 — 3p.m.	29	Farris, Lauren	Poster Session 1 – Rooms 310 A/B – 9 a.m.- 10:30 a.m.	39
Campbell, Craig	Oral Session B — Room 304 — 11 a.m.	67	Fayak, Christian	Poster Session 2 – Room 310 A/B – 11 a.m.-11:45 a.m. & 1:30 p.m.- 2:15 p.m.	112
Campeau, Joshua	Oral Session A — Room 320 — 9:30 a.m.	78	Feld-Mathieu, Abigail	Design Expo – Rooms 300/301/302 – 9 a.m.- 4 p.m.	31
Cantalamisa, Providence	Design Expo – Rooms 300/301/302 – 9 a.m.- 4p.m.	34	Ferrante, Savannah C.	Oral Session D — Room 330 — 3:30 p.m.	93
Card-Nowlin, Shayla	Oral Session B — Student Art Gallery — 10:45 a.m.	87	Fisher, Sarah	Oral Session D — Room 320 — 3:15 p.m.	79
Card-Nowlin, Shayla	Poster Session 3 – Room 310 A/B – 2:45 p.m.- 4:15 p.m.	60	Flickema, Adam	Poster Session 1 – Room 310 A/B – 9 a.m.- 10:30 a.m.	67
Castle, Claire	Oral Session B — Auditorium — 10:30 a.m.	89	Floyd, Matthew R.	Poster Session 3 – Room 310 A/B – 2:45 p.m.- 4:15 p.m.	85
Chakraborty, Ronith	Oral Session A — Room 350 — 9:45 a.m.	53	Ford, Dallas	Oral Session C — Auditorium — 1:30 p.m.	102
Chall, Autumn	Oral Session B — Room 352 — 10:30 a.m.	98	Ford, Mariah	Poster Session 3 – Room 310 A/B – 2:45 p.m.- 4:15 p.m.	53
Chall, Autumn	Oral Session D — Room 204 — 3:30 p.m.	105	Garska, Nicholas	Oral Session C — Room 330 — 2 p.m.	85
Chavez, Alondra	Design Expo – Rooms 300/301/302 – 9 a.m.- 4 p.m.	122	Gaydos, Jayde	Poster Session 2 – Room 310 A/B – 11 a.m.- 11:45 a.m. & 1:30 p.m. – 2:15 p.m.	40
Cherney, Madeleine	Poster Session 2 – Room 310 A/B – 11 a.m.-11:45 a.m. & 1:30 p.m.- 2:15 p.m.	109	Gebrehiwot, Dawit	Oral Session A — Room 204 — 10 a.m.	40
Chiparus, Selena	Poster Session 2 – Room 310 A/B – 11 a.m.- 11:45 a.m. & 1:30 p.m. – 2:15p.m.	37	Gibson, Keypathwa	Design Expo – Rooms 300/301/302 – 9 a.m.- 4 p.m.	31
Clouthier, Camren	Design Expo – Rooms 300/301/302 – 9 a.m.- 4 p.m.	60	Gilliam, Marisa E.	Poster Session 1 – Room 310 A/B – 9 a.m.- 10:30 a.m.	54
Colavito, Mia	Oral Session B — Room 204 — 10:45 a.m.	78	Gillis, Tom	Poster Session 1 – Room 310 A/B – 9 a.m.- 10:30 a.m.	54
Collins, Blake	Poster Session 2 – Room 310 A/B – 11 a.m.-11:45 a.m. & 1:30 p.m.- 2:15 p.m.	110	Gilruth, Kiri	Poster Session 1 – Room 310 A/B – 9 a.m.- 10:30 a.m.	54
Collins, Danny	Oral Session D — Room 204 — 3 p.m.	111	Glaza, Andrew	Poster Session 1 – Room 310 A/B – 9 a.m.- 10:30 a.m.	54
Colvard, Brittny	Poster Session 1 – Room 310 A/B – 9 a.m.- 10:30 a.m.	38	Glowacki, Madolin	Poster Session 1 – Room 310 A/B – 9 a.m.- 10:30 a.m.	41
Coy, Madelaine	Oral Session A — Room 320 — 9:45 a.m.	92	Glynn, Kenneth	Poster Session 2 – Room 310 A/B – 11 a.m.- 11:45 a.m. & 1:30 p.m. – 2:15 p.m.	41
Crenshaw, Mackensi	Oral Session D — Room 204 — 3:15 p.m.	69	Golonka, Jeffrey	Poster Session 1 – Room 310 A/B – 9 a.m.- 10:30 a.m.	60
D'Amico, Aimee	Oral Session C — Room 352 — 2 p.m.	106	Graessley, Elana	Oral Session A — Student Art Gallery — 10 a.m.	67
Dahiya, Mikku	Design Expo – Rooms 300/301/302 – 9 a.m.- 4 p.m.	31	Gray, Paris	Oral Session D — Auditorium — 4 p.m.	102
Davidson II, Omar B.	Oral Session C — Auditorium — 2:30 p.m.	92	Grier, Danisha L.	Oral Session B — Room 204 — 10:30 a.m.	105
Davis-Craig, Elizabeth S.	Design Expo – Rooms 300/301/302 – 9 a.m.- 4 p.m.	31	Guess, Jady S.	Oral Session C — Room 330 — 1:45 p.m.	108
Davis, Jimmy	Oral Session C — Room 204 — 2 p.m.	79	Gurskey, Dakota	Poster Session 3 – Room 310 A/B – 2:45 p.m.- 4:15 p.m.	114
Deiter, Gwenyth	Poster Session 3 – Room 310 A/B – 2:45 p.m.- 4:15 p.m.	61	Hadwick, Austin	Oral Session B — Auditorium — 11:30 a.m.	88
Del Pizzo, T. Dante	Oral Session A — Room 352 — 9 a.m.	110	Hagen, Irene D.	Poster Session 1 – Room 310 A/B – 9 a.m.- 10:30 a.m.	117
Del Pizzo, T. Dante	Oral Session C — Room 304 — 1:30 p.m.	70	Hamilton, Perrece	Oral Session B — Student Art Gallery — 10:45 a.m.	87
Delcamp, Evan	Oral Session B — Room 350 — 11 a.m.	68	Haque, Dina	Poster Session 1 – Room 310 A/B – 9 a.m.- 10:30 a.m.	115
DeLisle, David	Oral Session B — Student Art Gallery — 10:30 a.m.	88	Harris, Haley	Design Expo – Rooms 300/301/302 – 9 a.m.- 4 p.m.	123
Devine, Lara M.	Poster Session 2 – Room 310 A/B – 11 a.m. – 11:45 a.m. & 1:30 p.m. – 2:15 p.m.	38	Harrison, Maxwell	Oral Session D — Student Art Gallery — 4 p.m.	79
Diem-Conlen, Larissa	Oral Session C — Room 304 — 2 p.m.	70	Harvey, Kayla	Oral Session B — Room 320 — 10:30 a.m.	103
Ditchfield, Noelle	Poster Session 1 – Room 310 A/B – 9 a.m.- 10:30 a.m.	98	Haselhuhn, Dallas	Oral Session A — Room 350 — 9 a.m.	42
Doran, Christine	Poster Session 3 – Room 310 A/B – 2:45 p.m.- 4:15 p.m.	39	Haselhuhn, Dallas	Poster Session 3 – Room 310 A/B – 2:45 p.m.- 4:15 p.m.	41
Drabik, Jeremiah	Design Expo – Rooms 300/301/302 – 9 a.m.- 4 p.m.	66	Hatchard, Alexis	Oral Session D — Room 350 — 3:30 p.m.	61
Drake, Desiree	Oral Session D — Student Art Gallery — 3:15 p.m.	118	Hatter, Andrea	Design Expo – Rooms 300/301/302 – 9 a.m.- 4 p.m.	32
Dumas, Avery	Oral Session B — Student Art Gallery — 10:30 a.m.	88	Healy, Timothy J.	Design Expo – Rooms 300/301/302 – 9 a.m.- 4 p.m.	123

Hemingsen, Griffen	Poster Session 3 – Room 310 A/B – 2:45 p.m.- 4:15 p.m.	117	Maier, Sarah	Oral Session B — Room 320 — 11:15 a.m.	93
Henschel, Mitchell	Poster Session 1 – Room 310 A/B – 9 a.m.- 10:30 a.m.	66	Maki, Madeline	Poster Session 3 – Room 310 A/B – 2:45 p.m.- 4:15 p.m.	43
Hillegass, Michael	Poster Session 3 – Room 310 A/B – 2:45 p.m.- 4:15 p.m.	48	Marcil, Emily	Oral Session D — Room 320 — 4 p.m.	80
Holtzen, Sarah N.	Poster Session 3 – Room 310 A/B – 2:45 p.m.- 4:15 p.m.	42	Marsack, Jocelyn	Oral Session D — Room 320 — 3p.m.	43
Jasinski, Holly	Design Expo – Rooms 300/301/302 – 9 a.m.- 4 p.m.	123	Marsh, Alexis	Poster Session 2 – Room 310 A/B – 11 a.m.-11:45 a.m. & 1:30 p.m.- 2:15 p.m.	55
Jendza, Addison	Oral Session A — Room 204 — 9:30 a.m.	114	Marsh, Jared	Oral Session C — Room 304 — 2:15 p.m.	71
Johnson, Monyca L.	Oral Session B — Room 350 — 10:45 a.m.	116	Mason, Zarre’a	Oral Session B — Student Art Gallery — 11:30 a.m.	29
Joice, Autumn	Poster Session 1 – Room 310 A/B – 9 a.m.- 10:30 a.m.	41	Mayhew, Kelly	Oral Session D — Student Art Gallery — 3:45 p.m.	67
Jones, Brianna M.	Oral Session D — Student Art Gallery — 3 p.m.	119	McClary, TeLor	Oral Session B — Room 204 — 11 a.m.	30
Jurczynszyn, Jack	Poster Session 1 – Room 310 A/B – 9 a.m.- 10:30 a.m.	66	McCready, Hannah	Oral Session D — Room 330 — 4 p.m.	33
Katynski, Emily	Oral Session A — Auditorium — 10 a.m.	89	McDonald, Lauren	Design Expo – Rooms 300/301/302 – 9 a.m.- 4 p.m.	124
Kelm, Geoffrey	Oral Session B — Auditorium — 11:15 a.m.	90	McIntyre, Kathryn	Design Expo – Rooms 300/301/302 – 9 a.m.- 4 p.m.	64
Kennedy, Alissa	Oral Session C — Room 352 — 2:15 p.m.	61	Merz, Rachel	Design Expo – Rooms 300/301/302 – 9 a.m.- 4 p.m.	33
Kennedy, Sloane	Poster Session 2 – Room 310 A/B – 11 a.m.-11:45 a.m. & 1:30 p.m.- 2:15 p.m.	74	Merz, Rachel	Poster Session 2 – Room 310 A/B – 11 a.m.-11:45 a.m. & 1:30 p.m.- 2:15 p.m.	75
Khan, Ismet	Poster Session 1 – Room 310 A/B – 9 a.m.- 10:30 a.m.	67	Meyer, Mitchell	Oral Session A — Room 350 — 10 a.m.	55
Kikkert, Christin	Design Expo – Rooms 300/301/302 – 9 a.m.- 4 p.m.	122	Meyers, Emmalene	Design Expo – Rooms 300/301/302 – 9 a.m.- 4p.m.	34
Kilgore, Alex	Poster Session 1 – Room 310 A/B – 9 a.m.- 10:30 a.m.	54	Meyers, Hunter	Design Expo – Rooms 300/301/302 – 9 a.m.- 4 p.m.	31
Killingbeck, Amber	Poster Session 3 – Room 310 A/B – 2:45 p.m.- 4:15 p.m.	61	Minadeo, Leah	Oral Session D — Room 304 — 3:45 p.m.	105
Kilroy, Dillon	Poster Session 2 – Room 310 A/B – 11 a.m.-11:45 a.m. & 1:30 p.m.- 2:15 p.m.	74	Mix, Emmet	Design Expo – Rooms 300/301/302 – 9 a.m.- 4 p.m.	34
Kindred, Rachel	Oral Session A — Room 330 — 9:45 a.m.	32	Mix, Emmett	Design Expo – Rooms 300/301/302 – 9 a.m.- 4 p.m.	35
Kirk, Cassadie	Design Expo – Rooms 300/301/302 – 9 a.m.- 4 p.m.	35	Moore, Jessica	Poster Session 3 – Room 310 A/B – 2:45 p.m.- 4:15 p.m.	118
Klinkman, Emily	Poster Session 1 – Room 310 A/B – 9 a.m.- 10:30 a.m.	114	Mull, Hailey	Design Expo – Rooms 300/301/302 – 9 a.m.- 4p.m.	34
Klux, Madeline	Design Expo – Rooms 300/301/302 – 9 a.m.- 4 p.m.	35	Murphy, Rebecca	Oral Session C — Room 320 — 2:30 p.m.	80
Knight, Bailey	Poster Session 2 – Room 310 A/B – 11 a.m. – 11:45 a.m. & 1:30 p.m.- 2:15 p.m.	42	Neminski, Abigail	Design Expo – Rooms 300/301/302 – 9 a.m.- 4p.m.	34
Kops, Julia	Oral Session D — Room 304 — 3 p.m.	103	Nesbitt, Sam	Oral Session A — Room 304 — 9:30 a.m.	80
Krietemeyer, Emma	Oral Session C — Room 330 — 2:15 p.m.	86	Nichols, David	Oral Session C — Room 320 — 1:45 p.m.	69
Kwaske, Joan	Oral Session C — Room 350 — 1:30 p.m.	71	Noellert, Chadwick	Oral Session A — Room 330 — 9:15 a.m.	112
Lakkis, Aya	Oral Session D — Room 320 — 3:45 p.m.	74	Nowacki, Emily	Oral Session C — Student Art Gallery — 1:45 p.m.	75
Lammers, Carolyn	Oral Session A — Room 204 — 9:15 a.m.	116	Nuttle, Alexander	Oral Session B — Room 320 — 11 a.m.	94
Lammers, Carolyn	Poster Session 2 – Room 310 A/B – 11 a.m.-11:45 a.m. & 1:30 p.m.- 2:15 p.m.	116	O’Chel, Stefany	Oral Session D — Room 350 — 3:15 p.m.	99
Laurenzano, Laura	Poster Session 3 – Room 310 A/B – 2:45 p.m.- 4:15 p.m.	117	Ogden, Jr., Stephen L.	Oral Session C — Student Art Gallery — 2 p.m.	75
Law, Kelsey	Design Expo – Rooms 300/301/302 – 9 a.m.- 4 p.m.	35	Osbourne, Natalie	Oral Session D — Room 304 — 3:15 p.m.	81
Lawrence, Andrew	Poster Session 3 – Room 310 A/B – 2:45 p.m.- 4:15 p.m.	93	Overla, Stephanie	Poster Session 2 – Room 310 A/B – 11 a.m.-11:45 a.m. & 1:30 p.m.- 2:15 p.m.	76
Lawson, Alyssa	Oral Session D — Room 350 — 3:45 p.m.	99	Paoletti, Dominic	Poster Session 1 – Room 310 A/B – 9 a.m.- 10:30 a.m.	44
Le, Kai	Poster Session 3 – Room 310 A/B – 2:45 p.m.- 4:15 p.m.	123	Papanastopoulos, Nikolaos	Oral Session B — Room 304 — 11 a.m.	67
Leidlein, Max	Design Expo – Rooms 300/301/302 – 9 a.m.- 4 p.m.	62	Pathammavong, Anna	Poster Session 3 – Room 310 A/B – 2:45 p.m.- 4:15 p.m.	44
Line, Christoper	Design Expo – Rooms 300/301/302 – 9 a.m.- 4 p.m.	32	Patrick, Daniel	Oral Session C — Room 350 — 2 p.m.	71
Line, Christopher	Design Expo – Rooms 300/301/302 – 9 a.m.- 4 p.m.	34	Patterson, Janay	Poster Session 1 – Room 310 A/B – 9 a.m.- 10:30 a.m.	99
Linton, Sierra	Poster Session 1 – Room 310 A/B – 9 a.m.- 10:30 a.m.	43	Patterson, Yssis	Oral Session B — Room 330 — 11:30 a.m.	94
Lofton,Carolynn Lynn	Oral Session D — Student Art Gallery — 3:30 p.m.	112	Peeler, Lorant	Oral Session D — Room 304 — 3:30 p.m.	62
Lovett, Darrian	Poster Session 3 – Room 310 A/B – 2:45 p.m.- 4:15 p.m.	52	Pellerito, Lillian	Oral Session C — Student Art Gallery — 1:30 p.m.	94
Lozon, Julia	Oral Session B — Room 204 11:15 a.m.	33	Pelletier, Zachariah	Oral Session D — Student Art Gallery — 3:45 p.m.	67
Mace, Gabrielle	Poster Session 3 – Room 310 A/B – 2:45 p.m.- 4:15 p.m.	103	Peplinski, Alex	Oral Session A — Student Art Gallery — 9:30 a.m.	121
Madary, Kelsey	Oral Session C — Room 352 — 1:45 p.m.	106	Perdomo Garcia, María Paula	Oral Session B — Student Art Gallery — 11:15 a.m.	95

Perkins, Kendra	Poster Session 3 – Room 310 A/B – 2:45 p.m.- 4:15 p.m.	44	Schwehofer, Alexander	Poster Session 3 – Room 310 A/B – 2:45 p.m.- 4:15 p.m.	107
Perrotta, Gemma	Poster Session 1 – Rooms 310 A/B – 9 a.m.- 10:30 a.m.	35	Selig, Julia	Design Expo – Rooms 300/301/302 – 9 a.m.- 4 p.m.	63
Persicone, Verginio	Poster Session 1 – Room 310 A/B – 9 a.m.- 10:30 a.m.	45	Shangchu, Droma	Design Expo – Rooms 300/301/302 – 9 a.m.- 4 p.m.	35
Pickett, Hannah	Design Expo – Rooms 300/301/302 – 9 a.m.- 4 p.m.	121	Sheline, Lillia	Oral Session D — Room 204 — 3 p.m.	111
Pierre, Al'x	Design Expo – Rooms 300/301/302 – 9 a.m.- 4 p.m.	35	Sheppard, Josh	Oral Session C — Room 204 — 1:45 p.m.	82
Pifer, Jennifer	Poster Session 2 – Room 310 A/B – 11 a.m.-11:45 a.m. & 1:30 p.m.- 2:15 p.m.	110	Sherwood, Jessica Cheyenne	Oral Session D — Auditorium — 3 p.m.	63
Pinder, Arrionna	Design Expo – Rooms 300/301/302 – 9 a.m.- 4 p.m.	33	Sieja, Jordan B.	Oral Session D — Room 350 — 3 p.m.	100
Polidori, Sean	Poster Session 3 – Room 310 A/B – 2:45 p.m.- 4:15 p.m.	45	Sieja, Jordan B.	Poster Session 1 – Room 310 A/B – 9 a.m.- 10:30 a.m.	100
Poteracki, Sarah	Design Expo – Rooms 300/301/302 – 9 a.m.- 4 p.m.	62	Sigmann, Clayton E.	Poster Session 3 – Room 310 A/B – 2:45 p.m.- 4:15 p.m.	95
Powdhar, Sierra	Oral Session C — Auditorium — 2 p.m.	100	Sikora, Alexandria	Oral Session B — Auditorium — 11:15 a.m.	90
Prime, Raychel	Design Expo – Rooms 300/301/302 – 9 a.m.- 4 p.m.	31	Smith, Ethan	Oral Session A — Room 204 — 9 a.m.	96
Prince, Melanie	Oral Session D — Room 204 — 3:45 p.m.	113	Snelson, Tamara	Poster Session 1 – Room 310 A/B – 9 a.m.- 10:30 a.m.	41
Qazwini, Ali	Oral Session A — Room 304 — 9:45 a.m.	81	Souza, Michelle	Poster Session 2 – Room 310 A/B – 11 a.m.-11:45 a.m. & 1:30 p.m.- 2:15 p.m.	47
Quasem, Laith	Oral Session B — Room 350 — 11:30 a.m.	104	Souza, Michelle	Poster Session 3 – Room 310 A/B – 2:45 p.m.- 4:15 p.m.	47
Que, Eveline	Design Expo – Rooms 300/301/302 – 9 a.m.- 4 p.m.	124	Stahl, Terrence	Oral Session A — Room 350 — 9:30 a.m.	57
Rafferty, Collin	Oral Session D — Auditorium — 3:45 p.m.	81	Stauder, Jacquelin	Design Expo – Rooms 300/301/302 – 9 a.m.- 4 p.m.	63
Rahman, Nadia	Poster Session 1 – Room 310 A/B – 9 a.m.- 10:30 a.m.	56	Steckenfinger, Shawn	Oral Session D — Room 330 — 3:45 p.m.	76
Rathje, Stephen	Oral Session B — Room 330 — 11:15 a.m.	95	Stephan, Alexa	Design Expo – Rooms 300/301/302 – 9 a.m.- 4 p.m.	35
Rayle, James	Oral Session B — Auditorium — 11 a.m.	89	Stevenson, Julia	Oral Session D — Auditorium — 3:15 p.m.	64
Reynolds, Hannah	Poster Session 3 – Room 310 A/B – 2:45 p.m.- 4:15 p.m.	106	Stewart, Joseph	Poster Session 3 – Room 310 A/B – 2:45 p.m.- 4:15 p.m.	48
Rhea, Miranda	Design Expo – Rooms 300/301/302 – 9 a.m.- 4 p.m.	33	Stimson, Emily	Oral Session B — Room 304 — 10:45 a.m.	91
Riehl, Jasmine	Oral Session C — Room 350 — 1:45 p.m.	72	Straub, Shannon	Poster Session 1 – Room 310 A/B – 9 a.m.- 10:30 a.m.	119
Rielinger, Amanda	Poster Session 3 – Room 310 A/B – 2:45 p.m.- 4:15 p.m.	45	Sturgis, Grayson	Poster Session 3 – Room 310 A/B – 2:45 p.m.- 4:15 p.m.	101
Rielinger, Amanda	Oral Session B — Room 350 — 10:30 a.m.	104	Sturm, Joseph	Oral Session B — Room 304 — 11:15 a.m.	86
Rife, Victoria Anne	Poster Session 1 – Room 310 A/B – 9 a.m.- 10:30 a.m.	119	Swartzinski, Jack	Oral Session B — Room 330 — 10:45 a.m.	96
Ripka, Molly	Poster Session 2 – Room 310 A/B – 11 a.m.-11:45 a.m. & 1:30 p.m.- 2:15 p.m.	46	Takata, Makoto	Oral Session C — Room 304 — 2:30 p.m.	82
Ripka, Molly	Poster Session 3 – Room 310 A/B – 2:45 p.m.- 4:15 p.m.	49	Taylor, Jaylen E.	Oral Session B — Student Art Gallery — 10:30 a.m.	88
Roberts, Jacquelyn	Poster Session 1 – Room 310 A/B – 9 a.m.- 10:30 a.m.	56	Taylor, Jaylen E.	Oral Session D — Room 352 — 3:15 p.m.	57
Roberts, Mel	Oral Session A — Room 204 — 9:45 a.m.	56	Teague, Allan	Poster Session 1 – Room 310 A/B – 9 a.m.- 10:30 a.m.	48
Robertson, Tommiea	Poster Session 3 – Room 310 A/B – 2:45 p.m.- 4:15 p.m.	46	Terry, Anthony D.	Oral Session C — Auditorium — 1:45 p.m.	101
Robinson, Bree	Oral Session B — Student Art Gallery — 10:45 a.m.	87	Thonnissen, Joshua	Poster Session 1 – Room 310 A/B – 9 a.m.- 10:30 a.m.	68
Robinson, Desmine	Oral Session A — Room 320 — 9 a.m.	109	Thorburn, Robert	Oral Session B — Auditorium — 11:15 a.m.	90
Rosebrock, Aaron	Oral Session A — Room 352 — 9:15 a.m.	111	Thornton, Lena	Design Expo – Rooms 300/301/302 – 9 a.m.- 4 p.m.	124
Rowley, Nicole	Poster Session 2 – Room 310 A/B – 11 a.m.-11:45 a.m. & 1:30 p.m.- 2:15 p.m.	46	Tout, Maria	Poster Session 1 – Room 310 A/B – 9 a.m.- 10:30 a.m.	115
Ryan, Sean	Oral Session D — Room 330 — 3:15 p.m.	76	Trinske, Blake	Oral Session A — Room 304 — 10 a.m.	83
Samir, Mariam	Oral Session A — Room 330 — 9 a.m.	107	Underwood, Tyler	Poster Session 3 – Room 310 A/B – 2:45 p.m.- 4:15 p.m.	48
Sampson, Amelia	Design Expo – Rooms 300/301/302 – 9 a.m.- 4 p.m.	35	Vael, Lilly	Oral Session C — Student Art Gallery — 2:15 p.m.	86
Sampson, Ronan	Design Expo – Rooms 300/301/302 – 9 a.m.- 4 p.m.	35	Vajda, Louis	Oral Session A — Auditorium — 9:45 a.m.	90
Sarker, Sadia	Oral Session B — Room 304 — 10:30 a.m.	87	Vanderwal, Isaac	Oral Session B — Room 320 — 10:45 a.m.	82
Sarker, Sadia	Oral Session D — Room 352 — 3 p.m.	87	VanFleteren, Dakota	Design Expo – Rooms 300/301/302 – 9 a.m.- 4 p.m.	66
Schempf, Micaela R.	Poster Session 2 – Room 310 A/B – 11 a.m.-11:45 a.m. & 1:30 p.m.- 2:15 p.m.	56	VanLandingham, Leah	Poster Session 2 – Room 310 A/B – 11 a.m.-11:45 a.m. & 1:30 p.m.- 2:15 p.m.	112
Schmidt, Sarah R.	Poster Session 2 – Room 310 A/B – 11 a.m.-11:45 a.m. & 1:30 p.m.- 2:15 p.m.	56	Varjabedian, Sara	Design Expo – Rooms 300/301/302 – 9 a.m.- 4 p.m.	36
Schwehofer, Alexander	Oral Session A — Room 304 — 9 a.m.	82	Vaughan, Hope	Poster Session 2 – Room 310 A/B – 11 a.m.-11:45 a.m. & 1:30 p.m.- 2:15 p.m.	57
Schwehofer, Alexander	Oral Session C — Room 352 — 1:30 p.m.	107	Visscher, Marri	Oral Session B — Room 352 — 11:15 a.m.	72

Visscher, Marri	Oral Session D — Room 304 — 4 p.m.	104
Vivekanandan, Avinash	Oral Session B — Room 330 — 11 a.m.	96
Waldecker, Catherine	Oral Session B — Room 352 — 11 a.m.	82
Wall, Patrick	Poster Session 1 — Room 310 A/B — 9 a.m.- 10:30 a.m.	58
Watkins, Asher	Design Expo — Rooms 300/301/302 — 9 a.m.- 4 p.m.	66
Webb, Katie	Poster Session 2 — Room 310 A/B — 11 a.m.-11:45 a.m. & 1:30 p.m.- 2:15 p.m.	112
Westerbur, Adam	Design Expo — Rooms 300/301/302 — 9 a.m.- 4 p.m.	36
White, Bria	Oral Session A — Room 320 — 9:15 a.m.	101
White, Janae	Poster Session 2 — Room 310 A/B — 11 a.m.-11:45 a.m. & 1:30 p.m.- 2:15 p.m.	49
Wiget, Christian	Poster Session 3 — Room 310 A/B — 2:45 p.m.- 4:15 p.m.	102
Wilkinson, John	Oral Session C — Auditorium — 2:15 p.m.	120
Willcock, Carina	Poster Session 3 — Room 310 A/B — 2:45 p.m.- 4:15 p.m.	49
Willette, Caleb	Poster Session 2 — Room 310 A/B — 11 a.m.-11:45 a.m. & 1:30 p.m.- 2:15 p.m.	49
Williams, Jasmyn	Oral Session C — Room 204 — 2:15 p.m.	84
Williams, Lauren	Oral Session D — Room 350 — 4 p.m.	84
Williamson, Marie	Oral Session C — Room 350 — 2:15 p.m.	72
Wilson, Artero	Oral Session C — Room 204 — 1:30 p.m.	84
Winning, Macallan	Design Expo — Rooms 300/301/302 — 9 a.m.- 4 p.m.	125
Wohlfert, James	Design Expo — Rooms 300/301/302 — 9 a.m.- 4 p.m.	64
Wolfe, Madeleine Ruth	Oral Session A — Room 352 — 9:45 a.m.	120
Wozniak, Paul	Poster Session 2 — Room 310 A/B — 11 a.m.-11:45 a.m. & 1:30 p.m.- 2:15 p.m.	50
Wright, Justin C.	Design Expo — Rooms 300/301/302 — 9 a.m.- 4 p.m.	125
Wroblewski, Alec	Poster Session 3 — Room 310 A/B — 2:45 p.m.- 4:15 p.m.	50
Yancey, Cyril	Oral Session C — Room 320 — 1:30 p.m.	97
Yassine, Reem	Oral Session D — Room 352 — 3:45 p.m.	50
Yaw, Sarah	Poster Session 1 — Room 310 A/B — 9 a.m.- 10:30 a.m.	66
Yax, Melinda	Poster Session 2 — Room 310 A/B — 11 a.m.-11:45 a.m. & 1:30 p.m.- 2:15 p.m.	111
Young, Leigh	Oral Session C — Room 320 — 11:30 a.m.	85
Zielinski, Angela	Oral Session A — Student Art Gallery — 9:45 a.m.	64
Zwolensky, Hannah	Oral Session B — Room 330 — 10:30 a.m.	97