

Hello,

I am pleased to welcome you to our eleventh annual Ribbons of Excellence Day Program at Adrian College, a day dedicated to celebrating scholarly accomplishments of our student through presentations, exhibitions, and performances. A tradition started in 2008 and developed out of a faculty initiative to create and support our academic culture, today is the culmination of at least one year of preparation by students and their mentors.

The Ribbons of Excellence form the foundation of our shared values at Adrian College and each presentation today is linked to at least one thematic ribbon. I would like to thank Dr. Elizabeth McGaw and the team of faculty and staff who worked in support of this event. We are thrilled that you are joining us today to celebrate our students and their accomplishments.

Best regards,



Dr. Andrea R. Milner  
Vice President and Dean of Academic Affairs



### **Adrian College's Mission Statement**

Adrian College, a liberal arts college in the United Methodist tradition, is committed to the pursuit of truth and dignity of all people. Through active and creative learning in a supportive community, undergraduate and graduate students are challenged to achieve excellence in their academic, personal, and professional lives, and to contribute to a more socially just society.


Welcome,

This is such an exciting day on campus, one of my favorite each year. This is the day we get to celebrate all the great things that our Adrian College students and faculty work so hard on throughout the year. This is the time we get to celebrate scholarship and encourage learning and growing. I really hope you enjoy all of the presentations as much as I do and have a great day celebrating our students.

The history of the Ribbons of Excellence Program resides in the Cane Ceremony tradition of tying a ribbon with the names of graduates to the Shepherd's Crook. This tradition has been carried on since 1887; in 2007 the academic community at Adrian College developed its academic vision of the Ribbons of Excellence Program. The Ribbons of Excellence are what each and every member of our community strives for; the Ribbons of Excellence are what we want Adrian College to be known for: caring for humanity and the world; learning throughout a lifetime; thinking critically; crossing boundaries and disciplines; and developing creativity.

Through today's Program we strive to achieve this goal of making this vision a reality. Students embark in research and other projects to think critically and creatively and to tie these ribbons into their lives, not just to the Shepherd's Crook. We also strive to achieve learning throughout a lifetime and caring for humanity by inviting community members, faculty, staff, students and other visitors to attend the day's events. The day is also about crossing boundaries and disciplines, as we are trying to expose students, through their presentations, to other buildings and communities on campus.

On behalf of the Ribbons of Excellence Program Committee, I would like to thank everyone involved in this day for your hard work and especially all of you attending. Thank you for all you did to make the 2019 Ribbons of Excellence Day Program outstanding.

A handwritten signature in black ink that reads "Elizabeth A McGaw". The script is fluid and cursive, with the first letters of the first and last names being capitalized and prominent.

Elizabeth A. McGaw, Ph.D.  
Director, Ribbons of Excellence Program  
Associate Professor, Department of Chemistry & Biochemistry

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## CAMPUS INDEX

CODE	NAME	GRID	CODE	NAME	GRID
ADIN	Adrian Innovation Center	1E	MERI	Merill Sport and Fitness Ctr.	2C
ADTO	Adrian Tobias Lot	4B	NICO	Nicolay Hall	1A
ARENA	Alpha Tau Omega Housing	4B	PEEL	Peelle Hall	3C
ARENA	Arrington Ice Arena	4B	PELL	Pell Hall	2B
CARGO	Cargo Lot	2-4C	PIKE	Pike Housing	2-3C
CARGO	Cargo Student Center	3D	PIKE	Pi Kappa Alpha Housing	2-3C
CASC	Cascade Circle	4B	PLANT	Plant Facilities	1E
CASC	Cascade View South Apts.	4B	POWL	Powell Hall	4B
CVNA	College View North Apts.	4A	PRAC	Practice Fields	1E
CVNA	College View West Apts.	4B	RTCH	Richie Marketplace	4B
CPLZ	Commencement Plaza	2-3C	RUSH	Rush Center	3B
CRAFT	Craft Tennis Complex	4C	SHIP	Shiplan Library	3C
DAVIS	Davis Hall	1C-D	SAE	Sigma Alpha Epsilon Housing	5A
DAVIS	Davis Hall Auditorium	4B	SBALL	Softball Field	1E
DICK	Dick Indoor Practice Facility	2C	SPNC	Spencer Hall	1E
DICK	Docking Stadium	1E	STAVE	Student Administration Bldg.	3-4C
DOWN	Downs Hall	2C	TERR	Terrace	4A
ESTES	Estes Hall	4C	TERR	Terrace	4A
FACIL	Faculty Housing	3D	THM	Thieme Housing	2-3C
FACIL	Feeman Hall	4B	THMM	Thieme Housing/Michigan Ave.	3B
GOLD	Goldsmith Center	3B-C	TC	Theta Chi Housing	5A
HERR	Herrick Chapel	3B-C	THOM	Thomas Pavilion	2B
INTR	Intern Housing	4A	TRAK	Track & Field	1D
JARVIS	Jarvis Hall	4C	VALA	Valde Hall	4C
JONES	Jones Hall	4C	WOW	Wong House	5C
MAH	Mahan Hall	3-4C	WOW	Wong Wingery and Café	2B

## PARKING

TYPE	NAME	GRID
1	Adrian Tobias Lot	4B
2	Alpha Tau Omega (ATO) Lot	4B
3	Cargo Lot	3D
4	CVSA Resident Street Parking	4B
5	Danston Lot	3B
6	Jarvis Lot	4D-E
7	Looney Lot	3D
8	Marshall Lot	4C
9	Merill Lot	2B
10	Pellone Hall Lot	2B
11	Pi Kappa PIKE Lot	2C-D
12	Powell Lot	3B
13	Sigma Alpha Epsilon (SAE) Lot	2B
14	Tau Kappa Epsilon (TKE) Lot	4A
15	Theta Chi (TC) Lot	5A
16	Valde Lot	4C-D

\* Students with valid parking permits may park from 5 pm - 7 am, weekdays and all day on weekends. Vehicles must be removed by 7 am to avoid being ticketed, booted and/or towed.



8:15 – 9:15 am	Registration & Breakfast . . . . . Dawson Auditorium
8:45 – 9:15 am	Opening Session. . . . . Dawson Auditorium
9:30 – 10:30 am	Session 1
10:30 – 10:45 am	Break
10:45 – 11:45 am	Session 2
11:45 am – 12:30 pm	Poster Session. . . . .Peelle Addition Lobby
11:45 am – 12:30 pm	Meet the Artist . . . . .Valade Gallery (Shipman)
12:30 pm – 2:00 pm	Luncheon (invited). . . . . Adrian Tobias Room
	Keynote Address
2:00 – 3:00 pm	Session 3
3:00 – 3:15 pm	Break
3:15 – 4:15 pm	Session 4
4:30 – 5:30 pm	Alpha Chi Induction Ceremony . . . . .Herrick Chapel

Personal Schedule

TIME	PRESENTER/ABSTRACT	LOCATION

**"Correlating Creativity with Kindness."**

**Dr. Mary Marks, Department of Music**

Marty Marks is finishing his 14th year as Director of Bands at Adrian College, where he leads the concert and marching bands. He holds degrees in music education, clarinet/saxophone performance and wind band conducting. Dr. Marks is also an Army Reserve Band Musician, the Commander of the 395th Army Band in Mustang, Oklahoma. He has been an army reservist since 1983. He is an adjudicator for and honorary member of the Michigan School Band and Orchestra Association, and works as a school band consultant, guest conductor, marching band drill designer and arranger, and freelance musician throughout Michigan and Ohio.



#### NOTICE

Breakfast will be served in Dawson Lobby beginning at 8:15 am

Opening Session will be held in Dawson Auditorium at 8:45 am

Keynote address will begin at 1 pm in the Adrian Tobias Room (Ritchie)

Doors will open at 12:30 pm and all are welcome to attend

Desserts will be served

You may bring your lunch from Ritchie to eat during the presentation



**A Very Potter Home in the Woods**  
**Rev. Eric A. Stone '89**

Six years ago Eric was asked to develop and lead a new camp event at Camp Kinawind. Eric combined his passion for church camping, his love of JK Rowling's Harry Potter books and movies, his theological grounding, and the help of many others to create, "A Very Potter Camp" which has been Camp Kinawind's best attended summer camp four years running. Today he shares the creative process he used to develop this magical and mystical camp experience.

This summer was meant to be year 5 for "A Very Potter Camp" at Camp Kinawind. Sadly, the Michigan Area United Methodist Camping Board decided to close 4 camps including Camp Kinawind in February of this year. While efforts are currently underway to reopen Camp Kinawind, the future is uncertain.

Rev. Eric A. Stone is the pastor at St. Luke's United Methodist Church in Essexville, MI. This is his 25<sup>th</sup> year in full time ministry, having served 3 churches and 3 campus ministries. Eric graduated from Adrian College (1989) where he flirted with Biology but blames an overwhelming ennui when it came to memorizing fish for switching to Communications/Theatre. He saw an opportunity to combine his love of theatre with his theological education at the Methodist Theological School in Ohio where he earned his MDiv and a Master of Arts in Liturgical Arts.

Eric was born and raised in Adrian. He met Sherry Rokita on the summer staff at Judson Collins Camp in 1986 (but did not have a camp romance!) They were married May 28, 1988 in the Adrian College Chapel. Sherry graduated from Adrian College in 1990.

Eric and Sherry have two boys Jacob 22 (who graduated from Adrian College in December 2018) and Julian 19.

The Stones love for camping has continued, especially at Camp Kinawind in northern Michigan where Eric and Sherry have been on staff or volunteered for many years. Sherry is the current Camp Director and Jacob has been on staff for five years. Eric returned to the stage after an 18 year hiatus and is currently in rehearsals for his 5<sup>th</sup> production at the Bay City Players.



PLACE	TIME	TITLE	PRESENTOR(S)
Jones 110	9:30 – 9:50	The Effects of Blood Flow Restriction on Muscle Activation During Functional Exercise in Individuals with Chronic Ankle Instability	Savannah Monette
Jones 110	9:50 – 10:10	The Effects of Peppermint on Single Leg Balance and Handgrip on Healthy Young Adults	Austeen Freeman
Jones 110	10:10 – 10:30	Comparison of the Effectiveness of Cupping and IASTM on Hamstring ROM, PPT, and PFAQ Scores	Jacob Clark
Peelle 207	9:50 – 10:10	Students for a Democratic Society's Definition of Society	Molly Korthase
Peelle 207	10:10 – 10:30	Democracy with Consideration for Political Culture: The Phenomenon of Pacific Island States	Clarence Kennedy
Peelle 212	9:30 – 9:50	Science, Technology & Congress: The Debate on Technology Assessment & Expertise in Congress	Cody Schaub
Peelle 212	9:50 – 10:10	Cyberspace Symbiosis: The relationship between Technology and Public Policy in the 21st Century	Liam Tapp
Peelle 301	9:30 – 9:50	Fall Phenology in Southeast Michigan Shrubs	Allison Thomas
Peelle 301	9:50 – 10:10	Do native shrub species demonstrate soil-based habitat preferences in a southeast Michigan forest?	Mahala Lorenzo
Peelle 301	10:10 – 10:30	Do soil nutrient-based habitat associations drive distributions of invasive shrubs in a southeast Michigan forest?	Molly Beck
Valade 130	9:30 – 9:50	You Can't Sit With Us	Kylee Doty
Valade 130	9:50 – 10:10	We are Animals in Society	Kaitlin Parisi
Valade 130	10:10 – 10:30	Social Penetration in "The Internship"	Gage Dansby
Downs Hall Theatre	9:30 – 10:30	Williams Oratorical Competition	Mitchell Doyle, Laurel Krause, Lauren Lukac, Alivia Rebeck, Emily Slagter, and Alexis Weston
	10:30 – 10:45	BREAK	
Jones 110	10:45 – 11:05	Developing Creative Journeys Across the Adrian College Campus	Victoria Olijar and Alexis Kachalla
Jones 110	11:05 – 11:25	2019 State of Adrian College's Environmental Stewardship	Morgan Pearce
Peelle 207	10:45 – 11:05	Foraminiferal paleoecology and paleotemperature estimates for the Cenomanian (100-94 Ma) at high paleolatitudes	Rebecca Goughnour
Peelle 207	11:05 – 11:25	Paper and Ink: A Historical and Chemical Perspective	Molly Beck
Peelle 207	11:25 – 11:45	The History, Science, And Demonstration of Raku Fired Ceramics	Emily Archer
Peelle 212	10:45 – 11:05	The Effects of the 2 <sup>nd</sup> Skull Skullcap® to Attenuate Forces Resulting From Foul Ball Impacts Into Two Different Catchers Masks	Rebecca Neal



# SESSIONS

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PLACE	TIME	TITLE	PRESENTER(S)
Peelle 212	11:05 – 11:25	The Effect of Sport Specialization on Hip & Groin Symptoms in Collegiate Hockey Players	Marisa Sheppard
Peelle 212	11:25 – 11:45	Times Have Not Changed: The Gender Equality Problem in Hockey	Carly Costello
Peelle 301	10:45 – 11:05	A Year in the Life of the Vertebrate Fauna at Walden West	Jacob Stone
Peelle 301	11:05 – 11:25	Changes in Animal Behavior when Stimuli of Non-Native Animals are Introduced into the Habitat at Walden West	Samantha Roesler
Peelle 301	11:25 – 11:45	Is there an evolutionary signal in susceptibility to White-nose Syndrome in Chiroptera?	Morgan Wiza
Valade 130	10:45 – 11:05	Construal Bias in Language	Sara Anthony, Megan DeBrabander, Emalee Kerr, Rachel Rodeheffer, Michelle Siegel, Olivia Stobinski and Madeline Tamlyn
Valade 130	11:05 – 11:25	Censorship in High School English Classes: Why We Shouldn't F**king Have It	Natalia Younan
Downs Hall Theatre	10:45 – 11:05	Drews, Alex. The Entertainer	Alex Drews
Downs Hall Theatre	11:05 – 11:25	Christopher, Leigh. This Is Me.	Leigh Christopher
Kiln Shed (Caine)	12:00 – 12:30	Demonstration of Raku Fired Ceramics	Emily Archer
Peelle Addition Lobby	11:45 – 12:30	Effects of Positive and Negative Framing of Information about Down Syndrome on Decision-making Post Non-Invasive Prenatal Testing	Paige Cubberly
Peelle Addition Lobby	11:45 – 12:30	The Effects of Education and Indirect Contact Interventions on Mental Health Stigma	Megan DeBrabander
Peelle Addition Lobby	11:45 – 12:30	Effects of adolescent alcohol exposure on markers of cholinergic interneurons in striatal tissue of adult rats	Michael Douglas
Peelle Addition Lobby	11:45 – 12:30	The Effects of Aerobic Eccentric Exercise Training on the Ventilatory Threshold in Untrained Individuals	Kayla Durbin
Peelle Addition Lobby	11:45 – 12:30	Testing for the Presence of Estrogen in the River Raisin Watershed	Mara Eason
Peelle Addition Lobby	11:45 – 12:30	The Effects of Garlic and Garlic Mustard on Soil Bacteria	Mara Eason
Peelle Addition Lobby	11:45 – 12:30	Motivational Factors of Collegiate Studying	Jenna Ehredt
Peelle Addition Lobby	11:45 – 12:30	Patterns of Surface Subsidence in the City of Adrian and Their Cause	Korey Mazur
Peelle Addition Lobby	11:45 – 12:30	Strategies in Writing Blog-Style Environmental Literature	McKayla Moran

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PLACE	TIME	TITLE	PRESENTOR(S)
Peelle Addition Lobby	11:45 – 12:30	Evolution of costal grooves in salamanders	Alana Pastula
Peelle Addition Lobby	11:45 – 12:30	The Desk Top Delta: Evaluating cause and effect relationships between deltaic sedimentation behavior and external variables.	Garrett Powell
Peelle Addition Lobby	11:45 – 12:30	Effect of Symptom Dimension and Familiarity on Recognition and Stigmatization of Obsessive-Compulsive Disorder	Michelle Siegel
Peelle Addition Lobby	11:45 – 12:30	Relationship different soil types have with plant life at Walden West, Tipton, MI	Olivia Ziemba
Valade Gallery (Shipman)	11:45 – 12:30	Conditions of Reclamation: Reconciliation, Repossession, Resurgence, Response	Kellen Taylor, Patrick Dunn, Rachel Oswalt, and Kaye Keckler
Rush 124	2:00 – 3:00	Star Light Writing Award and Mahan Manuscript Honors Award Presentations	Haley Carpenter, Laurel Hammis, Autumn Cramer, Taylor Petit, and Anna Wozniak
Rush 116	2:00 – 2:20	Reconsidering the Political Role of Native Americans: Wheelock and His Indian Charity School	Max Ruff
Rush 116	2:20 – 2:40	Predicting Attitudes Toward Lesbian Women, Gay Men, Transgender Individuals, and Their Rights	Megan DeBrabander
Rush 116	2:40 – 3:00	Transitions: Creating LGBT- Inclusive Spaces	Brodie Lobb
Valade 202	2:00 – 2:20	Two Languages, One Classroom: The Education of Bilingual Students in the United States	Carly Thomas
Valade 202	2:20 – 2:40	Video Game Theory and the College Academic Process	Cheyenne Sliter
Valade 202	2:40 – 3:00	Analysis of Trends for Inquiry and Risk Taking in Facilitating Teacher Leadership	Darcy Renaud
Valade 125	2:00 – 2:20	Comparison of xylem and stomatal traits in invasive and native shrubs of a Southeast Michigan forest	Paige Cubberly and Margaret Amory
Valade 125	2:20 – 2:40	Observational Study of Kiwanis Trail Invasive Species	Maxwell Birmingham
Valade 125	2:40 – 3:00	Maintenance of Relative Species Abundance by Pathogens	Alex Mercer
Valade 130	2:00 – 2:20	Sustainability: Balancing People, Profit, and Planet	Mariah Kramer, Casey Cribbs, Mady Crandle, and Lillian Brueckman
Valade 130	2:20 – 2:40	Rebranding the Hot Dog - Wienerschnitzel	Elizabeth Graves, Joseph Herrera, Julia Maltbie, and Nolan Duda
Valade 130	2:40 – 3:00	The Juxtaposition of Our Words and Actions: A Talk About Ethics	Colleen Cater
Downs Hall Theatre	2:00 – 2:20	Musical Communication Beyond the Language Barrier	Charlie Penn

PLACE	TIME	TITLE	PRESENTER(S)
Downs Hall Theatre	2:20 – 2:40	Like Breathing: The Creative Process Of a Musical Theatre Recital	Alexandrea McCarty
	3:00 – 3:15	BREAK	
Rush 124	3:15 – 3:35	Sub-Surface Nutrient Flow in Row Crop Systems of the South Branch of the River Raisin	Corrin Logan, Caitlynn Dellinger, Karter Reedy, and Mark Henderson
Rush 124	3:35 – 3:55	Implementing a non-parametric overlap index with R	Ian O'Banion
Rush 124	3:55 – 4:15	Blood Vessel Pattern Analysis Using Statistical and Mathematical Methods	Ashley Oram and Gabe Lopez
Rush 116	3:15 – 3:35	The Effects of Latino Culture on Mental Health Stigma and Treatment-Seeking Behaviors in the United States	Megan DeBrabander
Rush 116	3:35 – 3:55	Examining Perceived Social Support and Mental Health in a Sample of College Athletes	Lauren Krywy
Rush 116	3:55 – 4:15	“The Season of Overcoming” Adrian College Marching Band Show 2018	Blayk Olsen
Valade 202	3:15 – 3:35	Poetry Performance	Inocencia Ramirez-Gorski
Valade 202	3:35 – 4:15	Poetry Reading	Taylor Anson, Sydney Babcock, Kaysie Burnside, Anthony Bussing, Emma Brockett, Samantha Glaza, McKayla Moran, Inocencia Ramirez-Gorski, Hannah Roegner, Emma Sheldon, and Michelle Siegel
Valade 125	3:15 – 3:35	The Evolution of Fashion: Androgyny in Dress Today	Anna Shepherd
Valade 125	3:35 – 3:55	The Dress Detective: An Exploration of a Geoffrey Beene Garment	Morgan Pearce
Valade 125	3:55 – 4:15	Art Infused Trend Analysis	Bethany Dziekan and Morissa Beckman
Valade 130	3:15 – 3:35	“What Slavery Started Is Not Over Yet:” James Madison’s Montpelier And The Problem Of Slavery In Public History	Kayla Wendt
Valade 130	3:35 – 3:55	Media Framing & The O.J. Simpson Investigation	Justin McMann
Herrick Chapel	4:30 – 5:30	Alpha Chi Induction Ceremony	

### **The Effects of Blood Flow Restriction on Muscle Activation During Functional Exercise in Individuals with Chronic Ankle Instability**

**Presenter:** Savannah Monette

**Mentors:** Dr. Erin Garmyn and Dr. John Goetschius

**Ribbons:** Caring for Humanity and the World and Thinking Critically

**Session/Time/Location:** 1A, 9:30 – 9:50, Jones 110

**Abstract:** **Background:** Ankle sprains are the most common physically active musculoskeletal injury. Many individuals who sprain their ankle go on to suffer from a condition known as chronic ankle instability (CAI), which is associated with chronic lower-leg muscle dysfunction. Blood flow restriction (BFR) is a technique that involves the application of a tourniquet to occlude distal blood flow and has been showed to improve muscle function during rehabilitation exercises.

The Star Excursion Balance Test is a common functional exercise for ankle rehabilitation, and combining BFR with the SEBT may allow for enhanced muscle function during ankle rehabilitation exercises for CAI patients. The use of BFR during ankle rehabilitation is not well studied; therefore, the purpose of this study was to examine the effects of BFR on lower-leg muscle activation of the tibialis anterior, fibularis longus, and lateral gastrocnemius during the SEBT in young adults with CAI.

**Methods:** This was a cross over study in which lower-leg electromyography (EMG) muscle activation was measured during the SEBT under two conditions, with BFR and without BFR (control). Individuals aged 18-35 with a history of CAI completed two laboratory visits, one with each condition. For the BFR condition, the cuff was inflated to 60% limb occlusion pressure during the SEBT. For Non-BFR condition, the cuff was not applied. EMG muscle activation was compared between conditions, BFR and control, using a repeated measure ANOVA with post-hoc tests.

**Results and Conclusions:** Data collection is still ongoing. The final conclusions will be presented at the ROE Conference.

### **The Effects of Peppermint on Single Leg Balance and Handgrip on Healthy Young Adults**

**Presenter:** Austeen Freeman

**Mentors:** Dr. Tony Coumoundouros, Mrs. Meg Sharp, Dr. Erin Garmyn, and Dr. Heather Schuyler

**Ribbons:** Crossing Boundaries and Disciplines and Thinking Critically

**Session/Time/Location:** 1A, 9:50 – 10:10, Jones 110

**Abstract:** **Context:** The aim of this study was to examine the effects of peppermint oil on concentration, focus strategies, single leg balance and hand grip. The effects of peppermint oil has shown to improve exercise performance and cognition while no evidence exists surrounding the effects on balance, cognitive focus strategies and concentration during balance.

**Objective:** The objective of this study was to compare the effectiveness of peppermint essential oil, peppermint altoids and control on single leg balance, hand grip, concentration and focus strategies.

**Design:** This is a within-subjects cross over design with counter balancing and a wash out period in a laboratory setting. Three sessions were required of each participant, one for peppermint essential oil, one for the altoids comparison and one for the control.

**Participants:** Study participants were selected through convenience sampling, were between the ages of 18-35 and able to single leg balance for 30 seconds. Individuals with a known allergy or sensitivity to peppermint, have used peppermint in the last 14 hours, had a lower leg injury in the past 6 months, or weighed less than 99 pounds were excluded from the study.

**Interventions:** Peppermint essential oil was used as the intervention and altoids were the comparison.

**Main Outcome Measures:** All outcomes measures were taken immediately before and after the intervention, comparison and control.

**Results:** In process

**Conclusions:** In Process

### **Comparison of the Effectiveness of Cupping and IASTM on Hamstring ROM, PPT, and PFAQ Scores**

*Presenter:* Jacob Clark

*Mentor:* Dr. Heather Schuyler

*Ribbons:* Crossing Boundaries and Disciplines and Thinking Critically

*Session/Time/Location:* 1A, 10:10 – 10:30, Jones 110

**Abstract:** **Context:** This Study examined the effectiveness IASTM and Cupping when treating patients with a history of hamstring Injury. The cupping technique used in this study, which incorporates static cupping, dynamic cupping, and active/passive movements, has not been compared to other forms of myofascial release.

**Objective:** The objective of this study is to compare the effectiveness of IASTM and Cupping at improving hamstring ROM, PPT, and PFAQ scores in patients with a history of hamstring injury.

**Design:** This is a within-subjects controlled laboratory study with two independent variables and three dependent variables. Two sessions were required of each participant, one for each intervention.

**Participants:** Participants were recruited on a volunteer basis, aged 18-35 with a history of hamstring injury within the last 12 months.

**Interventions:** **Cupping:** Each participant received 3 minutes of static cupping, preformed active and passive motions with cups in place, and received 3 minutes of dynamic cupping for an 8-minute total treatment time. **IASTM:** Each participant received a total of 8 minutes of treatment with Graston tools. First, they received two minutes of scraping with the G1 tool followed by 6 minutes of scraping with the G4 tool.

**Main Outcome Measures:** All outcomes measures were taken immediately before and after each intervention. ROM was taken using an active knee extension measured with a standard goniometer. PPT was measured with a handheld dynamometer. Patients also filled out the PFAQ before and after each intervention

**Results:** TBD

**Conclusions:** TBD

### **Students for a Democratic Society's Definition of Society**

*Presenter:* Molly Korthase

*Mentor:* Dr. Deborah Field

*Ribbons:* Thinking Critically and Caring for Humanity and the World

*Session/Time/Location:* 1B, 9:50 – 10:10, Peelle 207

**Abstract:** The 1960s are recalled as a time of societal, cultural, and political unrest. In the midst of this, the group Students for a Democratic Society, SDS, began at the University of Michigan. Civil rights issues and a call for the end of involvement in Vietnam ignited the movement, which then spread through campuses around the country. This presentation is focused on the rhetoric within SDS to examine the group's definition of democracy. SDS was a prolific organization, leaving speeches, newsletters, and publications. These sources formed the basis for my research. Democracy, according to SDS, is not a passive belief, but rather a process and a set of aspirations. SDS tried to create democracy by becoming more educated, more involved, and pursuing equality for all. In modern day America dissent groups are often cast as anti-American. The research I have conducted has revealed SDS as a group that contradicts this rhetoric. Contrary to the notion of destroying an American ideal, SDS was attempting to reclaim and redefine the inherently American value of democracy.

**Topic Area:** Humanities

**Democracy with Consideration for Political Culture: The Phenomenon of Pacific Island States***Presenter: Clarence Kennedy**Mentor: Dr. James Hanley**Ribbons: Thinking Critically, Caring for Humanity and the World, Developing Creativity, Crossing Boundaries and Disciplines, and Learning Throughout a Lifetime**Session/Time/Location: 1B, 10:10 – 10:30, Peelle 207*

**Abstract:** The only states that have not become stable, democratic states are those that have historically had a very different culture than that of the west. To confront this issue we need to consider how best to appeal to all cultures with the benefits of freedom in democracy. In researching the Pacific Island States, a prominent, and newly democratic region of the World. This has brought up the importance of “Freedom from” rather than promotion for “Freedom to” in democratization. By adhering to a principle of liberty for the people, grounded mostly in freedom of speech and press, the agents of culture change, intellectuals and mass media, will lead to the spread of subjective and individual freedom. This is contrary to common foreign policy that has sworn to be the savior and redeemer of the oppressed people of the world.

**Topic Area:** Social Science**Science, Technology & Congress: The Debate on Technology Assessment & Expertise in Congress***Presenter: Cody Schaub**Mentor: Dr. James Hanley**Ribbons: Thinking Critically, Crossing Boundaries and Disciplines Edit, Learning throughout a Lifetime, Caring for Humanity and the World, and Developing Creativity**Session/Time/Location: 1C, 9:30 – 9:50, Peelle 212*

**Abstract:** Science and technology are two of the most important aspects of today’s society. Members of Congress have displayed a lack of understanding in today’s relevant issues in science and technology. The increase in need for expertise in the topic areas of science and technology has gained relevance in today’s society. This paper delves into the role of the Office of Technology Assessment in its effort to increase the expertise in Congress while it was active; while examining the need for technology assessment in Congress today. The history of technology assessment in Congress is explored while focusing on the current debate to bring back a technology assessment function. There are currently congressional studies in progress to determine if there is a need for technology assessment. Those studies will determine how Congressional expertise will be structured in the future.

### **Cyberspace Symbiosis: The relationship between Technology and Public Policy in the 21st Century**

*Presenter:* Liam Tapp

*Mentor:* Dr. James Hanley

*Ribbons:* Crossing Boundaries and Disciplines and Learning Throughout a Lifetime

*Session/Time/Location:* 1C, 9:50 – 10:10, Peelle 212

**Abstract:** The purpose of this presentation is to discuss and expand on the topics discussed in the course PSCI 451: Technology Policy in the 21st Century. The main argument being presented is the co-dependent nature of Technology and Public Policy (Politics) in an increasingly digital world. With references to historical partnerships such as radio pointing out the need for the government to find new avenues to operate.

A broad range of cases and innovations that helped strengthen and intertwine the reliance of government institutions on the ease of innovation, and the nature of technology to be bound to what resources are available. Topics include:

Internet 2.0

Individual Liberty vs. Protection

Cybersecurity/Surveillance

Public Vs. Private Sector

American vs. European action and implementation

Digital Political Activism

All topics being discussed provide context and support for the previously given argument, and are meant as an introduction into the fairly broad and untapped source of debate that is the relationship between technology and government.

### **Fall Phenology in Southeast Michigan Shrubs**

*Presenter:* Allison Thomas

*Mentor:* Dr. Jeffrey Lake

*Ribbons:* Thinking Critically

*Session/Time/Location:* 1D, 9:30 – 9:50, Peelle 301

**Abstract:** Invasive species – that is, organisms not native to their current habitat – are becoming a major threat to biodiversity and ecosystem function across the globe. In southeast Michigan forests, several horticultural shrubs have become naturalized and now invasive. Understanding the mechanisms by which they have succeeded in invading may provide clues as to how they may be controlled. It has been observed that the species may leaf out earlier than native shrubs, and also hang onto their leaves longer into the fall. However this has not been quantified for each species in Michigan; nor has it been considered over multiple years. This study focused on the fall phenology of native and invasive shrubs at Walden West, measuring number of leaves remaining on a weekly basis throughout the autumn. This work asked if the shrub's light environment affected leaf fall on each individual. The work was carried out on six species – five invasive (*Lonicera maackii*, *Rhamnus cathartica*, *Berberis thunbergii*, *Elaeagnus umbellata*, and *Rosa multiflora*), and one native (*Lindera benzoin*). For each species, ten individuals were selected; on each plant, three branches of ten leaves each were followed weekly for 10 weeks, counting the number of leaves remaining. Invasive species did, in fact, lose their leaves significantly later than native species, but they did not all behave identically; there were also interactions with light environment found. This work best fits the Ribbon "Thinking Critical" because the research required substantial problem solving and scientific process.



**Do native shrub species demonstrate soil-based habitat preferences in a southeast Michigan forest?**

*Presenter:* Mahala Lorenzo

*Mentor:* Dr. Jeffrey Lake

*Ribbons:* Thinking Critically

*Session/Time/Location:* 1D, 9:50 – 10:10, Peelle 301

**Abstract:** Processes of plant community assembly remain a topic of controversy within ecology. The importance of niche-based vs. neutral mechanisms is an ongoing question. While distribution of species within a forest has been argued to be random by some, others have demonstrated habitat associations, including with levels and ratios of soil nutrients. This research asks if there are habitat associations of native shrubs based on soil nutrient levels. It goes on to ask if those nutrient levels affect leaf chemistry or other functional traits of the shrubs. This research was carried out at Walden West, an environmental preserve in southeast Michigan. Soil nutrient levels were measured from bulked samples in eight 400 square meter quadrats. All trees and shrubs were mapped, measured, identified, and tagged. Leaf samples were also taken and leaf functional trait and chemical analyses were carried out to determine the relationship of leaf chemistry and functional ecology to soil chemistry in these species. This research reflects the ribbon “Thinking Critically” because it asks fundamental questions in plant ecology and utilizes a novel approach to answering them.

**Do soil nutrient-based habitat associations drive distributions of invasive shrubs in a southeast Michigan forest?**

*Presenter:* Molly Beck

*Mentor:* Dr. Jeffrey Lake

*Ribbons:* Caring for Humanity and the World and Crossing Boundaries and Disciplines

*Session/Time/Location:* 1D, 10:10 – 10:30, Peelle 301

**Abstract:** Invasive species are a threat to biodiversity and ecosystem function. Southeast Michigan forests are seeing a substantial increase in invasive shrub density. Understanding how these species invade is important to controlling their spread and attempting to eradicate them. This research considers the impact of soil nutrient levels on the abundance and size of invasive shrubs at Walden West, an environmental preserve in southeast Michigan. Soil samples were bulked for each of eight 400 square meter quadrats and analyzed for a number of nutrients and cation exchange capacity. Every tree and shrub was mapped, measured, identified, and tagged, and abundances and importance values were calculated for each species in each quadrat. Leaf samples were taken for functional trait and chemical analyses to determine the relationship of traits to soil chemistry in these species. This research fits the ribbon “Caring for Humanity and the World” and “Crossing Boundaries and Disciplines” because of the impact of invasives on wild lands and the integration of biology, chemistry and statistics

**You Can't Sit With Us**

*Presenter:* Kylee Doty

*Mentor:* Dr. Christy Mesaros-Winckles

*Ribbons:* Caring for Humanity and the World

*Session/Time/Location:* 1E, 9:30 – 9:50, Knight Auditorium (Valade 130)

**Abstract:** This presentation places emphasis on the ties that connect people through their interactions and directly applies to the ribbon “Caring of Humanity and the World” as themes of interpersonal conflict resolution are explored as part of the study. The movie *Mean Girls* is used to relate Social Identity Theory to how individuals behave in everyday settings. Relatability in terms of humanity is a way to create peace within culture. *Mean Girls* tells the story of Cady Heron (Lindsay Lohan), a beautiful, quiet girl who had just moved to the United States from Africa, where she had been living with her zoologist parents. Cady has no idea what to expect at American public school, but she’s unleashed into the world of cafeteria lunch trays, multiple teachers, mean girls, and cute boys (Waters, 2004). *Mean Girls* is the exaggerated story of high school drama and what it takes to create and destroy friendships, and how to learn who’s worth keeping, and if it’s worth letting go of yourself to hold onto popularity. In relation, the movie creates strong ties to Social Identity Theory, which observes the social culture surrounding “in” and “out groups”. The bridges between this cinematic reality and real-world reality connects to the discussion of Social Identity Theory that is present within everyday life. The purpose of this presentation is to discover the connections between the content presented in *Mean Girls* and Social Identity Theory, and how it relates to the famous *Mean Girls* quote: “You can’t sit with us”.

**We are Animals in Society**

*Presenter:* Kaitlin Parisi

*Mentor:* Dr. Christy Mesaros-Winckles

*Ribbons:* Caring for Humanity and the World and Thinking Critically

*Session/Time/Location:* 1E, 9:50 – 10:10, Knight Auditorium (Valade 130)

**Abstract:** This presentation places emphasis on the relationships between people and their ethnicity and directly applies to the ribbon “Thinking Critically & Caring for Humanity” as themes of influencing the public agenda and interpersonal tension within relationships are seen as a part of the study. The movie *Zootopia* is used to relate Political Agenda Setting Theory and Relational Dialectics to how society functions and the bonds that are created within. *Zootopia* is a story about a bunny, Judy Hopps (Ginnifer Goodwin), who wants to become a police officer in a world full of stronger, more powerful animals, all discouraging her dreams. No matter what, she is determined to become the first bunny police officer. *Zootopia* is a movie that puts a strong emphasis on the political aspect of how our world functions as a whole. Similarly, the movie connects Political Agenda Setting Theory through broadcasting news to make the public think certain things. It also connects Relational Dialectics by showing the close personal ties that Judy Hopps makes with her fox friend, Nick Wilde (Jason Bateman) and the tensions and struggles throughout the movie. Politics in the cartoon connects to the real-world political system in today’s society. The purpose of this presentation is to broadcast the relationship between *Zootopia*, Political Agenda Setting Theory and Relational Dialectics to showcase the similarity between cartoon and real life. “Anyone can be anything” (*Zootopia*).

**Social Penetration in "The Internship:****Presenter:** Gage Dansby**Mentor:** Dr. Christy Mesaros-Winckles**Ribbons:** Thinking Critically, Crossing Boundaries and Disciplines, Developing Creativity, and Learning Throughout a Lifetime**Session/Time/Location:** 1E, 10:10 – 10:30, Knight Auditorium (Valade 130)

**Abstract:** This research primarily focuses on how the communication theory of Social Penetration is adapted in modern film. Specifically, how the theory is introduced and fulfilled in the 2013 film *The Internship*, directed by Shawn Levy and starring Vince Vaughn and Owen Wilson.

The Social Penetration Theory focuses on interpersonal communication. It was created by Irwin Altman and Dalmas Taylor. The theory as the increased amount of disclosure between individuals in a relationship as their bond deepens and they come closer together. Altman and Taylor use the analogy of a "multi-layered onion" to describe the different layers of self-disclosure within a relationship. Each relationship starts at the first layer of this "onion" when first meeting someone. However, as the individuals progress in their relationship, deeper layers of the "onion" are reached, revealing more personal information along the way. The journey continues through conversations about goals, to religious beliefs, to deepest held fears, culminating at the innermost layer of the theory: concept of self.

The 2013 film *The Internship* exemplifies each layer of the social penetration theory as the plot unfolds. My research includes a close reading of the film by using scene analysis to showcase each layer of the Social Penetration theory that is revealed throughout the film's dialogue. A direct correlation between Altman and Taylor's theory and *The Internship* is able to be seen through dissection of such dialogue to provide an example of how theories of communication are frequently involved in all forms of relationships.

**Williams Oratorical Competition****Presenters:** Mitchell Doyle, Laurel Krause, Lauren Lukac, Alivia Rebeck, Emily Slagter, and Alexis Weston**Session/Time/Location:** 1F, 9:30 – 10:30, Downs Hall Theatre **Session:** 1F

In Academic Foundations II (AF II), the second course in Adrian College's Core Curriculum, students continue to develop their knowledge and practice of the rhetorical strategies used in academic, professional, and civic discourse. AFII aims to cultivate an ethic of inquiry that connects students with the value of the college's Ribbons of Excellence.

The speakers in this session represent oratorical achievement in AF II. These students were nominated by their instructors and advanced through an elimination round to compete on Ribbons of Excellence Day for the top prize.

Each speaker will present a short Informative Speech. One of these speakers will be awarded the Williams Cup, which was historically given to the member of the Literary Society with the best oration in head-to-head competition. Members of the Adrian College faculty moderate and judge the competition.

## **Developing Creative Journeys Across the Adrian College Campus**

**Presenters:** Victoria Olijar and Alexis Kachalla

**Mentor:** Nancy Vanover

**Ribbons:** Developing Creativity, Learning Throughout a Lifetime, and Thinking Critically

**Session/Time/Location:** 2A, 10:45 – 11:05, Downs Hall Theatre

**Abstract:** As students, designers, and creators of Adrian College, here we present the well thought proposed renovation of Mahan. Professionalism, as well as creativity is exemplified through innovative and new-age designs to improve Mahan. This proposed plan, which has been presented to development and donors, will best suit the students and continue to strengthen their education, while best preparing them for their future. As a team, we collaborated with the school administration to develop a conceptual design plan to improve Mahan for the students needs and to better fit in with the continuous improvement of the Adrian College campus.

Throughout this project, “developing creativity” was a major asset, not only to introduce a plan for promotion of creativity amongst students, but to also push ourselves further as future designers. This project scope required us to identify problems and unique solutions, while remaining open to new learning experiences. The opportunity to work with administration, truly revealed what a liberal arts education stands for. As seniors, the opportunity to have a voice in the future of Adrian College, while representing the student body, compels us to graduate with gratitude, knowing we made a lasting impact.

To have the chance to present this project to the Adrian College body, and all other Ribbons of Excellence Conference guests, would be a humbling experience to promote the future of our campus while sharing our creativity and voice. We appreciate the ability we earned to acquire new learning experiences that will last “throughout a lifetime”.

## **2019 State of Adrian College’s Environmental Stewardship**

**Presenter:** Morgan Pearce

**Mentor:** Beth Heiss

**Ribbons:** Caring for Humanity and the World, Learning Throughout a Lifetime, Thinking Critically, Crossing Boundaries and Disciplines, and Developing Creativity

**Session/Time/Location:** 2A, 11:05 – 11:25, Jones 110

**Abstract:** Year after year at Adrian College, we are recognized for our outstanding innovation efforts. Students, faculty, and staff are encouraged to be stewards of this campus and our greater community, living through our five foundational values. To that end, we must do more as stewards to the community and environment by increasing sustainable and environmentally efforts on campuses. Current and rising generations are beginning to develop an understanding and care about environmental efforts. Now is our time, as an institution, to act on our values. This proposal sets guidelines to lead Adrian College in successful sustainability efforts.

Over the past two years, a group of students and faculty have joined together to increase environmental consciousness with respect to recycling, composting, and other means of conserving resources. These efforts were yielding some success; however there continues to be misunderstanding between students and administrators about the use of campus resources for the purpose of recycling. We have seen other institutions take green initiatives by placing recycling bins in each individual dorm room, composting in cafeterias, creating reused clothing programs, winning accolades for their efforts. Additionally, climate change and sustainability are two issues of great importance to the next generation: prospective students will begin asking questions and we need to be prepared to answer with action. This proactive proposal not only sets the AC community in line with our values and mission; it acts as a tool to help current and future bulldogs build a lifelong ethical, environmental conscious foundation.

**Foraminiferal paleocology and paleotemperature estimates for the Cenomanian (100-94 Ma) at high paleolatitudes**

*Presenter: Rebecca Goughnour*

*Mentor: Dr. Thomas Muntean*

*Ribbons: Crossing Boundaries and Disciplines, Caring for Humanity and the World, Thinking Critically, and Learning Throughout a Lifetime*

*Session/Time/Location: 2B, 10:45 – 11:05, Peelle 207*

**Abstract:** Due to an incomplete recovery of pelagic sediment cores from previous ocean drill sites, there is a gap in paleoclimate data for the Cenomanian time interval (101-94 million years ago) at southern high-latitudes. During 2017, International Ocean Discovery Program Expedition 369 recovered biostratigraphically complete late Albian-Cenomanian black claystone and nannofossil-rich claystone at Sites U1513, U1514 and U1516 in the Mentelle Basin, which is located offshore from SW Australia. All sites were located at ~60°S during the Cenomanian. By analyzing the foraminifera within these sediments, we can gain a better understanding of the changing oceanic environment and water temperature during the time of deposition. Foraminifera are single celled marine organisms that are extremely sensitive to fluctuations in the environment. Both benthic and planktonic species secrete a test, usually calcium carbonate, allowing for preservation in the fossil record. This study focused on examining relative abundance and percent planktonic foraminifera for assemblages recovered from Sites U1513 and U1516. These assemblages are unusual and lack diversity, suggesting a highly stressed and poorly stratified surface water environment. This presentation exemplifies the Ribbon “Crossing Boundaries and Disciplines” by combining the fields of geology, biology, and environmental science; the Ribbon “Caring for Humanity and the World” by adding to the scientific understanding of our Earth’s climate; the Ribbon “Thinking Critically” by interpreting potential explanations for these assemblages; and the Ribbon “Learning Throughout a Lifetime”, as this project encouraged me to venture outside my comfort zone by delving into a topic I was unfamiliar with.

## **Paper and Ink: A Historical and Chemical Perspective**

*Presenter:* Molly Beck

*Mentor:* Dr. Keith McCleary

*Ribbons:* Thinking Critically and Crossing Boundaries and Disciplines

*Session/Time/Location:* 2B, 11:05 – 11:25, Peelle 207

**Abstract:** Ink and paper are two things that have been around for centuries. It is important to understand the history of these two elements in order to get a basis of the interaction of the ink with the paper. After getting a historical point of view it makes it easier to understand a physical and chemical point of view. This research looks at how different types of inks dry on different types of paper. This was done through a physical smudge test using a timer as the ink dried for specific amounts of time. The ink was then looked at under a microscope with a camera attached in order to get a picture of the ink. It is hypothesized that the papers that have coatings on them will take a longer amount of time to dry regardless of the ink type.

## **The History, Science, And Demonstration of Raku Fired Ceramics**

*Presenter:* Emily Archer

*Mentors:* Dr. Jason Hartz and Prof. Travis Erxleben

*Ribbons:* Caring for Humanity and the World, Learning Throughout a Lifetime, Thinking Critically, Crossing Boundaries and Disciplines, and Developing Creativity

*Session/Time/Location:* 2B, 11:25 – 11:45, Peelle 207

**Abstract:** In the tradition of the scholar-practitioner, I am proposing to give a lecture and demonstration on a visual art medium. Specifically, I will present my scholarship on the history and science behind secondary reduction firing, an American adaptation of traditional Japanese raku firing process. A short demonstration will follow the presentation where the audience will witness an actual secondary reduction firing and experience the scientific process first hand. Raku ware is traditionally associated with the Japanese tea ceremony and was often hand molded. The technique originated in the 16th century. It involved lead-based glazes, wood-fired kilns, and air cooling. Occasionally, organic, carbonaceous materials, such as leaves or twigs, were added to alter the glaze finish. The first portion of this study will present raku ware in this cultural milieu and detail the original process of creation.

Secondary reduction firing instead uses a gas-fueled kiln to rapidly fire the wares. Once fired, the wares are removed and placed inside a container of organic, carbonaceous materials, which are ignited by the extreme heat of the wares. The smoke created by their combustion induces chemical and physical reactions within the container. The resulting atmospheric condition, known as “reduction,” leaves the wares with an unpredictable appearance. This process requires an understanding of the materials’ properties with regard to geology, physics, and chemistry. The second portion of this presentation will describe this process and explore the interaction between the sciences and the fine arts and crafts, and it will culminate in a demonstration

### **The Effects of the 2<sup>nd</sup> Skull Skullcap® to Attenuate Forces Resulting From Foul Ball Impacts Into Two Different Catchers Masks**

*Presenter:* Rebecca Neal

*Mentors:* Prof. Victor Liberi and Mr. Jim Nicknair

*Ribbons:* Thinking Critically

*Session/Time/Location:* 2C, 11:45 – 12:05, Peelle 212

**Abstract: Background:** In the U.S an estimated 3.8 million sports-related concussions occur annually (Beyer, Rowson, & Duma, 2012). 18.5% of these concussions are sustained through the sport of baseball (Thunнан, Branche, & Sniezek, 1998). The mechanism of injury associated with the majority of these concussions is due to ball contact, specifically from foul ball impacts deflecting off the bat into the catcher's mask (Beyer et al., 2012). A new piece of protective equipment, 2<sup>nd</sup> Skull® skull cap has been shown to decrease linear peak accelerations in batting helmets. Limited studies exist evaluating the effectiveness of catcher's helmets.

**Purpose:** The purpose of this study was to evaluate if the addition of a skull cap with a catcher's helmet was able to attenuate peak acceleration forces compared to a catcher's helmet with no skull cap.

**Methods:** The Hybrid III 50<sup>th</sup> head form and neck were used. Two types of catcher's helmets were placed on the head form for the 2<sup>nd</sup> Skull skull cap® and no skull cap conditions. Helmets were impacted 24 inches from the point of release on the pitching machine at speeds of 60 MPH. The Pro Stock Catcher's Helmet was impacted with both baseballs and softballs while the Dyna-Lite Steel Helmet was impacted with baseballs only. 48 total trials were conducted, 8 trials for each of the 6 conditions.

**Results:** To be determined, will present at ribbons.

**Conclusion:** To be determined, will present at ribbons.

### **The Effect of Sport Specialization on Hip & Groin Symptoms in Collegiate Hockey Players**

*Presenter:* Marisa Sheppard

*Mentors:* Mr. Jim Nicknair and Dr. John Goetschius

*Ribbons:* Caring for Humanity and the World

*Session/Time/Location:* 2C, 11:05 – 11:25, Peelle 212

**Abstract: Context:** Sport specialization is a popular trend among youth athletes, although it has been shown to lead to an increased risk of developing serious overuse injuries. Sport specialization, combined with the unique hip biomechanics of ice hockey skating, may lead to an increased prevalence of hip and/or groin symptoms in collegiate hockey players.

**Objective:** The purpose of this study was to examine the effects of low, moderate, and high sport specialization on hip and groin symptoms in collegiate hockey players.

**Design:** Retrospective cohort study.

**Setting:** Data collected from collegiate ice hockey athletes during mid-season of the 2018-19 hockey season.

**Patients or Other Participants:** We are recruiting a convenience sample of collegiate hockey players from Midwest colleges.

**Interventions:** A 3-point specialization questionnaire was used to categorize participants into level of hockey specialization during high school: 0-1 = low, 2 = moderate, or 3 = high specialization. Participants received 1 point for every 'yes' answer to the following questions: (1) Did you quit other sports to focus on hockey? (2) Did you train for more than 8 months out of the year in hockey? (3) Did you consider hockey more important than other sports.

**Main Outcome Measures:** The primary outcome of this study was the participants' hip and/or groin symptoms and functional deficits, determined by the Hip and Groin Outcome Score (HAGOS). A one-way ANOVA was used to compare HAGOS subscores between specialization groups.

**Results/Conclusions:** Data collection is ongoing. Final conclusions will be presented at the ROE conference.



## **Times Have Not Changed: The Gender Equality Problem in Hockey**

**Presenter:** Carly Costello

**Mentor:** Dr. Keith Christy

**Ribbons:** Crossing Boundaries and Disciplines, Thinking Critically, Caring for Humanity and the World, Learning Throughout a Lifetime, and Developing Creativity

**Session/Time/Location:** 2C, 9:50 – 10:10, Peelle 212

**Abstract:** By only forcing federal funded organizations to comply with Title IX, the United States government has made it perfectly legal for non-federally funded athletic organizations to discriminate against not just their female athletes as individuals and their all-female teams and programs as a whole.

USA Hockey, the National Governing Body for hockey in the United States is a prime example of this blatant and unethical, yet legal discrimination. Not only has USA Hockey found themselves in hot water by allowing their men's national team more opportunities and benefits than their women's team, they have also proven to be decades behind in the development of female hockey players and invest millions of dollars less in the funding of their female development programs, which are virtually non-existent.

In this presentation, I visit the topic of both blatant and subtle forms of discrimination that has taken place in the sport of hockey in the United States and how times may have changed, but the discrimination has not. My presentation topic relates to the ribbon of Crossing Boundaries and Disciplines. I applied the things I learned in classes in the Sport Management department or subject, ethics and communications to put together this presentation. I also used the Thinking Critically aspect of the Ribbons of Excellence to go out of the box and present on a topic that was not discussed in class but that I found and researched on my own.

## **A Year in the Life of the Vertebrate Fauna at Walden West**

**Presenter:** Jacob Stone

**Mentor:** Dr. Jeffrey Lake

**Ribbons:** Learning Throughout a Lifetime

**Session/Time/Location:** 2D, 10:45 – 11:05, Peelle 301

**Abstract:** One of the fundamental aspects of developing appropriate management plans for nature reserves is to develop a baseline understanding of the species present. In May 2016, Walden West was donated to Adrian College by Jim and Mary White. The 119 acre preserve has a diversity of terrain and soils, suggesting it is likely home to a diversity of wildlife. In order for the college to appropriately manage the property, it is critical to gain as much knowledge as possible about the species present. This research used game cameras in three locations on the property – one on the wooded moraine, one at the edge of a grassy field, and one near the lake – to document any larger vertebrates present. Throughout all of 2018, data from these cameras were collected, including temperature, date and time of collection, and species present. These data were analyzed to determine habitat preferences of each species and periods of highest activity for each. Whitetail deer dominated all three cameras, but eighteen species were documented in all.

**Topic Area:** Natural Science and Math

### **Changes in Animal Behavior when Stimuli of Non-Native Animals are Introduced into the Habitat at Walden West**

*Presenter: Samantha Roesler*

*Mentor: Dr. Jeffrey Lake*

*Ribbons: Caring for Humanity and the World, Learning Throughout a Lifetime, Thinking Critically*

*Session/Time/Location: 2D, 11:05 – 11:25, Peelle 301*

**Abstract:** Invasive species are becoming more of a prevalent concern in North America; their increasing numbers have the potential to affect the resources our native species require to survive as well as their typical behaviors. The importance of this study is that it evaluates what behaviors may be expected from native animals if a non-native animal is introduced to the area. Two trail cameras with photo and video capability were placed in a forest and meadow habitat within the Walden West property, located near Tipton, MI. Baseline footage of animal behavior was captured the first few weeks of the study before fecal samples obtained from the Indian Creek Zoo were placed. A fecal sample from an olive baboon was placed at the forest site, and a sample from a reticulated giraffe was placed at the meadow site. Footage of animal behavior captured after the samples were placed was compared to baseline footage and analyzed for differences. The results indicate that there are no significant changes in animal behavior or routine movements when non-native biomaterial is introduced. Previous studies have explored the connection between odors and communication, but the data collected adds insight on the effect odor may have on behavior. With these results, we can assume that, depending on the classification of the invasive species, some of our native animals will not show changes in normal movement patterns and behavior.

**Topic Area:** Natural Sciences and Math

### **Is there an Evolutionary Signal in Susceptibility to White-nose Syndrome in Chiroptera?**

*Presenter: Morgan Wiza*

*Mentor: Dr. Jeffrey Lake*

*Ribbons: Caring for Humanity and the World*

*Session/Time/Location: 2D, 11:25 – 11:45, Peelle 301*

**Abstract:** *Pseudogymnoascus destructans* (Pd) is a fungus that infects many species of bats. In many, but not all, infected species, it causes White-nose Syndrome (WNS). White-nose Syndrome has a mortality rate upwards of 90% in some species, such as the little brown bat (*Myotis lucifugus*). Other species have lower mortality rates and some species carry the fungus but remain asymptomatic. Questions to be addressed are: Is there an evolutionary signal for the species known to be infected by Pd? Among those infected to evolutionary relationships explain why some species are more susceptible to WNS disease than others? To answer these questions, genetic sequences from selected species were downloaded from GenBank, these sequences were aligned in MEGA7. Then, phylogenetic trees were developed using MEGA7, specifically using maximum likelihood techniques. After that, infectability and susceptibility to disease were mapped on the phylogenetic tree. The ribbon that this research best exemplifies is Learning Throughout A Lifetime. This interest first started 2 years ago when I researched Chiroptera and has now developed into sophisticated research utilizing skills acquired since then, such as computer science and genetics.

**Topic Area:** Natural Science and Math

## Construal Bias in Language

**Presenters:** Sara Anthony, Megan DeBrabander, Emalee Kerr, Rachel Rodeheffer, Michelle Siegel, Olivia Stobinski and Madeline Tamlyn

**Mentors:** Dr. Seth Knox and Dr. Stacey Todaro

**Ribbons:** Crossing Boundaries and Disciplines

**Session/Time/Location:** 2E, 10:45 – 11:05, Knight Auditorium

**Abstract:** The goal of this research is to examine construal bias in language. Prior research has demonstrated a general preference for assigning male beings or masculine nouns to agent/trajector roles in linguistic construals of events (e.g., John kissed Mary is a more probable construal than Mary kissed John) (Esaulova & von Stockhausen, 2015; Rodriguez, Burigo, & Knoeferle, 2015). However, research to date has tested this claim with transitive constructions. Transitive constructions involve agentive subjects acting upon direct objects (e.g., Eric took Julie on a date). Our study will compare processing of transitive versus intransitive constructions, which lack direct objects and construe subjects as less agentive (e.g., Eric went on a date with Julie). We hypothesize that transitive sentences with male subjects will be processed faster than transitive sentences with female subjects (e.g., Julie took Eric on a date), but no difference in processing time will be observed between male and female subjects in intransitive sentences. We also hypothesize that participants' attitudes toward women will moderate these effects.

**Topic Areas:** Psychology

## Censorship in High School English Classes: Why We Shouldn't F\*\*king Have It

**Presenter:** Natalia Younan

**Mentor:** Professor Beth Myers

**Ribbons:** Thinking Critically and Learning Throughout a Lifetime

**Session/Time/Location:** 2E, 11:05 – 11:25, Knight Auditorium (Valade 130)

**Abstract:**

**WHAT MY PROJECT DOES:** My project, "Censorship in High School English Classes: Why We Shouldn't F\*\*king Have It" explores the reasons that books are censored and the negative effects of doing so.

### STATE OF THE SCHOLARSHIP:

According to the National Council of Teachers of English in October of 2018, American educators have the right to say no to reading something, but they do not have the right to take away the choice of others. Due to the diversity in society, individuals and councils are now starting to look at how this impacts students and teachers.

### HOW I RESEARCH THIS:

I approached this subject from the point of view of a teacher. I submitted a questionnaire to five individuals all involved in English Education at different levels and conducted a personal interview with one. I explored their stance on censorship, the banning of books and the impact that they believed this has on students. I then looked at what other experts in the field had to say and tried to draw parallels.

**POTENTIAL AUDIENCE:** This study is especially important to high school English teachers and administrators but can be of interest to students and community members.

**Topic Area:** Humanities

**Drews, Alex. The Entertainer**

*Presenter: Alex Drews*

*Mentor: Dr. Annissa Morgensen-Lindsay*

*Ribbons: Thinking Critically*

*Session/Time/Location: 2F, 10:45 – 11:05, Downs Hall Theatre*

**Abstract:** By performing an acting recital, Alex Drews has showcased his passion and skills in theatre as well as the goals he strived to achieve by putting on this production while using critical thinking to guide his way. The first goal was to study and become better at physical comedy. Having grown up on cartoons and The Three Stooges, Drews has always been fascinated with physical comedy and hopes one day to become as comical as the shows he grew up watching. This goal was accomplished by critically analyzing physical comedy and identifying what makes people laugh at it. The second was to become a stronger leader. Having not had the chance to lead, Alex has used this recital as an opportunity to use leadership skills in guiding him, and his scene partners in performing a successful production. By leading the production, Alex has proven that he can identify problems and use critical thinking to solve them effectively. Lastly, his third goal was to develop a serious dramatic character. Because he spent most of his life practicing comedy, Alex Drews has little experience in dramatic theater. By using this recital, as well as looking at characters from multiple critical perspectives, Alex has developed a serious dramatic character that the audience will find believable. In order to show how he achieved these goals, Alex Drews will be performing monologues from *The Tempest* by William Shakespeare, *Phaedra* by Jean Racine, and *Voices From the High School* by Peter Dee.

**Topic Areas:** Performance

**Christopher, Leigh. This Is Me.**

*Presenter: Leigh Christopher*

*Mentor: Dr. Annissa Morgensen-Lindsay*

*Ribbons: Developing Creativity*

*Session/Time/Location: 2F, 11:05 – 11:25, Downs Hall Theatre*

**Abstract:** Leigh Christopher constructed a music theatre recital to showcase her work through her four years at Adrian College in preparation for a career in the performing arts. Through the project, her goals included: to create a story-based performance centered around her personal journey, to cultivate new repertoire for future professional auditions, and to showcase her growth both as a performer and as a person. These goals work with the Ribbon of Developing Creativity by concentrating on dramatic literature that she considered good choices for her acting and voice style, and researching the texts to learn the complexities of the characters and their stories. In this presentation, Christopher will be presenting three pieces from her capstone recital: “See I’m Smiling” from *The Last Five Years* by Jason Robert Brown; a monologue from *The Search for Signs of Intelligent Life in the Universe* by Jane Wagner; and “Losing My Mind” from *Follies* by Stephen Sondheim.

**Topic Area:** Performance

**Effects of Positive and Negative Framing of Information about Down Syndrome on Decision-making Post Non-Invasive Prenatal Testing**

*Presenter:* Paige Cubberly

*Mentor:* Dr. Amy Hillard

*Ribbons:* Caring for Humanity and the World, Thinking Critically, and Crossing Boundaries and Disciplines

*Session/Time/Location:* Poster Session, 11:45 – 12:30, Peelle Addition Lobby

**Abstract:** Non-invasive prenatal testing is a recently approved form of genetic testing for pregnant women to screen for chromosomal problems such as Trisomy 21 (i.e., Down syndrome) without the risk of miscarriage. In the event that this test indicates Down syndrome, people may consider whether to continue pregnancy, and perceptions of Down syndrome may influence this decision. The present study examines whether positively and negatively framed information about Down syndrome influences perceptions of Down syndrome and the imagined decision to continue or terminate pregnancies when testing indicates a fetus has Down syndrome. Participants were given the same set of facts about Down syndrome, either framed positively (e.g., “50% have no heart problems”) or negatively (e.g., “50% have heart problems”). The participants were then asked a series of questions to measure their perception of the syndrome and whether their feelings toward a pregnancy might change if they were aware their child would have Down syndrome. Participants provided demographic information, including frequency of contact with individuals with Down syndrome and attitudes regarding abortion, which was examined for correlations. Although it was hypothesized that participants receiving positively framed information would be more positive perceptions of Down syndrome and the pregnancy, there was no significant effect of framing. However, some demographic factors were significantly related to perceptions of Down syndrome or their imagined responses to the pregnancy. These factors, along with their implications for genetic counseling, will be discussed.

**The Effects of Education and Indirect Contact Interventions on Mental Health Stigma**

*Presenter:* Megan DeBrabander

*Mentors:* Dr. Michelle Beechler, Dr. Amy Hillard, and Dr. Suzanne Helfer

*Ribbons:* Thinking Critically, Learning Throughout a Lifetime, and Caring for Humanity and the World

*Session/Time/Location:* Poster Session, 11:45 – 12:30, Peelle Addition Lobby

**Abstract:** Mental health stigma affects millions of people; however there is still a lack of stigma interventions that can reasonably reach a large amount of the population. The present study examines the effects of short education or indirect contact interventions on mental health stigma. Fifty-five students enrolled in general psychology participated by watching one of three video interventions (education, indirect contact, or control) and completed measures of mental health stigma. The present study hypothesized that both of the groups using education and indirect contact interventions will have less stigmatizing attitudes than the control group. It was also hypothesized that the indirect contact condition will have less stigmatizing attitudes than the education condition. Neither of these hypotheses were supported. This was likely due to already existing positive attitudes toward mental health across all conditions, and therefore interventions to improve negative attitudes about mental health had little effect. Further research should include participants that have pre-existing negative attitudes toward mental health and a more recent measure of stigmatizing attitudes.

### Effects of adolescent alcohol exposure on markers of cholinergic interneurons in striatal tissue of adult rats

*Presenter:* Michael Douglas

*Mentor:* Dr. Jeffrey Lake

*Ribbons:* Caring for Humanity and the World, Crossing Boundaries and Disciplines, Thinking Critically, and Learning Throughout a Lifetime

*Session/Time/Location:* Poster Session, 11:45 – 12:30, Peele Addition Lobby

**Abstract:** Adolescent binge drinking is an important public health issue. Previous studies have shown that alcohol exposure alters neural functioning in adolescents, leading to late deleterious effects such as reduced cognitive and behavioral effects, including impacts on spatial processing and memory retention. Binge drinking is a behavior in which high amounts of alcohol are consumed in a brief period of time, and is frequently observed in adolescents. In animal models, the consequences of binge drinking are modeled through adolescent intermittent ethanol (AIE) exposure. Previous studies have shown that AIE can impair normal brain development, affecting several different structures and functions in the brain. For example, AIE has been shown to alter normal neural functioning by alteration of the activity of cholinergic projection neurons in the basal forebrain. However, there is no evidence regarding the effect of AIE on cholinergic interneurons in the striatum, which may contribute to behavioral flexibility and adaptive behavior. We hypothesized that AIE persistently reduces the number of cholinergic interneurons in the striatum compared to a control group. To test this, immunohistochemistry was used to visualize choline acetyltransferase or ChAT, a marker of acetylcholine neurons. Numbers of immunopositive ChAT neurons were counted in coronal slices of striatal tissue in rats exposed to ethanol or water (controls) during adolescence using Bioquant software. We expect to see a reduction of number of immunopositive ChAT neurons in the striatal tissue of ethanol-exposed rats in comparison to control rats, which may underlie disrupted cognition and behavior.

### The Effects of Aerobic Eccentric Exercise Training on the Ventilatory Threshold in Untrained Individuals

*Presenter:* Kayla Durbin

*Mentor:* Dr. Erin Garmyn

*Ribbons:* Thinking Critically and Developing Creativity

*Session/Time/Location:* Poster Session, 11:45 – 12:30, Peele Addition Lobby

**Abstract:** Eccentric exercise (ECC) generates more force than concentric exercise, but it recruits fewer muscle fibers and requires less energy. While most studies evaluate ECC resistance training and strength performance, no study to date has evaluated moderate-intensity aerobic ECC training and its effect on aerobic performance.

**PURPOSE:** To determine what effect ECC training (downhill running) had on the ventilatory threshold (VT), an indicator of aerobic performance, vs. level running (CON).

**HYPOTHESIS:** ECC training will improve the VT to a greater extent than CON training.

**METHODS:** 8 untrained college students (3 Males; 5 Females) were randomly assigned to an 8-week training program, participating in ECC or CON aerobic exercise 30 min/day, 5 days/week on a treadmill (set to -3% grade to elicit ECC training). Both groups began training at 60-65% heart rate max ( $HR_{max}$ ) and increased 5% every 2 weeks, reaching 75-80%  $HR_{max}$  the final two weeks. Before and after training, VT was assessed via a  $VO_{2max}$  test.

**RESULTS:** While relative  $VO_{2max}$  and VT values were similar between groups before and after training, VT did improve in the ECC group following training, while the CON group did not ( $ECC_{Pre}$  64.230 ± 2.988,  $ECC_{Post}$  77.12 ± 4.443,  $p = 0.015$ ;  $CON_{Pre}$  67.480 ± 7.861,  $CON_{Post}$  72.830 ± 8.759,  $p = 0.213$ ).

**CONCLUSIONS:** ECC training in the form of downhill running appears to elicit an improved VT response vs. a more traditional aerobic training program, and it may be important in the rehabilitation setting in which patients have reduced aerobic capacities.

**Testing for the Presence of Estrogen in the River Raisin Watershed**

**Presenter:** Mara Eason

**Mentor:** Dr. Ben Pawlisch

**Ribbons:** Caring for Humanity and the World

**Session/Time/Location:** Poster Session, 11:45 – 12:30, Peelle Addition Lobby

**Abstract:** Oral contraceptives are taken by women for the prevention of conception. The majority of them contain varying concentrations of progestins and estrogens, including 17 alpha-ethinylestradiol. Contraceptive pills work by changing the natural level of these hormones found in a woman's body. This change in hormone levels can aide in the prevention of pregnancy by preventing ovulation and thickening the mucus layer of the cervix to prevent successful implantation. Estrogen from these pills is secreted from women in their urine, and it is difficult to remove from water without additional steps at treatment facilities. Estrogen is then released into rivers and lakes where it accumulates. The development of fish with both male and female parts has been attributed to the presence of the hormone in the water.

In order to see how the concentration of estrogen changes until it reaches the River Raisin watershed, samples were taken from two different stages: in urine and in water from the River Raisin. Urine samples were collected from female volunteers taking oral contraceptives or using no form of birth control. Six water samples were taken from each location, three samples spiked with estradiol and three non-spiked samples. The concentration of 17-alpha-ethinylestradiol was tested in the samples using an ELISA plate. We predict that low concentrations of estrogen will be found in the water; however, they will be much lower than in urine due to dilution. It is important to then determine how these levels of estrogen are affecting the fish, both physically and behaviorally.

**The Effects of Garlic and Garlic Mustard on Soil Bacteria**

**Presenter:** Mara Eason

**Mentor:** Dr. Janet Salzwedel

**Ribbons:** Crossing Boundaries and Disciplines, Learning Throughout a Lifetime, and Caring for Humanity and the World

**Session/Time/Location:** Poster Session, 11:45 – 12:30, Peelle Addition Lobby

**Abstract:** Garlic produces a secondary compound, allicin, that is converted into alliin when the plant is crushed. Historically, it has been observed that garlic (alliin) is antifungal, antibacterial, and antiviral. Past Adrian College students reported that treatment of bacteria with garlic extract led to a delay in growth. While the bacterial population did recover in previous research, the present study seeks to determine whether the bacteria are just being inhibited or mostly killed off. We have assessed the viability of bacterial cells treated with garlic extract using fluorescence microscopy. Cells stained with fluorescein diacetate will only fluoresce if they are alive. Direct counts of total cells (both Gram positive and Gram negative) vs. fluorescent cells in standardized samples at different time points will be presented. This allows us to focus on the specific effects caused by garlic, and then adapt the techniques for testing the allyl isothiocyanate (AITC) produced by the invasive plant species, garlic mustard. This work may shed light on a factor (effect on soil bacteria) that contributes to the success of invasive garlic mustard.



**Motivational Factors of Collegiate Studying**

*Presenter:* Jenna Ehredt

*Mentor:* Dr. Gretchen Carroll

*Ribbons:* Thinking Critically

*Session/Time/Location:* Poster Session, 11:45 – 12:30, Peelle Addition Lobby

**Abstract:** The study is conducted through Adrian College. We assessed the motivational factors behind studying on students, discussed differences, and how colleges can benefit from this information. We will go about this by using a survey. This survey will help us acquire information regarding study motivational factors and demographics. Once we have compiled the information, we will put together a presentation and research paper so as to inform college students and administrators alike. We created a survey with 5 main motivational factors: relationships, effort, aspirations, heart, recognition. Based on a weighted 5 point scale we evaluated which factor the subjects value the most. We will use the findings to establish which factor is most heavily weighted and apply this information to correlate with their performance as a student as well. We are planning on acquiring roughly 100 surveys to get a 95% confidence level and a 10% margin of error.

**Phase I Environmental Assessment of Walden West Property**

*Presenter:* Nicole Games

*Mentors:* Dr. Thomas Muntean and Dr. Sarah Hanson

*Ribbons:* Thinking Critically, Caring for Humanity and the World, and Crossing Boundaries and Disciplines

*Session/Time/Location:* Poster Session, 11:45 – 12:30, Peelle Addition Lobby

**Abstract:** Walden West is a 119-acre property located in Tipton, Michigan. To evaluate potential for contamination throughout the property, a Phase I Environmental Assessment was conducted. The area is composed of glacial debris with variable topography. Located on the property are two surficial ponds and a series of wetlands. There are four non-residential buildings, five cabins, an electrical transformer, a septic field, and two well heads. The buildings and cabins are a potential source of contamination as they were constructed prior to the banning of several hazardous materials possibly used during their construction. The sources of potential contamination include household pesticides that may have been used throughout the property, PCBs within an electrical transformer located on the northeast side of the property, lead paint within the buildings, and asbestos within adhesives in the buildings. One deleted superfund site is located 15 miles from the property and is not a concern for contamination. Four sites with underground storage tanks (USTs) have existed within a 1 mile radius of the property. USTs at three of those sites have leaked but have since been remediated. Other sources of potential contamination that were recognized but do not exist on the property and are not of concern include underground storage tanks, above ground storage tanks, hazardous materials, oil and/or water separators, bio-hazard waste, solid waste, and radon hazards. To determine whether contaminants are present on the property, a Phase II Environmental Assessment would have to be completed.

## Patterns of Surface Subsidence in the City of Adrian and Their Cause

**Presenter:** Korey Mazur

**Mentors:** Dr. Sarah Hanson and Dr. Thomas Muntean

**Ribbons:** Thinking Critically and Crossing Boundaries and Disciplines

**Session/Time/Location:** Poster Session, 11:45 – 12:30, Peelle Addition Lobby

**Abstract:** The city of Adrian was founded in 1826 and has 20,000 residences today. Many of the cities fire hydrants show evidence of subsidence, as there is a gap between the base of the fire hydrant and the ground surface. These gaps were measured at 66 hydrants between South Charles Street, West Maple Avenue, State Street and West Beecher Street. The location of each hydrant was recorded using a GPS unit. A subsidence contour map was created to track patterns in the measurements.

Decrease in ground surface elevation is interpreted to be due to either subsidence or denudation, depending on what part of the map is being looked at. Subsidence is the lowering of the ground surface due to compaction, while denudation is the lowering of the ground surface due to erosion. There are two mechanisms causing subsidence in this area. First, subsidence resulting from prior extraction of ground water from old domestic wells associated with early home construction, such as around S. McKenzie St. and W. Maumee St. Second, subsidence caused from mass loading such as near the southwest portion of the map which has newer homes that are more closely located therefore applying a higher weight to the ground surface. Denudation is the other factor in lowering of the ground surface. Due to the less densely packed glacial deposits, such as those around the South Branch River Raisin, surface water (rain, snow melt etc.) is removing soil via erosion and lowering the ground surface.

## Strategies in Writing Blog-Style Environmental Literature

**Presenter:** McKayla Moran

**Mentor:** Prof. Beth Myers

**Ribbons:** Crossing Boundaries and Disciplines, Caring for Humanity and the World, and Developing Creativity

**Session/Time/Location:** Poster Session, 11:45 – 12:30, Peelle Addition Lobby

**Abstract:** My research analyzed environmental blogs and scholarly papers that address how scientists can increase their presence on social media. In this research, I proposed that scientists that heighten their social media presence, specifically by blogging about related topics to environmentalism, can increase a general audience's willingness to read about it as well as increase activism within the audience to combat environmental issues. I saw a gap in formal scientific literature and that it does not reach a general audience very well, which can prevent the public from understanding some of our most important environmental issues that are happening today. The research lead me to discover that writing about environmentalism through a widely used platform such as blogging can increase participation, popularity, and understanding among a large audience. Results showed that there are common strategies to use in blog posts when trying to increase readership. I focused on the three strategies that were mentioned most, they are to use photos and videos, use links, and connect with an audience. Research also suggested that an increased readership is followed by increased participation among readers which has great implications on how scientists can use this information to spread more knowledge.

**Evolution of costal grooves in salamanders***Presenter:* Alana Pastula*Mentor:* Dr. Jeffrey Lake*Ribbons:* Thinking Critically*Session/Time/Location:* Poster Session, 11:45 – 12:30, Peele Addition Lobby

**Abstract:** Costal grooves in salamanders serve as one of several mechanisms of gas exchange; they are present in many clades of this group, but are lacking in newts. These grooves are valuable primarily during time spent underwater, allowing gas exchange without true gills. These observations led to the question, What conditions led to the evolution of and subsequent loss of cost grooves within these members of Caudata? This research used phylogenetic approaches to analyze sequence data from GenBank to construct phylogenetic hypotheses. Mega7 was used to align sequence data and to form phylogenetic trees using parsimony and likelihood techniques. Environmental conditions and habitat preferences for various clades were then overlaid onto the consensus phylogenies to seek potential drivers of these adaptations to life in water.

**The Desk Top Delta: Evaluating cause and effect relationships between deltaic sedimentation behavior and external variables.***Presenter:* Garrett Powell*Mentors:* Dr. Thomas Muntean and Dr. Sarah Hanson*Ribbons:* Crossing Boundaries and Disciplines*Session/Time/Location:* Poster Session, 11:45 – 12:30, Peele Addition Lobby

**Abstract:** Deltas are complex sedimentary features that vary based on coastal margin type (narrow or broad shelf), sea level, sediment grain size, and wave action. In order to evaluate these relationships, an experimental desktop sediment flume was constructed.

Sea level: responses observed for sea level change were progradation and retrogradation during sea level fall and rise respectively. This is due to accommodation space location change. The accommodation space moves closer to or away from shore for sea level rise and fall respectively. Margin type: narrow shelves produced thicker deposits over a smaller area when compared to broad shelf deposits. This is because the narrow shelf's steep slope has an increased tangential gravity component, which pulls sediment off the slope and causes a pile-up on the abyssal plane. In contrast, the broad margin type is shallower than the angle of repose so sediment builds out evenly and further. Erosion patterns; the broad margin experienced more extreme erosion during sea level fall than the narrow margin. This is due to shelf morphology; dropoffs provided protection from river energy as sediment is still well within accommodation space. Decreasing grain size: silt and clay made up a larger fraction of the overall sediment load. Smaller particles require less energy to stay suspended in the water column leading to a greater suspended load resulting in prominent prodelta deposits and poor water clarity. Wave action: In wave-dominated systems, waves reworked and eroded delta front and shore line deposits changing the morphology from river dominant topography.

**Effect of Symptom Dimension and Familiarity on Recognition and Stigmatization of Obsessive-Compulsive Disorder**

*Presenter:* Michelle Siegel

*Mentors:* Dr. Michelle Beechler, Dr. Amy Hillard, and Dr. Suzanne Helfer

*Ribbons:* Caring for Humanity and the World

*Session/Time/Location:* Poster Session, 11:45 – 12:30, Peelle Addition Lobby

**Abstract:** The OCD symptoms of symmetry/incompleteness and contamination may be better recognized as OCD than responsibility for harm and taboo thoughts, and taboo thoughts may be more stigmatized than other symptoms (McCarty et al., 2017). In addition, greater familiarity may correlate with greater recognition of mental illness and OCD across all symptoms (Glazier et al., 2013; McCarty et al., 2017). To test these hypotheses, 43 undergraduate students read five counterbalanced vignettes—varied by symptom—and rated them individually for both recognition of various psychological issues (including mental illness and OCD) and stigma. Familiarity was also measured. Repeated-measures ANOVAs showed not only that participants were more likely to recognize OCD in depictions of symmetry/incompleteness and contamination than in depictions of responsibility for harm or taboo thoughts, but also that participants attributed greater fear/dangerousness to—and desired more social distance from—individuals with taboo thoughts than individuals with other symptoms. Findings also partially supported the familiarity hypothesis, with mental health literacy positively related to recognition of mental illness in depictions of contamination and taboo thoughts, as well as recognition of OCD in depictions of symmetry/incompleteness and contamination. However, no significant relationships were found between mental health literacy and recognition of mental illness in depictions of symmetry/incompleteness, recognition of OCD in depictions of taboo thoughts, and recognition of either mental illness or OCD in depictions of responsibility for harm. These findings aid in the understanding of OCD recognition and stigmatization.

**Relationship different soil types have with plant life at Walden West, Tipton, MI**

*Presenter:* Olivia Ziemba

*Mentors:* Dr. Sarah Hanson and Dr. Thomas Muntean

*Ribbons:* Thinking Critically and Crossing Boundaries and Disciplines

*Session/Time/Location:* Poster Session, 11:45 – 12:30, Peelle Addition Lobby

**Abstract:** Fourteen different soils from Walden West, near Tipton, MI, were analyzed to determine relationships between soil type, soil composition, and floral assemblages. Soil from lower elevations are part of a glacial ground moraine and include peat muck and clay. Peat muck, found at the lowest elevation, is very high in calcium, high in magnesium, and has a basic pH which supports the growth of tall grass, moss, and tamaracks. Clay-based soil is found at slightly higher elevations and contains high levels of moisture and is fairly basic which supports plant life, such as spruce trees and tall grass. These lower elevations accumulate a variety of organic matter and sediments that contain abundant nutrients, which increases the number of cations that can be exchanged. Soils on the higher elevation glacial end moraine include sand and silt with a lower pH than those associated with the ground moraine. Sand, found at high elevations, holds high to medium levels of moisture. Thick brush, oak trees, and cherry trees thrive in sandy soil because it is more acidic, thus dissolves the nutrients so the plants can absorb them. At the highest elevations, silt is the main soil component. Plant life in silty soil consists of shagbark hickories, cherry trees, and oak trees. These higher elevations contain less nutrients which in turn decreases the cation exchange capacity. Overall, soil types and the nutrient abundance at different elevations and glacial deposits have a direct relationship to the plant life found on the Walden West property.

**Conditions of Reclamation: Reconciliation, Repossession, Resurgence, Response***Presenters:* Kellen Taylor, Patrick Dunn, Rachel Oswalt, and Kaye Keckler*Mentor:* Prof. Travis Erxleben*Ribbons:* Caring for Humanity and the World, Learning Throughout a Lifetime, Thinking Critically, Crossing Boundaries and Disciplines, and Developing Creativity*Session/Time/Location:* Meet the Artist, 11:45 – 12:30, Valade Gallery (Shipman)

**Abstract:** In fulfillment of the requirements of the Bachelor of Arts and Bachelor of Fine Arts Degrees in Studio Art in the Department of Art and Design, students must present a capstone art exhibition in their senior year. The exhibition represents two semesters' worth of preparation, including the creation of a portfolio of new works revolving around a central theme, the design of a gallery floor plan, the creation of marketing materials and implementation of a marketing plan, and the installation of their art in a gallery. Through this process, students demonstrate professional, practical, and creative proficiency as artists.

The 2019 candidates for the Bachelor of Fine Arts in Studio Arts Degree will present the group exhibition Conditions of Reclamation: Reconciliation, Repossession, Resurgence, Response at Valade Gallery in Shipman Library from April 1st until April 25th. This year's exhibition features works that explore varying approaches to the theme of reclamation. Kellen Taylor seeks reconciliation of a core identity for women pulled in multiple directions by professional ambition, motherhood, and marriage by altering the myriad documents and publications that mark each status. Kaye Keckler integrates emotions through the materials and elements of painting, producing non-representation responses to her mental states. Rachel Oswalt explores repossession of nature through a visual dialog between natural and machine-made form. Patrick Dunn's work celebrates the resurgence of the handmade object through functional vessels. The artists will host a reception with during Ribbons of Excellence Day and will be available to discuss their works.

**Star Light Writing Award***Presenters:* Anna Wozniak, Taylor Petit, and Haley Carpenter*Mentors (respectively):* Dr. Bethany Shepherd, Dr. Annissa Morgensen-Lindsay, and Dr. Andrew Winkles.*Session/Time:* 3A, 2:00 – 3:00

In Academic Foundations I (AF I), the first course in Adrian College's First-Year Core Curriculum, students practice the reading, thinking, writing, speaking, and research strategies they will need to be active and successful participants in their academic, professional, and civic lives. AF I focuses on questions that are central to students' daily lives, and aims to cultivate an ethic of inquiry that inspires students to live out each of the college's Ribbons of Excellence.

The presentations in this session represent excellence in writing achieved during AF I. Faculty from many disciplines judged these research projects to be the best among all those nominated. One of these essayists will be further recognized with the Star Light Writing Award in continuation of the spirit of a past Adrian College prize, the Inter Society Contest, established in 1879 by two campus literary societies: the Star Literary Society and the Lambda Phi Society (whose symbol was a ray of light). Then, as now, judgment for the award is based upon "thought, arrangement, and rhetorical style."

**Mahan Manuscript Honors Award***Presenters: Laurel Hammis and Autumn Cramer**Mentor: Dr. Renuka Uthappa**Session/Time: 3A, 2:00 – 3:00*

Established in 2016, the Mahan Manuscript Honors Award recognizes the best essays by Academic Foundations I students enrolled in the Adrian College Honors Program. These projects are the outcome of a semester-long process of inquiry-based writing and research on a topic developed by each student.

Named for the first President of Adrian College, the Rev. Asa Mahan, this award honors the outstanding tradition of liberal arts scholarship Mahan instituted and particularly his rhetorical legacy as embodied in his published and unpublished works. Chief among these unpublished manuscripts is Mahan's diary, newly preserved and housed in the Shipman Library Archives, which details his time at Adrian College and outlines some of his most important moral philosophy—including his thoughts on the United States Constitution and his idea of “intrinsic worth”—the idea that all individuals regardless of race, class, or sex have inherent value that should be protected. Indeed, it is the aim and goal of a liberal arts education to prepare scholars and citizens who can articulate this ideal of intrinsic worth in the contemporary world.

All of the essays nominated for this award in some way accomplish and embody this vision and for their contributions we honor them here.

**Reconsidering the Political Role of Native Americans: Wheelock and His Indian Charity School***Presenter: Max Ruff**Mentor: Dr. Deborah Field**Ribbons: Caring for Humanity and the World**Session/Time/Location: 3B, 2:00 – 2:20, Rush 116*

**Abstract:** This paper will explore the relationship between Protestant missionaries and the Native Americans they sought to convert in the colonial period of America. To elaborate on this relationship, Reverend Eleazar Wheelock was a prominent example of the insurmountable hurdles a Christian missionary faced in their attempts at converting the Native population of North America. The natives themselves sought to keep cultural and religious independence in the face of the foreign Europeans. Wheelock's own native students expressed the same defiance against his racist methods of conversion through subtle resistance revealed in letters of correspondence with Wheelock and other third parties. The goals of Christian missionaries were also disconnected from the imperial ambitions of Great Britain as their evangelizing mission had to be balanced with the political considerations of Great Britain allying itself with the Iroquois Nations. In short, the missionary work of Reverend Eleazar Wheelock embodies the nearly impossible task of large scale conversion in the Americas due to strong native resistance and lack of support from Great Britain. This paper will primarily utilize the multiple narratives and accounts of Wheelock's missionary school, written by himself, while also incorporating selected letter correspondences between Wheelock and connected persons. This study contributes to the reconsideration of the Native American tribes by reexamining their political position in colonial America. The Native American tribes, such as the Iroquois, were not passive victims but were instead active participants in the political world around them.

### **Predicting Attitudes Toward Lesbian Women, Gay Men, Transgender Individuals, and Their Rights**

*Presenter:* Megan DeBrabander

*Mentors:* Dr. Michelle Beechler, Dr. Amy Hillard, Dr. Suzanne Helfer

*Ribbons:* Thinking Critically, Learning Throughout a Lifetime, and Caring for Humanity and the World

*Session/Time/Location:* 3B, 2:20 – 2:40, Rush 116

**Abstract:** Mental health stigma affects millions of people; however there is still a lack of stigma interventions that can reasonably reach a large amount of the population. The present study examines the effects of short education or indirect contact interventions on mental health stigma. Fifty-five students enrolled in general psychology participated by watching one of three video interventions (education, indirect contact, or control) and completed measures of mental health stigma. The present study hypothesized that both of the groups using education and indirect contact interventions will have less stigmatizing attitudes than the control group. It was also hypothesized that the indirect contact condition will have less stigmatizing attitudes than the education condition. Neither of these hypotheses were supported. This was likely due to already existing positive attitudes toward mental health across all conditions, and therefore interventions to improve negative attitudes about mental health had little effect. Further research should include participants that have pre-existing negative attitudes toward mental health and a more recent measure of stigmatizing attitudes.

### **Transitions: Creating LGBT-Inclusive Spaces**

*Presenter:* Brodie Lobb

*Mentor:* Dr. Jennifer Towns

*Ribbons:* Learning Throughout a Lifetime, Developing Creativity, Caring for Humanity and the World, and Thinking Critically

*Session/Time/Location:* 3B, 2:40 – 3:00, Rush 116

**Abstract:** This presentation is an extension of my previous project from 2016. The intention with my project from 2016 was to educate the audience about financial and social barriers of being transgender, which included examining discriminatory practices and situations when searching for healthcare, housing, and employment, as well as increased risk for homelessness, mental illness, and suicide completion. In this presentation, my goal is to review some of those topics while also fostering conversation about ways that audience members can make their own spheres of influence more inclusive to members of the LGBT+ community, with a specific focus on transgender and gender expansive individuals.

### **Two Languages, One Classroom: The Education of Bilingual Students in the United States**

*Presenter:* Carly Thomas

*Mentor:* Dr. John Eipper

*Ribbons:* Crossing Boundaries and Disciplines

*Session/Time/Location:* 3C, 2:00 – 2:20, Valade 202

**Abstract:** In my presentation I will explore how being bilingual affects students in the classroom setting and examine the ways in which they use their bilingualism. The number of bilingual students in the United States continues to rise, as does the amount of bilingual education programs. Therefore, it is important that teachers realize how their bilingual students differ from their monolingual students, and how bilingual education differs from traditional education. Two important topics I will cover in my presentation are code-switching and language transfer, and I will discuss how bilingual students utilize both of these, both intentionally and unintentionally. Furthermore, I will discuss how teachers use code-switching as a tool in their classrooms to further student understanding. I will also touch on certain political aspects that affect bilingual education programs throughout the United States, and how bilingualism is different in the United States than it is in other countries.



**Video Game Theory and the College Academic Process**

*Presenter:* Cheyenne Sliter

*Mentor:* Professor Garin Horner

*Ribbons:* Caring for Humanity and the World, Learning Throughout a Lifetime, Thinking Critically, Crossing Boundaries and Disciplines, and Developing Creativity

*Session/Time/Location:* 3C, 2:20 – 2:40, Valade 202

**Abstract:** When you hear the words “objectives”, “enemies”, “allies”, and “winning” you think of a video game. What if I told you I think of college? Video games have challenges and objectives that you need to accomplish in order to win as well as enemies to overcome and allies that help you out. When you think about college there are also objectives, enemies and allies too. In the gaming your objective to accumulate experience points to level up. In college you have courses that you have to pass to go to the next level and if you accumulate enough credit, or wins, you will graduate. Students face obstacles like poor time management, alcohol, lack of sleep and any other temptations may lead them astray. Faculty help students everyday so they can succeed by reaching the end goal, to get a degree. If you think of the course catalog being the “rules” and “outline” of a game it all makes perfect sense. For this research project I made a video for incoming freshman during Welcome Week. This video is designed around the idea of Adrian College as a video game with all the objectives, allies, enemies and anything that a student will encounter while on campus. My goal is to increase knowledge about campus life and the academic system so that the student have a better chance of succeeding. This project was made possible because of a Summer Grant that was supervised by Professor Horner.

**Analysis of Trends for Inquiry and Risk Taking in facilitating Teacher Leadership**

*Presenter:* Darcy Renaud

*Mentor:* Dr. Christine Knaggs

*Ribbons:* Learning Throughout a Lifetime, Thinking Critically, and Caring for Humanity and the World

*Session/Time/Location:* 3C, 2:40 – 3:00, Valade 202

**Abstract:** This study explores existing research on inquiry and risk taking, as well as teacher leadership in the classroom. Past research has established a need for teacher leaders; however, there is a discrepancy as to the definition of the role of a teacher leader, as well as a lack of research on ways to facilitate these leaders once they are in their roles. Furthermore, there is an examination of Mark Smylie’s and Jon Eckert’s framework: Seven Conditions for Teacher Leadership, as presented by Barnett Berry. This model provides the theoretical framework the research found in this study, is based upon. The research was a case study of one school and provided both quantitative and qualitative data to form a possible plan for the school’s next steps in developing inquiry and risk taking skills needed to facilitate effective leadership in the professional world.

### **Comparison of Xylem and Stomatal Traits in Invasive and Native Shrubs of a Southeast Michigan Forest**

**Presenters:** Paige Cubberly and Margaret Amory

**Mentors:** Dr. Jeffrey Lake and Dr. Marti Morales

**Ribbons:** Caring for Humanity and the World, Thinking Critically, and Developing Creativity

**Session/Time/Location:** 3D, 2:00 – 2:20, Alumni Lounge (Valade 125)

**Abstract:** Numerous species have been introduced through human activity over the last 200 years; some of these have become invasive, meaning that they are dominating native species and fundamentally changing ecosystem processes. Understanding how native and invasive species differ may provide clues to control of the invasives. In woody plants, these differences may involve traits related to speed of growth, including hydraulic traits such as stomatal density and xylem diameter. Stomata, the openings allowing for gas exchange, may be more dense in invasive species, allowing more rapid carbon fixation. Xylem, which is responsible for water transport in plants, may be of larger diameter in invasives, allowing for faster water movement. This research sampled leaves and stems from three invasive (*Lonicera maackii*, *L. morrowii*, and *Rhamnus cathartica*) and two native shrubs (*Lindera benzoin* and *Ribes cynosbati*). Stomatal peels from the lower surface of leaves were taken; counts were taken in a measured area around the leaf. Stems were embedded in paraffin, sectioned by microtomy, stained with safranin and methyl green; xylem was measured using a calibrated microscope. Invasive species did, in fact, show faster hydraulic traits than native, although there were differences among species within both categories as well. This research crosses a number of ribbons; the scientific approach requires critical thinking and creative application of methodology. The applied nature of working with invasive species focuses on improving our natural world.

### **Observational Study of Kiwanis Trail Invasive Species**

**Presenter:** Maxwell Birmingham

**Mentor:** Dr. Janet Salzwedel

**Ribbons:** Caring for Humanity and the World

**Session/Time/Location:** 3D, 2:20 – 2:40, Alumni Lounge, (Valade 125)

**Abstract:** This study was designed to observe a half-mile stretch of the Kiwanis Trail in Adrian, Michigan. The trail is an 8-mile former railroad that has been paved over and is commonly used by the public as a bike and running path. There are various habitats present along the trail as it spans from Adrian to Tecumseh, with an especially diverse section between the 2.5 and 3 mile stretch that was observed in this study. Invasive species plague this trail, the most common invasive species on the trail are honeysuckle, privet, glossy buckthorn, and autumn olive. There are various habitats along the trail, the defining factor in these habitats is the water levels of the surrounding soil and variation among native plants. There was a greater prevalence of invasive species in habitats with wetter soils based on our observations. The purpose of this observation is to notify the city forester of Adrian and local gardening foundation so that the process of removal at the specified locations could begin. Our methodology for collecting data was by walking the half-mile stretch and identifying and counting the invasive plants, as well as recording the stem diameter. The ribbon of excellence that this study best represented was caring for humanity and the world. While this was done on a small scale, taking care of native plants within our city is beneficial to our planet and local habitats.

## Maintenance of Relative Species Abundance by Pathogens

**Presenter:** Alex Mercer

**Mentor:** Dr. Jeffrey Lake

**Ribbons:** Caring for Humanity and the World, Thinking Critically, and Developing Creativity

**Session/Time/Location:** 3D, 2:40 – 3:00, Alumni Lounge (Valade 125)

**Abstract:** Old-growth forests are immensely diverse communities contained within dense ecosystems. Previous ecological models, such as competition, cannot account for the stability of this level of diversity over substantial time-spans. We set out to examine the role of pathogenic invasion on the maintenance of the relative abundance of species within established tree communities. A simulated forest was constructed within the statistical program R and populated with pathogens infecting a diverse array of species according to two established models. The Janzen-Connell Hypothesis posits that abundance is regulated by the assault of host-specific pathogens which knock-down each species individually. The Enemies Susceptibility Hypothesis proposed by Stephen Hubbell claims that species abundances are instead governed by generalist pathogens. These hypotheses, together, indicate that rare species survive via the Escape Hypothesis which requires a change in the distribution pattern to protect rare species from extinction by distancing themselves from areas of infection. Statistical analysis of the resulting position maps of our simulated forest utilizing Ripley's K allowed the evaluation of the distribution patterns of clumping in contrast to dispersion of species. As these highly complex interactions occur over a considerable length of time, our simulated community provides ample opportunity to observe both of these scenarios independently in a way that we cannot in nature.

## Sustainability: Balancing People, Profit, and Planet

**Presenters:** Mariah Kramer, Casey Cribbs, Mady Crandle, and Lillian Brueckman

**Mentor:** Professor Amber Gray

**Ribbons:** Caring for Humanity and the World, Learning Throughout a Lifetime, and Thinking Critically

**Session/Time/Location:** 3E, 2:00 – 2:20, Knight Auditorium (Valade 130)

**Abstract:** Do accountants have the ability to make or break the planet? Some experts suggest that sustainability accounting may be the solution. This presentation attempts to provide a background on sustainability accounting and provide examples of several forms of sustainability reporting. This presentation identifies the differences between Corporate Social Responsibility, B-Corps, and Sustainability Accounting. Additionally, this presentation will highlight Coors Brewing Company and their efforts toward achieving sustainable business practices.

## Rebranding the Hot Dog- Wienerschnitzel

**Presenters:** Elizabeth Graves, Joseph Herrera, Julia Maltbie, and Nolan Duda

**Mentor:** Prof. Patrick Quinlan

**Ribbons:** Thinking Critically, Learning Throughout a Lifetime, Crossing Boundaries and Disciplines, Developing Creativity, and Caring for Humanity and the World

**Session/Time/Location:** 3E, 2:20 – 2:40, Knight Auditorium (Valade 130)

**Abstract:** This year, the American Advertising Federation National Student Case Competition involves the restaurant chain Wienerschnitzel. Our group has worked to create a marketing plan to change the unhealthy connotation hot dogs have in America. This plan is going to be created under a \$25 million budget. With this budget, our proposal is centered around marketing in connection with music festivals and social media, to garner the specific audience of those younger and influential. The integrated marketing communication plan we will be presenting includes the results of our assessment of the situation, appropriate communication objectives, as well as a fully developed campaign, including final creative output, media plans, and a budget.

### **The Juxtaposition of Our Worlds and Actions: A Talk About Ethics**

**Presenter:** Colleen Cater

**Mentor:** Dr. Gretchen Carroll

**Ribbons:** Caring for Humanity and the World

**Session/Time/Location:** 3E, 2:40 – 3:00, Knight Auditorium (Valade 130)

**Abstract:** The goal of this presentation is to showcase the juxtaposition in our ideals and practice. More specifically, we aim to investigate the dissonance in ethics we see today by dissecting the difference between what we claim to be a top value of ours and the way we actually practice this value. (An example could include a student telling us that their top value is ‘honesty’, but then he/she goes and cheats on a test).

In order to accomplish this, we will be examining and analyzing what other researchers have discovered about this issue, as well as surveying Adrian College students to see how they compare.

The resulting presentation will be a format consisting of: a summary of what other researchers have found, what our data analysis showed of the Adrian College students, and finally some rhetorical questions about how we can start combating this inconsistency.

### **Musical Communication Beyond the Language Barrier**

**Presenter:** Charlie Penn

**Mentor:** Dr. Kristin Clark

**Ribbons:** Crossing Boundaries and Disciplines, Developing Creativity, Learning Throughout a Lifetime, and Thinking Critically

**Session/Time/Location:** 3F, 2:00 – 2:20, Downs Hall Theatre

**Abstract:** A Vocal Performance recital can include many different languages, so how can an individual sing in multiple languages without being fluent in them? Through lyric diction courses, a student is able to learn how to sing in each of these languages by using the International Phonetic Alphabet, commonly referred to as IPA. This allows vocalists to be able to understand not only how to sing in this language but how the language works. IPA is imperative in being able to convey the meaning of the music through the language! Sung languages are different than spoken languages and this helps us to understand where the stress is in a word, what sounds are used, and how to make everything clearer even if you aren’t a native speaker of the language. This analysis easily ties into the ribbons of excellence, Thinking Critically, Crossing Boundaries and Disciplines, and Developing Creativity. By connecting the different languages, the music, and interpreting already complicated languages into an entirely different alphabet it allows singer to reach the end goal of performing beautiful music.

### **Like Breathing: The Creative Process of a Musical Theatre Recital**

**Presenter:** Alexandra McCarty

**Mentor:** Dr. Kristin Clark

**Ribbons:** Caring for Humanity and the World, Learning Throughout a Lifetime, Developing Creativity, Thinking Critically, and Crossing Boundaries and Disciplines

**Session/Time/Location:** 3F, 2:20 – 2:40, Downs Hall Theatre

**Abstract:** Singing actors are required to demonstrate a depth of musical skill, while also personifying a wide range of human traits and emotions. Through the preparation of a role or recital, performers must learn to effectively communicate the stories of others. In order to do this, we must explore the diversity of human thought and experience empathy for the subject matter. We develop this through background research on the plots and texts, and we study historical, cultural, and social influences. We must also critically examine the intricate relationships between music, rhythm, and texts in our repertoire. Furthermore, we must understand that our performances can impact our audiences emotionally, as well as instill in them a thirst for musical knowledge. The process of combining these efforts into a well rounded and unique performance is the embodiment of the singer’s creative process. This presentation will demonstrate the complexity of the singing actor’s creative and intellectual processes through the performance of selections from American Musical Theatre.

**Sub-Surface Nutrient Flow in Row Crop Systems of the South Branch of the River Raisin***Presenters:* Corrin Logan, Caitlynn Dellinger, Karter Reedy, and Mark Henderson*Mentor:* Dr. Jim Martin*Ribbons:* Caring for Humanity and the World and Thinking Critically*Session/Time/Location:* 4A, 3:15 – 3:35, Rush 124**Abstract:** The River Raisin watershed is a significant contributor to western Lake Erie.

Approximately 70% of the watershed is in row crop or other agricultural production, so understanding nutrient runoff in these agricultural systems is essential to understanding nutrient dynamics in the Great Lake. Excess agricultural runoff has been implicated in cyanobacterial blooms in the recent past. Our study has entered its third year, and now we can begin to speak to the dynamics of the portions of the systems that we are monitoring. We have also recently expanded our study sites to include an artificial wetland designed to catch nutrients and hold them in place. Nutrients being tested include nitrate, dissolved reactive phosphorus and total phosphorus (in mg/L). These nutrients, in excess, are known to be contributing factors to cyanobacterial blooms downstream. Our research embodies both “Thinking Critically” and “Caring for Humanity and the World”. Critical thinking, for us, means understanding our study systems, the limitations of our tools, and the fluxes and flows associated with moving water. Caring for Humanity and the World for us, means using our data to promote best management practices that could lead to a healthier world.

**Implementing a non-parametric overlap index with R***Presenter:* Ian O'Banion*Mentor:* Dr. Jeffrey Lake*Ribbons:* Crossing Boundaries and Disciplines and Thinking Critically*Session/Time/Location:* 4A, 3:35 – 3:55, Rush 124

**Abstract:** Plant functional traits are increasingly being used as a means of estimating niche in plant ecology. However, most classical niche metrics assume a normal distribution of niche space; yet many datasets are neither normally distributed nor easily manipulated to be so. Mouillot et al. (2004) developed the concept for a non-parametric overlap index for traits and niche metrics that are not normally distributed, but did not provide an implementation mechanism. Preliminary work (Lake 2007) developed R code, but it was not generalizable and was highly inefficient in processing data. This research project developed effective code that is both generalizable and efficient to implement the non-parametric approach to niche. The code utilizes the Riemann approximation of integrals to estimate density curves, and to subsequently estimate the pairwise shared area under two species' curves. The approach assumes error around each datapoint, and creates an appropriate distribution histogram for each species. This research then applies this code to traits data for three forest datasets in Michigan and Georgia. A surprising convergence in average pairwise overlap in traits was found, in spite of a more than two-fold variation in the number of species present in the study forests.

### **Blood Vessel Pattern Analysis Using Statistical and Mathematical Methods**

**Presenters:** Ashley Oram and Gabe Lopez

**Mentors:** Dr. Marti Morales and Dr. Dorin Dumitrascu

**Ribbons:** Learning Throughout a Lifetime, Thinking Critically, and Crossing Boundaries and Disciplines

**Session/Time/Location:** 4A, 3:55 – 4:15, Rush 124

**Abstract:** Within the human body, the circulatory system transports blood, nutrients, and waste through vessels commonly known as arteries and veins. This process is necessary for survival and is one of the body's first lines of defense in protection from disease. This study is based off the work of Wilhelm Roux, a mathematician who examined the relationships between the diameters of blood vessels and the correlation of which the angles that blood vessels branch off from one another. Former Adrian College student, Rachel Wathen, used Roux's model, and proposed the application of a mathematical and statistical analysis to plastinate models from within Adrian College's collection. To further advance this study, we utilized additional models and methods for research such as, the measurement of veins within a test subject's hands, preserved sheep brain prepared for dissection, and the use of additional heart plastinate models from the collection found at the University of Toledo. These additions allowed us to expand sample sizes from research carried out in previous years -- a task crucial to build an in depth data set. This data set then helps give a better understanding of the accuracy of Roux's model -- a topic that overall, seems to lack supportive evidence. By conducting this research, the ribbons "learning throughout a lifetime", "thinking critically", and "crossing boundaries and disciplines" are explored.

### **The Effects of Latino Culture on Mental Health Stigma and Treatment-Seeking Behaviors in the United States**

**Presenter:** Megan DeBrabander

**Mentor:** Dr. John Eipper

**Ribbons:** Crossing Boundaries and Disciplines and Thinking Critically

**Session/Time/Location:** 4B, 3:15 – 3:35, Rush 116

**Abstract:** Approximately one in five adults in the United States, or 43.8 million people, experience a mental illness in a given year (Mental Health by the Numbers, 2017). However, the Latino population is at greater risk of having a mental illness due to aspects specific to their culture. Research shows that there is a significant association between acculturation of Latino culture to Anglo-American culture and higher risk for suicidal ideation and suicide attempts, which is indicative of mental illness (Perez-Rodriguez et al., 2013). Despite the higher risk, the Latino population receives less treatment for mental health. In one study, 38% of Anglo-Americans received treatment for mental illnesses, while only 22% of Latinos received treatment (Uebelacker et al., 2012). Undoubtedly, the Latino population in the United States is less likely to seek treatment for mental health. There are many reasons for this discrepancy, such as stigma and barriers to seeking treatment. These barriers include the Latino culture, lack of knowledge, and access to resources. This study analyzes the interaction between culture, stigma, and barriers to seeking treatment. Consequently, it also offers solutions to the lack of mental health treatment for Latino individuals in the United States, such as community programs, psychoeducation, easier access to resources, and improvement in the existing medical system.

**Examining Perceived Social Support and Mental Health in a Sample of College Athletes****Presenter:** Lauren Krywy**Mentor:** Dr. Heather Schuyler**Ribbons:** Thinking Critically, Developing Creativity, and Learning Throughout a Lifetime**Session/Time/Location:** 4B, 3:35 – 3:55, Rush 116**Abstract:** **Context:** This study examined perceived social support and mental health in a sample of college athletes utilizing the modified Multidimensional Scale of Perceived Social Support and the Mental Health Inventory.**Objective:** The objective of this study was to examine perceived social support and mental health in a sample of college athletes utilizing the modified Multidimensional Scale of Perceived Social Support and the Mental Health Inventory.**Design:** This study utilizes a cross-sectional design. There are several measures to the independent variable including perceived social support from family, friends, significant others, teammates, coaches, academic faculty and athletic trainers. Additional independent variables include perceived mental health; anxiety, depression, positive effect and behavioral control. The dependent variables involve the modified Multidimensional Scale of Perceived Social Support and the Mental Health Inventory.**Participants:** Participants were recruited through their sports teams and informed voluntary consent. Participants were between the ages of 18 and 24. Eligibility included being an athlete at Adrian College.**Interventions:** Coaches were contacted via email to schedule an information meeting and discuss the purpose of the study and organize a time to deliver the survey via paper and pencil. Participants were instructed to complete the questionnaire based on how they felt over the last four weeks and ensured that there were no right or wrong answers. The survey included ten demographic questions, twenty questions about perceived social support and eighteen questions on mental health.**Main Outcomes Measures:** All outcomes measures were taken immediately following the intervention.**Results:** TBD**Conclusions:** TBD**"The Season of Overcoming" Adrian College Marching Band Show 2018****Presenter:** Blayk Olsen**Mentors:** Dr. Marty Marks and Prof. Valerie Palmieri**Ribbons:** Developing Creativity, Caring for Humanity and the World, and Learning Throughout a Lifetime**Session/Time/Location:** 4B, 3:55 – 4:15, Rush 116**Abstract:** This past year I took the liberty of writing and arranging my very own marching band show for the college. It consists of a Mashup of three electronic dance tunes, a familiar twist on "Boulevard of Broken Dreams", and an up-beat and rhythmically driving arrangement of "Know No Better" written by world re-known pop artists. These specific song selections helped (and are continually helping) me to manage my struggle with depression and mental illness. I figured I could share my process of arranging these tunes to other students and faculty and to present to them perhaps some research into how certain music can stimulate the mind. Most of the presentation will potentially be subjective due to the discussion of my own experiences and how this show music (and music in general) helped me along my continuous struggling path. The purpose of this presentation is to introduce perhaps new ideas and arguments as to why music as a whole serves the same purpose, regardless of individual genre. The purpose is to recreate real life human events or past or present expression of emotions. The point of music is to reflect on what humanity has done and what it will continue to do for centuries to come. I want to shine light on potential signs of mental illness and depression and encourage others to find what they are most passionate about and to pursue their own unique road to what makes them happy.



**Poetry Performance***Presenter: Inocencia Ramirez-Gorski**Mentor: Prof. Beth Myers**Ribbons: Developing Creativity, Crossing Boundaries and Disciplines, Caring for Humanity and the World, Learning Throughout a Lifetime, and Thinking Critically**Session/Time/Location: 4C, 3:15 – 3:35, Valade 202*

**Abstract:** During my time in the English Capstone, I completed a chapbook of poetry and photography. The poetry covers topics of family trauma, racism, and the juxtaposition of my native ancestors' culture to that of my conquistador ancestors. My research helped me find native point of views and how they dealt with patriarchal customs to incorporate into my poetry. My session will be a poetry reading from that work. Critical thinking, crossing of boundaries, fostering creativity, learning throughout a lifetime through generations of experience, and humanity and community are all represented in my chapbook.

**One Word at a Time, Now More Than Ever: Poetry Reading***Presenters: Taylor Anson, Sydney Babcock, Kaysie Burnside, Anthony Bussing, Emma Brockett, Samantha Glaza, McKayla Moran, Inocencia Ramirez-Gorski, Hannah Roegner, Emma Sheldon, and Michelle Siegel**Mentor: Prof. Beth Myers and Ms. Noelle Keller**Ribbon: Developing Creativity**Session/Time/Location: 4C, 3:35 – 4:15, Valade 202*

**Abstract:** Making a poem is a monumental act of creative discourse. With nothing more than one's mind, one gathers the world one sees and distills it into a few words. This session showcases the creativity of several student-poets, who, by sharing their work, help us to see various views of the human experience.

**The Evolution of Fashion: Androgyny in Dress Today***Presenter: Anna Shepherd**Mentor: Prof. Jill Ouellette**Ribbons: Crossing Boundaries and Disciplines**Session/Time/Location: 4D, 3:15 – 3:35, Alumni Lounge (Valade 125)*

**Abstract:** Dress is one of the many ways people express themselves. Either through the actual article of clothing, how it is worn, when it is worn, for which occasion or rite of passage. In addition, our society's shift to overall inclusivity of a variety of sexual orientations made me curious about how dress plays a role in the lives of LGBTQ communities. Therefore, this paper will explore androgyny today, why someone would engage in androgyny, and how dress plays a significant role in someone's identity. This research will begin with a brief history of androgyny, then discuss LGBTQ communities and drag queens. Also explored are social shifts, potential blurred lines in identity and finally, how dress and people in the media have helped these communities become more inclusive in our society. Ribbon for this research is Crossing Boundaries and Disciplines.

**Key Words:** androgyny, fashion, symbolism in dress, identity



**The Dress Detective: An Exploration of a Geoffrey Beene Garment****Presenter:** Morgan Pearce**Mentor:** Prof. Jill Ouellette**Ribbons:** Learning Throughout a Lifetime, Thinking Critically, Developing Creativity, Caring for Humanity and the World, and Crossing Boundaries and Disciplines**Session/Time/Location:** 4D, 3:35 – 3:55, Alumni Lounge (Valade 125)

**Abstract:** The object-based method of research is a hands-on approach to understanding the anthropology and art history behind retired garments. To practice the object-based approach, I chose a Geoffrey Beene dress with little indication of the dress's history. My research will apply the object-based methodology using the Checklist for Observation by researchers Ingrid Mida and Alexandra Kim, (2015) *The Dress Detective*. Furthermore, implementing the object-based research model, I will be answering questions pertaining to three subcategories: observation, reflection and interpretation. Questions answered in these subcategories will help to give an accurate assessment regarding the garment's material make-up, use, and construction in addition to context of time-period. This research method requires patience, attention to detail, analytical skills, ability to spot patterns and the ability to conduct research and make connections, therefore, the ribbon focus for this study is Thinking Critically as assessments are made from the dissection of "clues" within the garment both literal and figurative. Relating to the foundations of Adrian College's education, I also choose to relate this research to Learning Throughout A Lifetime. In a world where the Fast Fashion Industry is rapidly increasing, it is important to slow down, stop and appreciate detailed articles of clothing that have previously been produced. Although this dress was created almost 60 years ago, it still has life and knowledge to give.

**Key Words:** Object-Based Research, observation, textiles**Art Infused Trend Analysis****Presenters:** Bethany Dziekan and Morissa Beckman**Mentor:** Prof. Jill Ouellette**Ribbons:** Thinking Critically**Session/Time/Location:** 4D, 3:55 – 4:15, Alumni Lounge (Valade 125)

**Abstract:** Fashion is influenced by many things such as current events, music, history and more. Some trends will never appear again and are considered a fad while other trends will cycle throughout time and reappear regularly. Art infused fashion has been around for decades. Popular works by famous artists started appearing in articles of clothing as early as the 1930's and this trend has cycled to become popular throughout the years. When doing research we found that many designers' spring 2019 collections have featured art infused clothing and we predict this trend will become prevalent once again. There are three different theories of fashion: Upward Flow, Downward Flow and Horizontal Flow. Our research will discuss our assessment of this trend as of spring 2019 as we predict this trend will come about by the Downward Flow Theory as these popular designers' art infused clothes will trickle down to the rest of society. The ribbon our presentation resembles is thinking critically as we explored many collections and identified a trend prediction by exploring many different collections.

**Key Words:** Fashion Theory, Fashion Trends, Art

**"What Slavery Started Is Not Over Yet:" James Madison's Montpelier And The Problem Of Slavery In Public History**

*Presenter:* Kayla Wendt

*Mentor:* Dr. Deborah Field

*Ribbons:* Caring for Humanity and the World, Learning Throughout a Lifetime, Thinking Critically, Crossing Boundaries and Disciplines, and Developing Creativity

*Session/Time/Location:* 4E, 3:15 – 3:35, Knight Auditorium (Valade 130)

**Abstract:** Historic sites and institutions of public memory face countless competing pressures in attempting to tell all-inclusive histories. Public historians handle the task of pleasing their donors, executives, communities, and audiences all at the same time. A particular place wherein this issue is highlighted, is in American house museums. Museums that often began as shrines to American patriotism, filled with velvet ropes and glass cases, today intend to break down these barriers and focus on the narratives of the everyday person in interactive and educational ways. James Madison's Estate, Montpelier, in Virginia offers an example of the ways in which house museums are evolving, and how museum professionals are dealing with the issues of presenting marginalized histories in the most responsible way possible, despite the complexity of their circumstances. The important primary data comes from my trip to the museum including staff interviews, photos of the museum, and an analysis of the award-winning exhibit on slavery, *The Mere Distinction of Colour*. I argue that by fostering relationships with diverse groups, employing specific methods of training for interpreters, and acknowledging and incorporating a variety of historiographies, professionals at Montpelier are successfully grappling with the complexities associated with their efforts to tell inclusive histories. I will analyze the intersection of the following avenues: the evolution of house museums, the narrative of slavery in public memory, and where these meet in the example of Montpelier to say something important about understanding public memory as a whole- how it can be constructed, portrayed, and received.

**Media Framing & The O.J. Simpson Investigation**

*Presenter:* Justin McMann

*Mentor:* Dr. Christy Mesaros-Winckles

*Ribbons:* Thinking Critically

*Session/Time/Location:* 4E, 3:35 – 3:55, Knight Auditorium (Valade 130)

**Abstract:** The paper investigates how media framing and hyper-coverage influenced America's perception of the O.J. Simpson case in 1994. Conducting a content analysis during the first month of coverage, I examine how the media, specifically *The New York Times*, chooses to frame Simpson's story as a race and sports narrative. This downplayed the domestic abuse narrative surrounding Nicole Brown Simpson which was foundational to the case. Focusing on only the first month of the Simpson murder investigation, my content analysis illustrates how media framing at the start of an influential media event has tremendous impact on how the event is historically remembered. The study illustrates the Ribbon of Critical Thinking as it is important to develop critical habits of mind such as raising meaningful questions and challenging the "status quo." If we do not question media framing, we are more likely to accept the messaging of the media without thought. This is undoubtedly a dangerous practice in a hyperpolarized media environment that remains present today.

### Alpha Chi Induction Ceremony

Alpha Chi is a national honor society that accepts only the top 10 percent of juniors, seniors and graduate students in all academic fields. Alpha Chi was founded in 1922 with the purpose of honoring academic excellence and exemplary character in college and university students. In addition to being an elite honors society, Alpha Chi also offers the opportunity for students to present annually at a national convention and awards \$60,000 a year in 26 scholarships and fellowships to individual members enrolled in full-time study.

Alpha Chi's name is derived from the initial letters of the Greek words *alethia*, meaning truth, and *xapakthp*, meaning character. The official shield bears a lamp of learning and the initials AX in raised letters. In the induction ceremony today, you will see these two virtues are symbolized in the Society's official colors – sapphire blue, depicting truth and emerald green, victory. Knowledge, the basis of truth and character, is symbolized by gold and candlelight. The motto of Alpha Chi is, "You shall know the truth, and the truth shall make you free." John 8:32.

Since its inception in 1922, over 400,000 members have joined this society nationally. The Michigan Alpha chapter here at Adrian College is the oldest chapter in Michigan, established in 1964. Those being inducted today will join over 500 current and alumni members in the Michigan Alpha chapter of Alpha Chi.

Please join us in celebrating the accomplishments of these students as they are welcomed into this prestigious national honor society.



There are a lot of people who help to put the Ribbons of Excellence Day Conference together and we would like to thank all of you for your support.

Dr. Jeffrey Docking and the President's office – for his continued support of the mission of the Ribbons of Excellence Day

Dr. Andrea Milner and the Office of Academic Affairs – for her support of this program and financial support from the division of Academic Affairs

Donor support for the Undergraduate Student Research Summer Grant

Betty Godard

Kriegoff Lenawee

Rod and Diane McClennan

All of the faculty mentors and presenters – this day is all about you and all your hard work.

ROE 2018-2019 Committee – for all the planning and thought that go into this day

- Dr. Gretchen Carroll
- Dr. Michael Claus
- Dr. Dorin Dumitrascu
- Dr. Elizabeth McGaw
- Dr. Christy Mesaros-Winckles
- Prof. Beth Myers
- Dr. Ben Pawlisch
- Dr. Katie Rasmussen
- Dr. Heather Schuyler

Adrian College Institutes – for their sponsorship of breakfast and snacks for the conference

- Creativity
- Entrepreneurial Studies
- Sports Medicine

All of our moderators and judges both from the Adrian staff as well as friends and community members – without these volunteers we would not be able to run this conference

Dr. Katie Rasmussen – for her coordination with the Core Department to run the Williams Cup Oratorical Competition, the Star Light Award, and the Mahan Honors Manuscript Award sessions.

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Amy Adams, Addison Bergman, and Laurel Hammis – for their assistance with organizing abstracts for the program, gift wrapping, and the many small tasks that help this day run smoothly

Becky Ghena and Denise Hein in Conferences – for their assistance with coordinating all of the spaces and logistical details on campus to have everything work together

Chris Momany Jr. – for his assistance setting up the microphones and technology for our opening and keynote speaker sessions and Downs Hall presentations

Plant Services – for all the assistance getting the spaces cleaned and setup for the program

IT Services – for assistance with technology in the presentation rooms

Educational Curriculum Center (ECC) – for providing projectors and technology for Downs Hall Theatre presentations

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