



Welcome

I am pleased to welcome you to our tenth annual Ribbons of Excellence Day Program at Adrian College, a day dedicated to celebrating scholarly accomplishments of our students 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.

Regards,



Andrea R. Milner, Ph.D.
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, 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.

This year we celebrate the 10th annual Ribbons of Excellence day. 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 2017 Ribbons of Excellence Day Program outstanding.

Kind Regards,



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

Table of Contents

Campus Map.....	6
Opening Session.....	9
Keynote Session.....	10
List of Sessions.....	12
Presentation Abstracts	
Session 1 (9:30 - 10:30 am).....	19
Session 2 (10:45 - 11:45 am).....	30
Poster Session (11:45 am - 12:30 pm).....	38
Meet the Artist (11:45 am - 12:30 pm).....	45
Session 3 (2:00 pm - 3:00 pm).....	46
Session 4 (3:15 pm - 4:15 pm).....	53
Alpha Chi Induction.....	59
Thank You.....	60
Author Index.....	61

ROE Schedule 2018

8:15 – 9:15 am	Registration & Breakfast	Caine
8:45 – 9:15 am	Opening Session	Caine
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

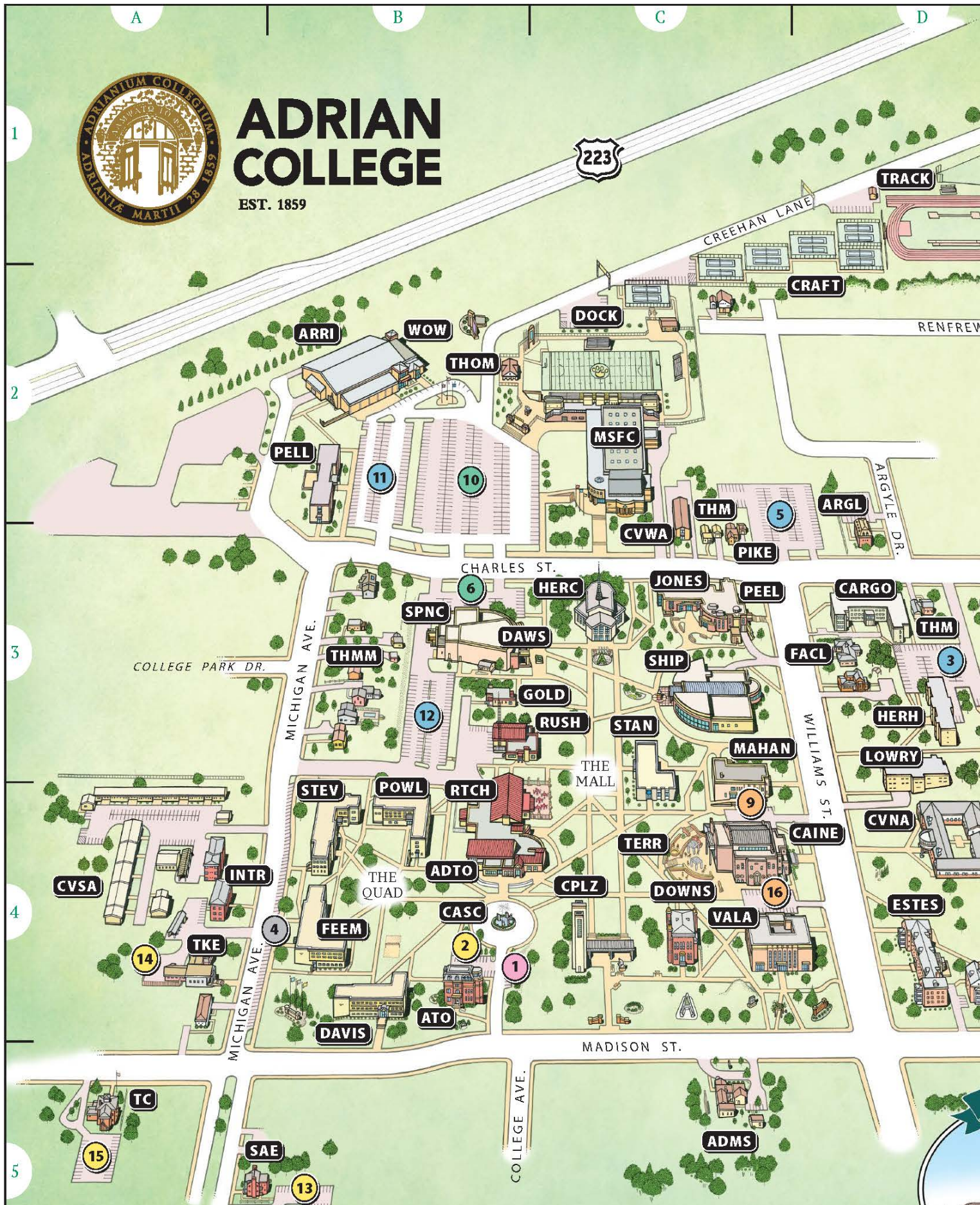
Plan Your Day

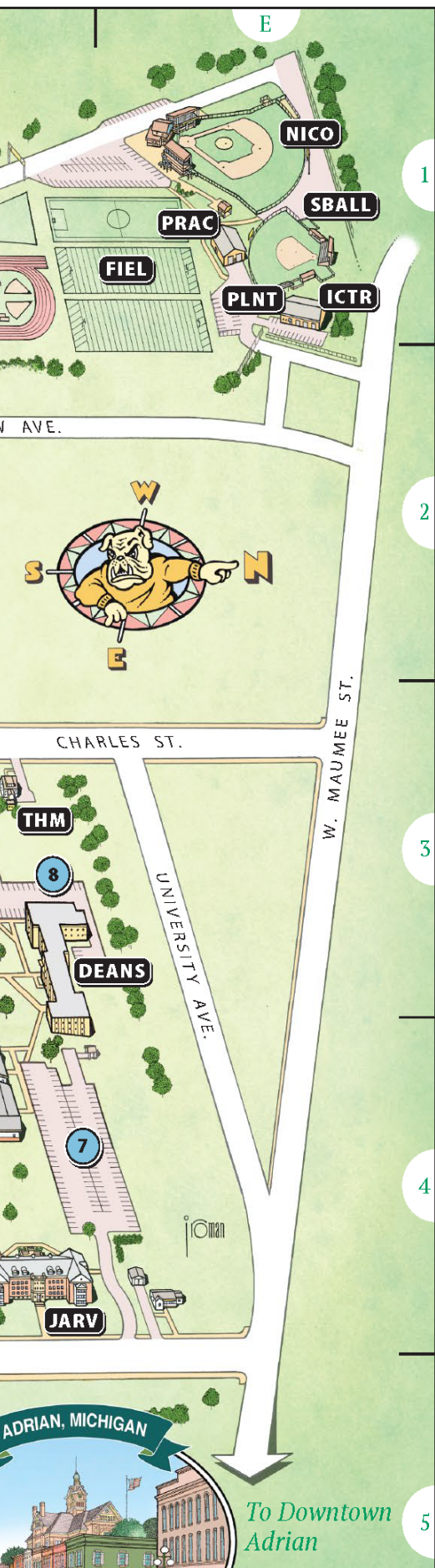
Time	Title	Presenter(s)	Location
8:45 am	Post-its and Presentations: Professors Beth Myers and Michael Claus share the story of the origins of the Ribbons of Excellence and This Special Day	Dr. Micahel Claus Prof. Beth Myers	Caine



ADRIAN COLLEGE

EST. 1859





CAMPUS INDEX

CODE	NAME	GRID	CODE	NAME	GRID
ADMS	Ward Admission House	5C	JONES	Jones Hall	3C
ADTO	Adrian Tobias Center	4B	LOWRY	Lowry Hall	3D
ATO	Alpha Tau Omega Housing	4B	MAHAN	Mahan Hall	3-4C
ARGL	Argyle Apts.	2-3D	MSFC	Merillat Sport and Fitness Ctr.	2C
ARRI	Arrington Ice Arena	2B	NICO	Nicolay Field	1A
CAINE	Caine Student Center	4C-D	PEEL	Peelle Hall	3C
CARGO	Cargo Hall	3D	PELL	Pellowe Hall	2B
CASC	Cascade Circle	4B	PIKE	Pi Kappa Alpha Housing	2-3C
CVSA	College View South Apts.	4A	PLANT	Plant Facilities	1E
CVNA	College View North Apts.	4D	POWL	Powell Hall	4B
CVWA	College View West Apts.	2-3C	FIEL	Practice Fields	1E
CPLZ	Commencement Plaza	4C	RTCH	Ritchie Marketplace	4B
CRAFT	Craft Tennis Complex	1C-D	RUSH	Rush Center	3B-C
DAVIS	Davis Hall	4B	SHIP	Shipman Library	3C
DAWS	Dawson Auditorium	3B	SAE	Sigma Alpha Epsilon Housing	5A
DEANS	Deans Hall	3D	SBALL	Softball Field	1E
PRAC	Dick Indoor Practice Facility	1E	SPNC	Spencer Hall	3B
DOCK	Docking Stadium	2C	STAN	Stanton Administration Bldg.	3-4C
DOWN	Downs Hall	4C	STEV	Stevens Hall	4B
ESTES	Estes Hall	4D	TKE	Tau Kappa Epsilon Housing	4A
FACL	Faculty Housing	3D	TERR	Terrace	4C
FEEM	Feeman Hall	4B	THM	Theme Housing	2-3C and 3D
GOLD	Goldsmith Center	3B-C	THMM	Theme Housing/Michigan Ave.	3B
HERC	Herrick Chapel	3C	TC	Theta Chi Housing	5A
HERH	Herrick Hall	3D	THOM	Thomas Pavilion	2B
ICTR	Adrian Innovation Center	1E	TRACK	Track & Field	1D
INTR	Intern Housing	4A	VALA	Valade Hall	4C
JARV	Jarvis Hall	4D	WOW	WOW 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		College View S. Street Parking	4B
5		College View West Lot	2C-D
6		Dawson Lot	3B
7		Jarvis Lot	4D-E
8		Lowry Lot	3D
9		Mahan Lot	4C
10		Merillat Lot	2B
11		Pellowe Lot	2B
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		Valade Lot	4C-D

PARKING KEY

- Standard Residential
- Standard Residential & Guests
- Fraternity Members Only
- Faculty/Staff (7 am - 5 pm Only)*
- Special Events Only
- College View South Residents

* 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.



Opening Session

Post-its and Presentations: Professors Beth Myers and Michael Claus share the story of the origins of the Ribbons of Excellence and This Special Day

In 2007, after the faculty met at length to discuss our academic values, Professor Beth Myers and Professor Emeritus Don Cellini, as poets, were tasked with putting into words the Ribbons of Excellence. In 2009, sesquicentennial anniversary of the founding of Adrian College, Professors Michael Claus, James Hanley and Jim Spence proposed a single day devoted to celebrating student scholarship through conference-style panels and poster sessions, and culminating in the annual Honors Ceremony.



Beth Myers is an English professor who teaches writing at Adrian College. A veteran teacher of over thirty years, Beth still works with students to make the best choices they can in writing for particular audiences and purposes. Her specializations are preparing future teachers to teach writing and helping students to develop their poetry and fiction. Teaching is her first calling, but writing is her second, and she thoroughly enjoys dabbling in poetry. An award-winning teacher and employee, she holds degrees from Adrian College and The University of Toledo

Michael J. Claus is a chemistry professor at Adrian College. Holding degrees in chemistry and biosystems engineering from Seattle University and Michigan State University, his expertise lies in the distillation of alcoholic beverages. His research often involves food products, and the overlap of many fields of study. His fifteen year teaching career has led to teaching a variety of courses, with an increasing focus on interdisciplinary topics and strengthening the liberal arts experience for students. He lives in Ann Arbor with his wife and son.



Keynote Address

10th Annual Celebration: ROE Alumni Share the Impact of Adrian College on Their Lives

To celebrate the 10th annual ROE day the committee has invited back three alumni who presented at Ribbons of Excellence Day during their time at Adrian College. Each will share a bit of their story and allow time for questions.

Mr. Kourtney Price '11



ROE 2011: A Qualitative Study of a Ten-Week Adrian College Teen Mentoring Class: DoPerceptions of Mentoring Change for the Mentors? Mentors: Idali Feliciano, and William Tregea

ROE 2011: Adrian College's McNair Scholars Senior Cohort, Mentor: Jim Martin

Mr. Price earned a Bachelor of Arts with a major in Criminal Justice. During his time at Adrian College he participated in Track and Field, was the student body president for two years, a vice president of ALPHA, the president of ROOT, the historian and Secretary of Tau Kappa Epsilon (TKE). He was

also a McNair scholar at Siena Heights University and represented Adrian College on the Michigan College Alliance.

His first job in his field was a youth specialist at Spectrum Juvenile Justice System in Highland Park, MI. He then received a job with the State of Michigan working under the Michigan Department of Corrections at Gus Harrison Correctional Facility, then transferred to the Special Alternative Incarceration Facility. While working he completed a Master's degree at Siena Heights University online program in Organizational Leadership. Currently he is a Children Protective Services specialist investigating children abuse and neglect for the Michigan Department of Human and Health Services. He served as an adjunct professor at Jackson College for the Fall 2015 semester teaching Freshmen Year Experience. He also adopted his cousin, Cameron Greene-Price, who is now 10 years old and currently resides in Michigan.

Keynote Address

Mr. Peter Tomasek, '11



ROE 2011: Adrian College Model Arab League,
Mentor: Dr. Phillip Howe

Mr. Tomasek earned a Bachelor of Arts degree with a major in Psychology and Journalism. He then attended Western Michigan University Cooley Law School, graduating with a Juris Doctor degree in 2014 and an LL.M. (Master of Laws) in Taxation in 2015. After law school, he worked as a research attorney with the Michigan Court of Appeals' Research Division and then as a law clerk for the Honorable Colleen A. O'Brien with the Court of Appeals. Currently he works as an associate attorney in the Appellate-Practice Group at Collins Einhorn Farrell PC in Southfield.

Dr. Kelley Young '09

ROE 2009: What's in Your Vodka? Mentor Dr. Michael Claus

Dr. Young earned a Bachelor of Science degree with a major in Chemistry and a minor in Mathematics. She then attended graduate school at Michigan State University earning a PhD in Chemistry under the guidance of Tom Hamann studying the "Modification of thin-film photoanodes for solar water oxidation". She served as a visiting assistant professor at Hope College and is currently an Assistant Teaching Professor in the Department of Chemistry and Biochemistry at the University of Notre Dame. She currently teaches in the general chemistry program and majors physical chemistry laboratory courses. She lives with her husband, Anthony and son, Gus in Berrien Springs, MI and her hobbies include chasing my son around the house, being outside camping, hiking or biking, gardening, and enjoying a good Michigan craft dilute ethanol solution.



Sessions

Session	Location	Time	Abstract Title	Presentation
1A	Jones 110	9:30 - 9:50	Soil Chemistry in Relation to Invasive Shrubs <i>Elaeagnus umbellata</i> (autumn olive) and <i>Lonicera maackii</i> (Amur honeysuckle) at Walden West	Amanda Dangel
		9:50 - 10:10	Best Management Practices for Minimizing Nutrient Runoff	Benjamin Woerner
		10:10 - 10:30	Effect of Soil Organic Matter Content on Atrazine Bioavailability	Rachel Kanaziz
1B	Peelle 207	9:30 - 9:50	Diversification of Giant Treefrogs (Arthroleptidae: Leptopelis) in West and Central Africa	Kyle Jaynes
		9:50 - 10:10	Natural History Museum: Herpetology Portion	Alana Pastula
		10:10 - 10:30	The Specimens of the Adrian College Natural History Museum	Samantha Roesler
1C	Peelle 212	9:30 - 9:50	Opioid Addiction: Effects, Impacts & Strategies	Thomas Doney
		9:50 - 10:10	PRIDE (Promoting the Rights of Individuals with Disabilities Everywhere) & Special Olympics College	Kirsten Chambers & Melanie Hughey
		10:10 - 10:30	CathARTic Expressionism: Eight Years of the Clothesline Project	Megan DeBrabander
1D	Knight Aud. (Valade 130)	9:30 - 9:50	What if Jesus was a Dreamer? A Theological, Political and Bicultural Examination of the U.S. Border Crisis	Hannah Hawkins
		9:50 - 10:10	Bones Left Unburied: The Racial Rhetoric of the Pacific War	Drake Jellison
		10:10 - 10:30	"The Troubles" A Review of Peace Walls and Propaganda	Kevin Hernandez
1E	Alumni Lounge (Valade 125)	9:30 - 9:50	Neighborhood Complementarity around native and invasive shrubs in a southeast Michigan forest	Anastasia Fryman & Morgan Wiza
		9:50 - 10:10	Association of a Single Nucleotide Polymorphism with the Intratumoral Immune Status of Ovarian Cancers	Hannah Schaefer
		10:10 - 10:30	Walden West Management Plan Development and Research Topics	Sabrena Camp & Tara Wrbelis
1F	Downs Hall Theater	9:30 - 10:30	Williams Oratorical Competition	Brady Hanson, Sydney St. John, Gage Dansby, Kate Turner, Rebekah Wright, & Nicole Olson

10:30 am – 10:45 am Break

Snacks Available Peelle Lobby and Valade First Floor

"CathARTic Expressionism: Eight Years of The Clothesline Project" exhibit by Ms. Megan DeBrabander will be available for viewing in the Gurdjian Conference Room (Peelle 200)

Sessions

Session	Location	Time	Abstract Title	Presentation
2A	Jones 110	10:45-11:05	Inside Appalachia: A look at the many ways an Appalachian community defines itself	Hope Hornish
		11:05-11:25	American Ignorance: How much do college students know about government, and is it enough?	Katherine Bartlett
		11:25-11:45	How We Analyze the Past: How Roman Historians See History	Ryan Wojcik
2B	Peelle 207	10:45-11:05	American Advertising Federation: Ocean Spray	Samuel Price, Daniel Myers, Liz Graves, & Kristofer Paul
		11:05-11:25	Financial Reporting and The Industrial Revolution	Robert Coy & Madeline Crandle
		11:25-11:45	The Most Influential Man You've Never Heard Of	Casey Cribbs, Mariah Kramer & Luci Sementa
2C	Peelle 212	10:45-11:05	Interaction of Athletic Identity and Motivation of the Rehabilitative Patient	Chloe Berka
		11:05-11:25	The Effect of Comfort on an Athlete's Desire to Wear Protective Skull Caps	Bailey Feekings
		11:25-11:45	The Effect of 2 nd ® Skull Cap on the Protective Properties of Ice Hockey Helmets	Jacob Adams
2D	Knight Aud. (Valade 130)	10:45-11:05	The Forsaken Phenomenon: Post-traumatic Stress Disorder in Journalists	Michelle Siegel
		11:05-11:25	Two Studies of Differences in Exercise Based on Gender, Self-concept, and Evaluation Apprehension	Kailey Fuller, Megan DeBrabander & Ashley Budnik
		11:25-11:45	The Effects of a Fidget Cube on Dental Patient Anxiety	Alicia Szilagyi
2E	Alumni Lounge (Valade 125)	10:45-11:45	The Media as a Social Force	Amelia Berg, Connor Armour & Brandi Balzer
2F	Downs Hall Theater	10:45-11:05	Dido and Aeneas, The Aeneid, and Text Painting	Ashley Simon
		11:05-11:25	Rise Up	Perri Foster

Sessions

Session	Location	Time	Abstract Title	Presentation
Poster Session	Peelle Addition Lobby	11:45 - 12:30	Profiling Terrorists Based on Decision Making	Hope Hornish
			Effects of Control on Perceived Choice and Social Problem Solving Ability	Emily Nixon
			Dominant Water Contributor of Walden West Perennial Pond	Luke Taylor
			A Critical Thinking Approach to Stage Managing A.R. Gurney's Sylvia	Alona Shewach
			Effects of Explanation on Social Stigma of Depression	Kailey Fuller
			Oriental Bittersweet and Forest Management at Hidden Lake Gardens	Sierra Woodcum
			Water Chemistry Measurements at Walden West In Tipton, Michigan	Brandon Keller
			Fixed and Growth Mindsets and Their Effect on Creativity	Jake Keller
			Student Perspectives on Police Use of Force	Bernard McCutcheon
			The Past and Present of the Song Sparrow Song: An Analysis of Song after 50 Years of Change	Sabrena Camp
			Mind Wandering During reading: The Effects of Reading Skill	Michelle Siegel & Samantha Marie Foster
Meet the Artist	Valade Gallery (Shipman Library)	11:45 - 12:30	Essence: Defining Aspects of Being	Ciara Athy, Christina Bitson, Alexandra Cavinee, Zachary Frappier & Amanda LaVigne

12:30 pm – 2:00 pm Luncheon & Keynote Address (Invited)
Adrian Tobias Room

Sessions

Session	Location	Time	Abstract Title	Presentation
3A	Jones 110	2:00 - 3:00	Star Light Writing Award and Mahan Manuscript Honors Award Presentations	Amy Czuhajewski, Cheyenne Franklin, Megan Prsa, Dale Sanford, Tara Tahil, Freya Holferty & Josephine Kennedy
3B	Peelle 207	2:00 - 3:00	Interpersonal Communication Theory in Film	Caleb Vanderlugt, Kevin Johnson & Shawn Wichar
3C	Peelle 212	2:00 - 2:20	Effects of Unilateral Ankle Bracing on Vertical Jump Performance and Lower Extremity Kinematics	Casey Josz
		2:20 - 2:40	Multi-Directional Hopping Asymmetries in Individuals with a History of ACL Reconstruction Surgery	Matthew Scherer
		2:40 - 3:00	The Effects of Local Vibration to the Patellar Tendon on Quadriceps Function in Individuals with Patellofemoral Pain	Daniel Malcolm
3D	Peelle 301	2:00 - 2:20	Effects of Blood Flow Restriction During Ankle Exercises on Muscle Activation in Individuals with Chronic Ankle Instability	Brian Killinger
		2:20 - 2:40	Blood Vessel Pattern Analysis Using Statistical and Mathematical Methods	Ashley Oram & Taylor Van't Land
		2:40 - 3:00	Chemical Effects of Tattoo Ink in the Human Body	Alexander Egan
3E	Downs Hall Theater	2:00 - 2:20	My Amazing Fantasy	Harrison Lange
		2:20 - 2:40	Sonder: Realizing the Vivid and Complex Lives of Others	Laurel Jordan

3:00 – 3:15 pm Break
Snacks Available Peelle Lobby

Sessions

Session	Location	Time	Abstract Title	Presentation
4A	Jones 110	3:15 - 3:35	When Words Fail, Add a Filter	Megan Sauer
		3:35 - 3:55	The Voice of the Oxcart: Fostering Literary Citizenship	Rachel Kanaziz & Theresa Horowitz
4B	Peelle 207	3:15 - 3:35	Effects of Allyl Isothiocyanate On Various Soil Bacteria	Alex Mercer
		3:35 - 3:55	Two-component Signaling System used for Motility in Myxococcus xanthus	Bailey Sarka
		3:55 - 4:15	Using feature selection and machine learning to find cis-regulatory elements important for response to combined stress in Arabidopsis Thaliana	Michael Douglas
4C	Peelle 212	3:15 - 3:35	Division III College Athletes' Perception of Care Provided by the Athletic Trainer	Mikayla Kemp
		3:35 - 3:55	An Examination of Policy and Procedure Practices of Secondary School Athletic Trainers	Micaela Dunbar-Gaynor
		3:55 - 4:15	The Effects of Peppermint Essential Oil on Exercise Performance	Austeen Freeman
4D	Peelle 301	3:15 - 3:35	Who Chooses the Surgical Device?	Madison Tluczek
		3:35 - 4:15	Ribbons in Reality: How to take advantage of liberal arts and play an active role in your future	Allyse Zondlak & Mackenzie King

**4:30 – 5:30 pm Alpha Chi Induction Ceremony
Herrick Chapel**





Abstracts

Session 1A

9:30 – 9:50 am

Baer Lecutre Hall (Jones 110)

Soil Chemistry in Relation to Invasive Shrubs *Elaeagnus umbellata* (autumn olive) and *Lonicera maackii* (Amur honeysuckle) at Walden West

Amanda Dangel

Mentors: Dr. Sarah Hanson, Dr. Jeffrey Lake, and Dr. Thomas Muntean
Ribbon: Thinking Critically

Invasive organisms can be incredibly detrimental to native organisms. Many invasive shrubs, in particular, can greatly decrease native plant biodiversity in the areas they inhabit. Walden West, located by Tipton, MI, has many invasive shrubs. This research asks if soil chemistry, including composition and pH, is altered near invasive shrubs.

Eighteen soil samples were collected at Walden West; sixteen from near the invasive shrubs *Elaeagnus umbellata* (autumn olive) and *Lonicera maackii* (Amur honeysuckle); the other two from the lowland forest and highland/moraine far from the invasive plants. Of the soil samples near invasives, eight were sampled in the lowlands and eight in the highland/moraine; half of each of these samples were located near each of the two species. Chemical analysis of the soil was performed at Adrian College and Michigan State University. Adrian College tested for the soil's pH, nitrogen, phosphorus, and potassium content while Michigan State tested for the soil's pH, phosphorus, potassium, magnesium, and calcium content, as well as the cation exchange capacity (CEC).

The tests revealed very basic soils in the lowland forests, and slightly acidic soils in the highland forests. There was lower phosphorus in the soils near the shrubs compared to the controls, but the difference was not statistically significant. Autumn olive showed no correlation between potassium and the controls, but both lowland and highland honeysuckles were found in soils with higher amounts of potassium. There was no correlation with magnesium between either invasives or the controls, but there was a higher amount found in the lowland areas. There were also significantly higher amounts of calcium in the lowland shrub soil compared to either the controls or the highland shrubs. CEC and calcium trends are similar, with the capacity being much higher in the lowland shrubs in relation to the controls or highland shrubs.

The overall results do not support the hypothesis that invasive shrubs are affecting the soil they are present in. However, the data could be explained by the location where the soil was tested. It is possible honeysuckles grow in soils with higher amounts of potassium, therefore making them much less abundant and smaller in the highlands because the overall potassium content was lower in comparison to the lowlands. The soil moisture is also likely important, as sandy soils at the higher elevation drains water more quickly, while lowland soils have smaller grain size and more humus that absorbs water more efficiently. Both the lowlands and the highlands have high magnesium, likely because they originated from basement rocks of the Canadian Shield. The CEC and calcium trends were likely similar because CEC measures the amount of negatively charged particles in the soil to attract cation nutrients, which includes calcium. In the lowland forests, high amounts of humus and clay are present, increasing the CEC and likely drawing more cation nutrients in the soils.

Abstracts

Session 1A

9:50 – 10:10 am

Baer Lecutre Hall (Jones 110)

Best Management Practices for Minimizing Nutrient Runoff

Benjamin Woerner

Mentor: Dr. James Martin

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

In the Summer of 2015, Lake Erie experienced its worst algal bloom in recorded history resulting in hypoxic conditions and fish kills. Over the last two years, research has been done of the possible impacts that the River Raisin may have on the eutrophication of Lake Erie by collecting agricultural runoff and river samples. By comparing the different practices each farm employs with the data collected, as well as utilizing outside sources, it can be determined what practices produce the least nutrient rich runoff without damaging the yield of crops in order to reduce the eutrophication of Lake Erie.

Samples collected must be ran within a 48 hour window (if refrigerated) before biological processes can take place. Water samples are filtered through filter paper before being poured into vials. The filtered water sample is then pipetted into cuvettes, followed by the corresponding reagent. The reagent will react with the nutrients and change the water sample's color based on the nutrient concentration. After ample time is given for the reagent to react, the cuvette ran through a spectrometer. The spectrometer reads the barcode on the cuvette to determine whether it is reading phosphorus or nitrate levels. Once that is determined, the spectrometer will give a reading based on the color of the sample.

*** This research was generously supported by an Undergraduate Student Research Summer Grant from the Office of Academic Affairs at Adrian College ***

10:10 – 10:30 am

Effect of Soil Organic Matter Content on Atrazine Bioavailability

Rachel Kanaziz

Mentors: Dr. Travis Gannon, Ms. Scott Brinton, Mr. Khalied Ahmed, and Mr. Patrick Maxwell

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

Much research has been completed investigating the persistence of atrazine in various agricultural systems and edaphic conditions. Atrazine bioavailability, however, has not been characterized despite atrazine being the second most commonly applied agricultural pesticide as of 2012 according to the USEPA. It was hypothesized bioavailability would vary inversely with soil organic matter content. In order to assess the bioavailability of atrazine, a greenhouse study was conducted using a sensitive bioindicator species, *Brassica napus* L. (canola), to assess the availability of the xenobiotic compound. By comparing bioindicator growth in atrazine treated and non-treated pots planted with canola, the bioavailability of atrazine within an organic matter content level was evaluated. Atrazine ($1.7 \text{ kg ai ha}^{-1}$) was broadcast sprayed to unique pots at trial initiation and soil sampled (0-7.62 cm depth) as well as seeded with canola 0, 14, and 28 days after treatment. Next, above-ground biomass was harvested three weeks after each respective seeded timing. It was found that despite longer persistence at higher soil organic matter contents, sorption by the organic matter reduced atrazine bioavailability. Half-life values ranged from 49.5 to 54.0 days across soil organic matter contents. Based on the bioindicator response, when planted 14 and 28 days after treatment, bioavailability decreased with increased organic matter content, and half-live values variation was small across soil organic matter content. This study suggests atrazine is most available when applied immediately at the time of seeding and in systems with lower organic matter content. High organic matter content is beneficial for crop production, but it may inhibit the effectiveness of particular herbicides. Furthermore, soil organic matter content increased atrazine sorption, making it less bioavailable and less of an environmental threat.

Abstracts

Session 1B

9:30 – 9:50 am

Peelle 207

Diversification of Giant Treefrogs (Arthroleptidae: *Leptopelis*) in West and Central Africa

Kyle Jaynes

Mentor: Dr. James Martin

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

The Guineo-Congolian rainforests of West and Central Africa and the Gulf of Guinea Archipelago host immense biodiversity. Previous research has revealed important insights into the biogeography of this biodiversity hotspot; yet our incomplete understanding of phylogenetic relationships for most taxonomic groups in this region has hindered our understanding of the speciation mechanisms that fostered this diversity. The genus *Leptopelis* is a radiation of Afrobatrachian treefrogs that have a complicated taxonomic history and reputation for their elusive phylogeny. Three species of “giant” treefrogs in the genus form a species complex distributed across West (*L. macrotis*) and Central (*L. millsoni* and *L. rufus*) Africa, as well as on the land-bridge island Bioko (*L. rufus*). Here, we combine phylogeographic and morphological datasets to assess patterns of genetic structure and morphological divergence in the *Leptopelis* species complex across the Guineo-Congolian rainforests. To assess phylogeographic structure in the species complex we collected mitochondrial sequence (16s) and genome-wide SNP (ddRADseq) data from more than 160 specimens across 26 localities. To characterize morphological divergence among these closely related species, we collected 14 standardized measurements from over 90 museum specimens. We recovered pronounced genetic structure across the species complex corresponding to Upper Guinean, Lower Guinean, and Bioko Island lineages. Our morphological analyses revealed phenotypic divergence among these lineages, including differentiation in tympanum size. Our work resolves long-standing taxonomic issues in this group and sets the stage for future work investigating population divergence and speciation in this charismatic group of frogs.

This research project is a continuation of a Research Experiences for Undergraduates (REU) program at the National Museum of Natural History, Smithsonian Institution. An extension of this REU also included research at the California Academy of Sciences (San Francisco, California) for a short time during winter break of 2017. Therefore, in addition to the research project, a broader portion of this talk will (1) highlight the importance of museum collections for science and public outreach, (2) summarize my REU experience in Washington, D.C., and (3) provide information on REU programs for current undergraduates interested in research opportunities while at Adrian College.

Abstracts

Session 1B

9:50 – 10:10 am

Natural History Museum: Herpetology Portion

Peelle 207

Alana Pastula

Mentor: Dr. Ben Pawlisch

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

Natural history museums are an excellent tool for education and research. Specifically, museums help to identify unknown species, understand how biodiversity is responding to a changing climate, and document the changes that human interactions have on the environment. Collections can date back centuries, giving scientists a snapshot of a particular place and time in which certain animals lived. Natural history museums have become increasingly important as some college and universities decide to close their museums because of the difficulty in finding space to house specimens. At Adrian College, there is an extensive natural history museum collection in the Biology Department, which has been collected over many years. The herpetology portion alone contains approximately 300 specimens collected at various times during the college's history. This collection, while substantial, is poorly labeled and is underutilized as a result. Throughout the past year, I have begun organizing and restoring the specimens as well as creating an online database to improve access and use for future teaching and research purposes. Overall, these efforts focus on both proper restoration techniques needed for liquid preservation and precise identification of the specimen since many have no labels. Several factors go into the care of liquid preserved specimen, such as the dilution of ethanol and continually refilling jars due to evaporation. To create the database, I used a taxonomic key to accurately identify the majority of the herpetofauna. Throughout the identification process, I discovered that there is a range of specimens including local, rare, and critically endangered organisms. One such example is the *Ambystoma mexicanum* (Axolotl), a critically endangered species that is of current research interest. In the end, I analyze the specimens to observe their diversity and to also draw attention to the possible uses of the specimens not only for the educational value of Adrian College students but also for the community as a whole.

10:10 – 10:30 am

The Specimens of the Adrian College Natural History Museum

Samantha Roesler

Mentor: Dr. Jeffery Lake

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

The Adrian College Biology Department has an unknown gem in room Peelle 114. Within the file cabinets and drawers are thousands of specimens and biological artifacts, including skulls, skeletons, and skins of birds, reptiles, amphibians and mammals - and much more. The history and diversity of this collection deserves to be recognized by students, faculty, and the community outside of the college. The goal of this project was to use knowledge and skill in photography to document the collection so further step can be taken to share it with others. A museum website has been created, and specimens are largely databased. These photos, designed for scientific study, will be linked to the database, and hopefully this resource will be made available online, at least for the ornithology collection. If fully implemented, it will be a larger online display of ornithology specimens than even the US Museum of Natural History at the Smithsonian Institution.

This presentation fits with the Ribbon, "Learning throughout a lifetime" because it provides learning and public engagement opportunities with an historic collection and helps me develop my photographic skills for scientific purposes. It Crosses the Boundaries of arts and science. It required me to develop creativity in improvising photographic studies in a science lab with limited facilities. The broader access this project grants to these specimens focus on our care for humanity and the world. The process of tracking and databasing as well as further identification of specimens requires critical thinking.

Abstracts

Session 1C

9:30 – 9:50 am

Peelle 212

Opioid Addiction: Effects, Impacts & Strategies

Thomas Doney

Mentor: Prof. Cheryl Nutter

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

The Opioid crisis is one of the biggest topics of discussion happening today. With more deaths caused by Opioid overdose than any other time in history it is important to figure out how and why this is happening. Who is to blame? How do we stop them? One of the biggest confusions with the Opioid crisis is people believe that this is only illegal drugs. This is not the case many of the cases are doctor prescribed prescription drugs. We will research what it is these pharmaceutical companies are putting in these drugs that make them so addicting. We will determine who it is that is profiting from this.

9:50 – 10:10 am

PRIDE (Promoting the Rights of Individuals with Disabilities Everywhere) & Special Olympics College

Kirsten Chambers and Melanie Hughey

Mentor: Mrs. Danielle Ward

Ribbon: Caring for Humanity and the World

PRIDE and Special Olympics College work with individuals with disabilities in the area. There are currently about 40 individuals in the area, ages 16-55, who participate in our programs. It is important to mention why we do what we do, how we do it, and what we do.

Why: These programs do not only benefit the Special Olympics athletes, but also the Adrian College students involved. We do what we do because of the friendships that are built. We focus on that peer to peer interaction, and see new and unexpected friendships form and grow between athletes, and between athletes and Adrian College students. These programs build community at Adrian College. Everyone is put in new social situations, and our athletes are constantly learning from new social situations. Independence is built. Both physical and mental benefits of exercise are established. We do what we do to promote teamwork, and we see many situations regarding teamwork every single day. Lastly, a major WHY is that these programs are preparing everyone involved for their future endeavors. No matter your career path, as an individual you are going to interact with individuals with disabilities, and these programs help you broaden your horizon and grow as a person.

How: We work with the ATSS program on campus, interact with families, interact with community members, and work with LISD and Hope Community Center.

What: Host Special Olympics College soccer games. We started these soccer games about three years ago, and we have watched the program grow. Now, we play a different athletic team or organization on campus each time we have a game. It is an amazing opportunity to get more students involved, and the athletes adore meeting new Adrian College members. We play about five games against Adrian College teams a semester. We also have played a few games and tournaments against other schools, including the University of Michigan. We also participate in the Polar Plunge at Clarklake each year in the support of Special Olympics. PRIDE hosts many events, including Disabilities Awareness Week, Spread the Word to End the Word, and the Sweetheart Prom. Throughout Disabilities Awareness Week, there are incredible events to get the campus involved, such as the 24-hour experience, a guest speaker, and Goalball. Sweetheart Prom is the major PRIDE event that athletes, their parents, Adrian College staff, students, and families attend. All the funds raised go directly to the Hope Community Center, and it is a beautiful event. As we head towards the future, we are only hoping to expand the program even more by possibly playing more sports or new teams. It is truly incredible to see the impact the programs have on every single person involved. These programs encompass the ribbon of Caring for Humanity and the World by focusing on caring for and providing equal opportunities for all individuals. We are working towards creating a more accepting environment for all.

Abstracts

Session 1C

10:10 – 10:30 am

CathARTic Expressionism: Eight Years of the Clothesline Project

Peelle 212

Megan DeBrabander

Mentor: Dr. Deborah Field

Ribbon: Caring for Humanity and the World

Approximately 23% of females and 5% of males are victims of rape or sexual assault while they are undergraduates (Rape, Assault, & Incest National Network). However, despite the large number of people who have been raped or sexually assaulted, 42% of survivors have not disclosed their assault to anyone (Miller, Canales, Amacker, Backstrom, & Gidycz, 2011). Unfortunately, not talking about their experiences prevents sexual assault survivors from receiving the care that they need and impedes recovery. Art is one effective intervention strategy to combat the silence imposed on victims of rape and sexual assault. Art offers survivors the chance to share their stories and express themselves without actually needing to vocalize their experiences (Murray, Spencer, Stickl, & Crowe, 2017). The Clothesline Project adopted this idea of cathartic expression as a way of healing and incorporated a message to the public. Since its creation in 1990, The Clothesline Project has been raising awareness of rape and sexual assault through public displays of stories of survivors written on shirts (Hipple, 2000). These displays of shirts break the silence surrounding rape and sexual assault and provide survivors with the opportunity to speak out and share their stories anonymously while simultaneously forcing the public to see the prevalence and severity of gendered violence. CathARTic Expressionism incorporates shirts made for The Clothesline Project at Adrian College from 2010 to the present. This art installation is a representation of the personal experiences of present and former Adrian College students, demonstrating the immediacy, prevalence, and severity of sexual assault and rape in today's society while giving voice to a previously voiceless population.

Corresponding art exhibit is viewable
in the Gurdjian conference room
(Peelle 200) from 9 am - 5 pm

Abstracts

Session 1D

9:50 – 10:10 am

Knight Auditorium (Valade 130)

What if Jesus was a Dreamer? A Theological, Political and Bicultural Examination of the U.S. Border Crisis

Hannah Hawkins

Mentor: Dr. Scott Elliott

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

To protect the Christ child, Joseph is instructed by a visiting angel to “rise, take the child and his mother, and flee to Egypt, and remain there, for Herod is about to search for the child, to destroy him” (Matthew 2:13).

With recent controversy over the status of DACA (The Deferred Action for Childhood Arrivals) and the relentless push for a border wall, and over 7,000 confirmed migrant deaths along the increasingly militarized US-Mexico border, we face not only a crisis of immigration, but a crisis of faith. Within the infancy, ministry, and passion narratives of Christ presented in the New Testament, parallels between Jesus and DACA recipients can be drawn: Jesus was taken to Egypt by his father for protection similarly to today's Dreamers, who are brought to the U.S. to escape hardships of poverty and maltreatment faced in Latin America. During His temptation, Christ suffered and hungered in the wilderness “with wild animals,” as today's border-crossers are tempted by smugglers and tested by hazardous deserts, trains and ocean (Mark 1:13). In terms of the passion, and according to theologian Frei Betto, “Jesus didn't die from a camel accident on a street in Jerusalem. He was persecuted and condemned for challenging religious and political establishment” (Elizalde). Whereas Christ was persecuted for challenging the Roman Empire, the DACA recipients are currently facing political persecution within the U.S. However, the most significant similarity between Christ and Dreamers as border-crossers is their message: saving life. Jesus was brought to save the world, and the Dreamer was brought to be saved.

Emerging from research spanning contemporary news and biblical literature, as well as in-person interviews with individuals impacted by immigration policy in the San Diego/Tijuana region, this paper pinpoints instances in which Christ resembles not the divine ruler to which the contemporary Christian prays, but the migrant which the U.S. condemns. Calling for changes in migrant characterization and Christian political behavior regarding immigration reform, the project expresses that Christ not only stands in solidarity with migrants, but is a border-crosser, and is thereby representative of today's DREAMer population.

9:50 – 10:10 am

Bones Left Unburied: The Racial Rhetoric of the Pacific War

Drake Jellison

Mentor: Dr. Terry Jackson

Ribbons: Caring for Humanity and the World, Thinking Critically

This presentation is based on research that addresses an issue of the forgotten history of World War II. The research herein examines the extermination-oriented rhetoric used by the U.S. government, the military, and popular culture against the Japanese during the war. The research will similarly place emphasis on the racially driven dilemma between following orders and bloodlust towards the Japanese. In particular, it will assess the degree to which extermination-oriented rhetoric was effective and became entrenched among American soldiers, and argues that not only was it effective but that in many cases Japanese extermination fueled by racism became an expectation. This was the case for both trained soldiers and American personnel away from the front lines. This research is based on the personal journals of soldiers, recorded oral histories, and testimonies taken between 1941-45 as well as military documents and propaganda. While much historical work has focused primarily on the propagandist aspects of American racism at that time, my work looks at soldiers on the ground and how racism motivated their actions in the field and drove them to deeds that would have been seen as a horrifying breach of conduct on the European front. Through this research, it is revealed that racist rhetoric was not only condoned from troops fighting the war, but that its trappings led all the way up to the generals running it, thus creating an atmosphere rife with violation of international laws that the United States actually played a role in drafting.

Abstracts

Session 1D

10:10 – 10:30 am

Knight Auditorium (Valade 130)

"The Troubles" A Review of Peace Walls and Propaganda

Kevin Hernandez

Mentor: Dr. Terry Jackson

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

Throughout the late twentieth century, Northern Ireland was the epicenter of one of the most infamous guerilla-style warfare conflicts in modern history. Spanning thirty-two years from 1966 to 1998, "The Troubles" ravaged the communities of Northern Ireland, resulting in 50,000 injured and 4,000 dead. These casualties were the direct result of the years of political and historical conflict that existed between the Unionist/Loyalists and Nationalists/Republicans. Following the Northern Ireland Riots of 1969, walls were constructed as a 'peaceful approach' to the conflict, creating a barrier between Unionist and Nationalist neighborhoods. These 'peace walls' ranged in size from a few hundred yards to many miles in length. Typically, the walls were over twenty-five feet tall, and were often fashioned out of brick and metal. Interestingly, the walls became canvases on which both Loyalists and Republicans painted murals. Due to political and social unrest, both groups released and posted propagandized literature in the form of posters and social contracts in hopes to gain support for local and national elections. Other posters and murals were created to commemorate certain events, or celebrate the lives of those lost in the conflict. This presentation will present a timeline of the imagery of "The Troubles." It will reveal an interesting correlation between the amount of deaths/severity of the conflict, and the iconography painted on the walls and in the political propaganda. A review of the imagery of the thirty years of "The Troubles" will establish "The Troubles" as not only an actual war, but also, as a war of imagery.

Session 1E

9:30 – 9:50 am

Alumni Lounge (Valade 125)

Neighborhood Complementarity Around Native and Invasive Shrubs in a Southeast Michigan Forest

Anastasia Fryman and Morgan Wiza

Mentor: Dr. Jeffrey Lake

Ribbons: Caring for Humanity and the World, Thinking Critically

Invasive species are a growing problem; in southeast Michigan forests, invasive shrubs are becoming more prevalent in the understory and may be suppressing tree regeneration. Understanding how these invasive species are able to succeed in their new environment and dominate is important to prevention and control. Tree and shrub complementarity in the neighborhoods surrounding the invasive species may impact its success rate. It has been shown in native communities that growth rates are higher when neighboring plants are less phylogenetically related and more dissimilar from focal individuals. It is, however, an open question as to whether this plays out similarly in invasive plants. It is possible that they succeed in spite of similarities because of their apparent lack of enemies or other factors. This research investigates neighborhood complementarity and phylogenetic relatedness surrounding individuals of the invasive Autumn Olive (*Elaeagnus umbellata*) and native Witch Hazel (*Hamamelis virginiana*). Traits sampled include specific leaf area (SLA), leaf nitrogen content (LNC), leaf laminar area (LLA), leaf dry matter content (LDMC), carbon: nitrogen ratio (C:N Ratio), and leaf $\delta^{15}N$.

This research requires critical thinking because combining traits, spatial tree and shrub census data, and phylogenetic information is a novel approach to invasive species research. It also addresses caring for humanity and the world because of the environmental challenge posed by invasive species.

Abstracts

Session 1E

9:30 – 9:50 am

Alumni Lounge (Valade 125)

Association of a Single Nucleotide Polymorphism with the Intratumoral Immune Status of Ovarian Cancers

Hannah Schaefer

Mentor: Dr. Doris Benbrook and Dr. David Bartley
Ribbon: Learning Throughout a Lifetime

Introduction: Despite advances in treatment, the survival rate for ovarian cancer is still very low. Our group found that the TT genotype of the rs1860190 (T/A) single nucleotide polymorphism (SNP) in the C-C Motif Chemokine Ligand 2 (CCL-2) gene is associated with worse ovarian cancer patient progression-free and overall survival. The TT genotype creates a GATA transcription factor-binding site in the 5' region, suggesting that GATA-driven CCL-2 expression and subsequent elevation in intratumoral protective macrophages may be responsible for the worse patient prognosis. Our hypothesis is that the rs1860190 TT genotype is associated with higher CCL2 and macrophage levels in ovarian cancers, without directly affecting ovarian cancer cell proliferation.

Methods: An ELISA was used to measure CCL2 levels in ovarian cancer protein extracts CD68 positive macrophages in cancer cell and stromal areas were counted on sections of human ovarian cancer cell tissues. Effects of various CCL2 concentrations on ovarian cancer cell line growth in the presence and absence of serum were quantified with an MTS assay. T-tests were used to determine if the endpoints were significantly different in tumors with TT compared to AT or AA SNPs using Graphpad Prism 6.

Results: CCL2 and macrophage levels in stromal, but not cancer cell areas were significantly higher in TT compared to AA and/or AT tumors. Stromal areas had significantly higher amounts of macrophages compared to tumor areas.

Conclusion: Our data supports the hypothesis by showing associations of elevated CCL2 and macrophage levels in TT tumors compared to AA or AT tumors.

Ribbon: Learning throughout a life time. Research asks questions every day that try to better the health of humans. This research questioned how nucleotides effect Ovarian cancer, with the goal being better treatment. The process of performing research requires you to be constantly learning and questioning theories or medicine that have already been used for years. Science requires you to constantly have an open mind. This research required me to constantly be learning and question the current way we are treating Ovarian Cancer.

*** This research was generously supported by an Undergraduate Student Research Summer Grant from the Office of Academic Affairs at Adrian College ***

Abstracts

Session 1E

10:10 – 10:30 am

Alumni Lounge (Valade 125)

Walden West Management Plan Development and Research Topics

Sabrena Camp and Tara Wrbelis

Mentor: Dr. Jeffrey Lake

Ribbon: Caring for Humanity and the World

When Adrian College acquired Walden West Biological Station on May 30, 2016, little was known about the 119-acre property. The property was a donation from Jim and Mary White, and placed under a conservation easement with both Raisin Valley Land Trust and Legacy Land Conservancy.

Walden West is currently under a two year interim management plan that was prepared by Adrian College and Legacy Land Conservancy following the purchase. Once this interim management plan ends, Adrian College is exploring using an adaptive management plan. An adaptive management plan focuses on learning from application, which is the process of putting programs into place, and modifying the management plan over time to implement better tactics and remove systems that are failing to benefit the property. Through this management plan, Adrian College hopes to achieve its six goals and purposes of the Walden West site: conservation of species, conservation of land, invasive species removal, educational space for students, habitat for animals and plants, and public value. During the course of our independent study in the spring term of 2017, we focused on how to best meet these goals.

Since then, several projects have been conducted to utilize the land as a learning experience. In addition to the learning component, these projects have allowed Adrian's faculty and students to better understand what practices need to be implemented in order to best conserve the property and species that reside there. The water quality has been tested, insect diversity has been surveyed, a comprehensive flora has been prepared, and an invasive shrub removal program has begun. During fall 2017, a terrestrial vertebrate species inventory was carried out. This species list will serve as a starting point to help guide our management planning.

Although our project touched on all of the ribbons of excellence, we focused our efforts on Caring for Humanity and the World. As a result of our time and dedication to Walden West, we have established a local ecosystem that we plan to share with all of the Adrian community to improve educational programs for every age group. This property will serve as an outdoor classroom for many years to come.

Abstracts

Session 1F

9:30 – 10:30 am

Core Williams Oratorical Competition

Downs Hall Theatre

Brady Hanson, Sydney St. John, Gage Dansby, Kate Turner,
Rebekah Wright, and Nicole Olson

In Academic Foundations II (AF II), the second course in Adrian College's First-year Core Curriculum, students continue to develop their knowledge and practice of the rhetorical strategies used in academic, professional, and civic discourse. Inspired by Adrian College's abolitionist history, 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 from among all of the sections of AFII to participate in an elimination tournament. The finalists compete on Ribbons of Excellence Day for the top prize.

Each will present, in character, a short speech from the Reacting to the Past game, *Frederick Douglass, Slavery, Abolitionism, and the Constitution: 1845*. This game requires students to adopt the personas of historically-based characters as they debate slavery and abolition in the United States during the nineteenth century. These debates are thematically tied to Adrian College's founding abolitionist identity and the fight against slavery that continues today.

One of these speakers will be awarded the Williams Oratorical Cup, which was historically given to the Literary Society with the best oration in head-to-head competition. Members of the Adrian College faculty moderate and judge the competition.

Abstracts

Session 2A

10:45 – 11:05 am

Baer Lecutre Hall (Jones 110)

Inside Appalachia: A look at the many ways an Appalachian community defines itself.

Hope Hornish

Mentor: Dr. Carissa Massey

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

Unmediated understanding of a community's character and complexity is insightful and rewarding. Unfortunately, some communities are adversely affected when outsiders attempt to explore and translate ideas about the shape of that community without seeking input from the people they are observing. This documentary explores an Appalachian community and relies on Appalachians themselves to communicate to viewers who they are. Through personal stories, interviews and film footage captured during a visit to a small Appalachian community, this film seeks to form a more accurate and respectful view into Appalachia.

11:05 – 11:25 am American Ignorance: How much do college students know about government, and is it enough?

Katherine Bartlett

Mentor: Dr. Philip Howe

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

American understanding of government is at an all-time low. Studies show drastic drops in basic knowledge in the population in just the past ten years. I decided to use to my senior capstone to put together a 9-question survey to test current college students on basic current American government. My results found that of students surveyed, they scored on average a 60%. More startlingly, of these 85 students, only 12% could say who their US Senator is. It is vital to our democracy that the populous be informed. Current college students are voting members who have the ability to shape our country, and they need the proper information to do so. Knowing what information they have will help better teach and understand them as a generation.

11:25 – 11:45 am How We Analyze the Past: How Roman Historians See History

Ryan Wojcik

Mentor: Dr. Terry Jackson

Ribbons: Thinking Critically and Developing Creativity

Some people view the words of the ancient historians as voices of total authority and objectivity. While it is true that men such as Livy, Plutarch, Cassius Dio, and Tacitus were extraordinary scholars that does not mean their words are law. Historians today understand that both historians and their sources have biases. This was true of ancient historians. However, it is not always easy to see the biases. This presentation is based on my senior research in History which examines the biases of ancient Roman historians. My research focuses on the ways in which ancient historians wrote about Gaius Julius Caesar. He is, of course, a well-known figure, as his life was filled with monumental events such as the conquest of Gaul, modern day France, declaring himself dictator for life, and his eventual assassination. I will analyze how ancient Roman historians praise and critique Caesar and place their words within the historical contexts in which they lived in order to gain a better understanding of why they wrote what they did. My research indicates that the historians who wrote closer to his death praise Caesar up until his rival Pompey is killed and Caesar begins to consolidate power from the Roman Republic towards himself. However, when these historians begin to consider the old republic compared to the new empire, their treatment of Caesar becomes more critical. This shift in their assessment of Caesar, I believe, is closely connected to the instability of the historical period in which they live. Although I have not yet begun research on the writings of later Roman historians, I believe their opinions of Caesar will get better as they lived in a more stable period of the empire.

Abstracts

Session 2B

10:45 – 11:05 am

American Advertising Federation: Ocean Spray

Peelle 207

Samuel Price, Daniel Myers, Liz Graves, and Kristofer Paul

Mentor: Prof. Patrick Quinlan

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

This year, the American Advertising Federation National Student Case Competition involves the Ocean Spray brand of juices and snacks. Our work for this case is to create a marketing plan to solve their major issues. Our main goals for this project are to; generate a 7%+ increase in brand equity among the millennial audience. This plan is going to be created under a \$5 million budget

The integrated marketing communication plan we will be presenting includes the results of our assessment of the situation, appropriate communication objectives which have to be met as well as a fully developed campaign, including final creative output, media plans and a budget.

11:05 – 11:25 am

Financial Reporting and The Industrial Revolution

Robert Coy and Madeline Crandle

Mentor: Prof. Amber Gray

Ribbons: Thinking Critically and Crossing Boundaries and Disciplines

The industrial revolution was the time when business began to flourish and formed an entirely new society around it. Men of many calibers began to take on entrepreneurial adventures and create jobs. This research looks at the tycoons of business; Andrew Carnegie, Cornelius Vanderbilt, and John D. Rockefeller. These men maintained a monopoly in each of their respective markets. The oil industry was booming as a result of the automobile industry. The railway industry was growing due to the need to deliver supplies to manufacturers over long distances. Finally, the steel mill was one of the biggest industries in this time, as steel became the primary building material.

As businesses grew into large corporations, a more sophisticated need for bookkeeping was desired, and thus financial reporting developed. Before the Industrial Revolution, there were no “generally accepted accounting principles”. Since there were no set accounting principles, companies could easily misrepresent their financial statements and thus, mislead investors. Various acts were passed by the government to monitor companies’ financial reporting and attempt to bring some consistency to financial reporting during this time period. These new regulations pushed the accounting profession in a new direction, and formed the basis for the financial reporting that we use today

11:25 – 11:45 am

The Most Influential Man You’ve Never Heard Of

Casey Cribbs, Mariah Kramer, and Luci Sementa

Mentor: Prof. Amber Gray

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

Luca Pacioli is known as the father of modern accounting. How can it be that so many business and accounting students have never heard of him? Our research presents survey results from both accounting and non-accounting majors at Adrian College regarding questions such as: Have you ever heard of Luca Pacioli? How interested are you in learning accounting? Do you know what double-entry accounting is?

Our research will attempt to show the value of learning the history of accounting in attracting students to the accounting major and developing an understanding of accounting. This research also aims to provide solutions to the problem of attracting students to the accounting major by discussing the method we believe to be the most beneficial in improving accounting education at all grade levels. Potential methods to get students interested in accounting as well as incorporate Luca Pacioli into modern day education include creating an easy to understand curriculum for younger students, and modifying the curriculum for middle and high school students. Adding courses dedicated to Luca, his impact on the accounting and business world, and basic accounting will spark interest in students before they reach college and help more students choose accounting as a profession.

Abstracts

Session 2C

10:45 – 11:05 am

Peelle 212

Interaction of Athletic Identity and Motivation of the Rehabilitative Patient

Chloe Berka

Mentors: Dr. Heather Schuyler and Mrs. Lorie Robinette
Ribbon: Thinking Critically

Background: Rehabilitation is essential for return to play in the post-injured athlete (Houglum, 2010). An athlete that is non-compliant during rehabilitation this can experience unfavorable outcomes (Granquist, Podlog, Engel, & Newland, 2014). Non-compliance is affected by many different psychosocial factors (Klenk, 2006; Dohnke, Nowossadeck and Muller-Fahrnow, 2016) that athletic trainers have been taught to manage (Hamson-Utley, Martin, & Walters, 2008). If athletic trainers were to apply the psychosocial coping skills they have been taught, there could be a potential increase in rehabilitation adherence (Hamson-Utley, Martin, & Walters, 2008). Two psychological barriers that lack correlational research during rehabilitation are motivation and athletic identity. Motivation has been shown to be a central issue of many sports related problems and can lead to many different outcomes (Pelletier, Tuson, Fortier, Briere, 1995; Granquist et al., 2014). Every athlete has an athletic identity and it is a significant element of their self-identity (Lamont-Mills & Christensen, 2006; Klenk, 2006). Research has shown that a higher athletic identity an athlete has the more likely they are to have a poor reaction to the injury (Madrigan & Gill, 2014).

Purpose: The purpose of this research is to evaluate how athletic identity (AI) of athletes interacts with their motivation during the rehabilitation process in collegiate athletes.

Methods: A 20 participant convenience sample of both NCAA DIII and NAIA collegiate athletes was used for this study. These participants were injured athletes who agreed to partake in the study. The participants were given a survey a minimum of three times during their injury process. Surveys were handed out initially upon injury, in the middle of the rehabilitation process and then again upon full return to play. The survey is a 5-page survey composed of a participant identification page, the Sport Motivation Scale-6 (SMS-6), the Athletic Identity Measurement Scale (AIMS) and a demographic questionnaire. Athletes were recruited by the investigator with help from the certified athletic trainers at each institution. Data was analyzed for correlation between athletic identity and motivation, divisional differences with athletic identity and correlation of motivational sub-scales and athletic identity.

Results and conclusions: Data collection is ongoing and the results will be presented at the time of the conference.

Session 2C

11:05 – 11:25 am

Peelle 212

The Effect of Comfort on an Athlete's Desire to Wear Protective Skull Caps

Bailey Feekings

Mentors: Dr. Tina Claiborne and Mrs. Meg Sharp
Ribbon: Thinking Critically

Background: A concussion is defined as “trauma induced alteration in mental status that may or may not involve loss of consciousness” (Broglia et al., 2014). The rate of concussions is found to be highest in wrestling, with ice hockey and football following in second and third (Gessel et al., 2007; Wilcox et al., 2014; Zuckerman et al., 2015). Due to the high incidence of concussion in ice hockey and football, helmets have evolved over the years to combat this issue. Although the incidence of skull fractures, facial injuries and some brain injuries have decreased, it is unclear whether helmets are effective at reducing the rate of concussion (Greenhill et al., 2016). With a gap in the market, multiple companies have come out with a protective cap to wear underneath helmets. The role that skull caps play in reducing the incidence of concussion has yet to be proven, although if protective equipment is not worn, it will not be effective. Research has indicated that athletes do not always wear protective gear properly, or at all. One of the main reasons is lack of comfort (Collins et al., 2015; Hawn et al., 2002).

Purpose: The purpose of this study is to determine whether comfort influences an athlete's desire to wear a protective skull cap.

Methods: Ten NCAA Division III male hockey players, ten ACHA Division I male hockey players, and nineteen NCAA Division III varsity football players volunteered for this study (mean age 21.4 + 1.5 years). Following informed consent, athletes were given a 2nd Skull protective cap to wear during two consecutive practices. They were surveyed before and after to measure comfort, helmet fit, and their desire to wear the protective skull cap. A 2x3 McNemar's test ($p=0.05$) will be used to determine differences in comfort, desire to wear, and helmet fit between conditions (skullcap and no skullcap). A Phi-coefficient will determine if there is a correlation between comfort and the participant's desire to wear the skull cap.

Results & Conclusions: Data analyses are ongoing and the results will be presented at the time of the conference.

Abstracts

Session 2C

11:25 – 11:45 am

Peelle 212

The Effect of 2nd ® Skull Cap on the Protective Properties of Ice Hockey Helmet

Jacob Adams

Mentors: Dr. Tina Claiborne and Prof. Victor Liberi

Ribbons: Caring for Humanity and the World, Thinking Critically

BACKGROUND: Traumatic brain injury (TBI) in sports is a growing epidemic (Sone et al., 2016). In particular, the incidence of sport-related concussion (SRC) has reached a staggering 1.6 to 3.8 million cases each year in the United States (Zuckerman et al., 2015). Even with the evolution of helmets, the occurrence of SRC has remained high, with men's and women's ice hockey reporting the highest rates of SRC (Zuckerman et al., 2015). In an effort to decrease the incidence of SRC, helmet adjuncts worn beneath the helmet as skullcaps have been introduced into the market. The purpose of protective skullcaps is to decrease the linear and rotational acceleration impacts associated with SRC. While helmet adjunct companies have reported results of independent research, peer reviewed publications proving the efficacy of skullcaps is lacking. **PURPOSE:** The purpose of this study is to determine whether supplementing an ice hockey helmet with a 2nd Skull® protective skullcap increases impact duration and reduces head accelerations lower than those associated with SRC. **METHODS:** This will be a controlled laboratory study. A triaxial accelerometer will be mounted at the center of mass of a Hybrid III headform. The headform will be dropped on the ice from a height of 26 inches or .66 meters for 100 trials, under two conditions; ice hockey helmet vs ice hockey helmet and skullcap. After each trial, peak linear acceleration and impact duration will be measured and the averages of both for each condition will be compared using an independent samples t-test ($p=0.05$). **RESULTS & CONCLUSIONS:** Data collection is currently in progress and the results of this study will be presented at the time of the Ribbons of Excellence conference.

Session 2D

10:45 – 11:05 am

Knight Auditorium (Valade 130)

The Forsaken Phenomenon: Post-traumatic Stress Disorder in Journalists

Michelle Siegel

Mentor: Dr. Carman Curton

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

When it comes to journalism, trauma is practically part of the job description. Even journalists covering stories in their local communities are exposed to a wide variety of traumatic events, such as automobile accidents, burning buildings, crime scenes, and natural disasters. It should be unsurprising, then, that the current year PTSD rate of journalists has been projected to be three times higher than that of the general population.

But why does that information still seem shocking? Such a prevalent phenomenon should obviously stir a heavy supply of research and consideration — and yet, that's not the case for PTSD in journalism. The first-ever peer reviewed study on the mental health of journalists was conducted less than 20 years ago. Perhaps as a result, the vast majority of journalists claim that their employers never briefed them on trauma or offered them counseling.

This research project provides critical insight as to why editors and managers should be taking better care of their trauma-susceptible journalists. Attendees will gain a new understanding for both journalism and psychology, facts from each of which have been creatively incorporated to form a multidisciplinary experience.

Abstracts

Session 2D

11:05 – 11:25 am

Knight Auditorium (Valade 130)

Two Studies of Differences in Exercise Based on Gender, Self-concept, and Evaluation Apprehension

Kailey Fuller, Megan DeBrabander, and Ashley Budnik

Mentor: Dr. Suzanne Helfer

Ribbons: Caring for Humanity and the World and Thinking Critically

This study is a comparison of two self-report questionnaires in which we instructed participants to record the frequency and duration of their workout. In addition, we asked the participants to report the type of exercise they participate in (cardiovascular, weight training, or both), the number of additional people who are typically present at the gym, and to rate their comfort level when the gym is crowded on a 9-point scale (1 extremely, 9 not at all) to determine how rushed, anxious, motivated, and social they feel while working out. In the first version of this study, we asked participants to report the exercise equipment that they use in the gym in order to determine the type of exercise they participate in. This presented issues because we were unable to determine the amount of each type of exercise they completed. To remedy this problem, in this second version we asked participants to report the percentage of time spent on each type of exercise during their exercise program. Participants then completed a revised version of the Fear of Negative Evaluation Scale, which measures an individual's fear of being negatively evaluated by other people in a social setting. For the purpose of this study, we altered the directions to instruct participants to answer the questions based on the scenario of going to the gym. Participants also filled out a reformatted version of the Body Objectification Scale. The scale consisted of 10 questions regarding body attributes that were rated from 0-9 (0 least impact, 9 greatest impact) based on how much the body attribute factors into one's self-concept. Due to the misinterpretation of the scale in the first version of this study, we reformatted the scale in the second version to increase clarity of directions and produce more accurate results. The participants were asked to rate physical coordination, health, weight, strength, sex appeal, physical attractiveness, energy level, muscles, physical fitness level, and body measurements. We aimed to find a significant effect of gender, hypothesizing that female participants will report more cardiovascular exercise and higher levels of evaluation apprehension whereas male participants will report more strength training exercise and lower levels of evaluation apprehension. We also hypothesized that participants who rate themselves as feeling more rushed and anxious when the gym is crowded will work out during low capacity times, whereas participants who rate themselves as being motivated and social when the gym is crowded will choose to work out during high capacity times. We plan to correlate the importance of weight and physical attractiveness to body image. We hope to use the results of this study to determine feelings people have about going to the gym. By understanding feelings people have about going to the gym and exercising, we can make gyms more equipped to cater to the needs of both men and women. Catering to these needs can help increase the number of people who work out and help the world become healthier.

Abstracts

Session 2D

11:25 – 11:45 am

Knight Auditorium (Valade 130)

The Effects of a Fidget Cube on Dental Patient Anxiety

Alicia Szilagyi

Mentor: Dr. Suzanne Helfer

Ribbon: Caring for Humanity and the World

About 15 percent of our population have strong feelings of anxiety when undergoing dental treatment. Besides dental anxiety being a detriment to the patient's health, it can also cause him or her to delay their appointments or even avoid dental visits. These patients can also be harder to treat and may require more time. This can cause an unnecessary stress on the patient and the doctor (Armfield and Heaton, 2013). The purpose of this study was to potentially reduce anxiety during dental procedures, such as root canals, crown preparations and teeth cleanings, with the use of a fidget cube. Fidget cubes are designed to reduce anxiety and stress through the method of distraction. A fidget cube, unlike other distractions such as video games or television, do not require visual attention. Therefore, it creates a channel for non-disruptive movement (Biel, 2017). The ultimate goal was for the patient to feel more relaxed during their dental appointment, while using a miniscule distraction device. Thus if they feel more at ease, they will be more inclined to continue coming in, which in turn will lead to optimal oral health care for the patient.

My study consisted of a control group and an experimental group. Both groups were given a Dental Anxiety Scale and Dental Fear Survey to complete before their appointment began. The experimental group was given a fidget cube and was asked to fidget with it to create a distraction for themselves during their dental procedure. After their procedure, both the experimental and control group were asked to fill out the post Dental Fear Survey and a demographic questionnaire.

It was concluded that patients who were habitually high in a dental anxiety did have higher dental anxiety during the visit than the patients who reported habitually lower feelings of anxiety. Though the fidget cube did not have an effect on all dental patients, it was able to reduce anxiety for patients who received the anesthetic needle.

The fidget cube being able to decrease anxiety levels for dental patients receiving an injection could be a small step to finding other ways to distract and ease an anxious patient throughout their entire dental procedure. The ultimate goal is for all people to receive the best quality of oral healthcare, despite of their anxiety levels. Therefore, expanding on research on the idea of using distraction methods as anxiety reducers could help dentists reach their goal in treating as many people as they can in the best way possible.

Session 2E

10:45 – 11:45 am

Alumni Lounge (Valade 125)

The Media as a Social Force

Amelia Berg, Connor Armour, and Brandi Balzer

Mentor: Dr. Christy Mesaros-Winckles

Ribbons: Caring for Humanity and the World, Thinking Critically

Media is a power socializing agent that has the ability to shape our knowledge of ourselves and the way we perceive the world. Using various critical media studies perspectives this panel will skeptically discuss how there is more to a media text than what we first see. Three media texts will be analyzed from television, film and music. First, Marxist theory will be used examine the ties between the Occupy Wall Street Movement and the 2011 film *In Time*. Secondly, Foucault's *History of Sexuality* vol. I and the repressive hypothesis will be used to discuss Casey and Sam from the Netflix show *Atypical*. Finally, Canadian rock legend Gord Downie's album *Secret Path* will be scrutinized using a sociological analysis of the Downie's music and the album's impact on raising awareness in Canada to the history and living conditions of First Nation members. Each presenter will be using film or music clips to illustrate the different media criticism techniques employed in their analysis.

Abstracts

Session 2F

10:45 – 11:05 am

Dido and Aeneas, The Aeneid, and Text Painting

Downs Hall Theatre

Ashley Simon

Mentor: Dr. Kristin Boggs Clark

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

This performance explores Henry Purcell's opera *Dido and Aeneas* in relation to the story's origin: Virgil's epic poem, *The Aeneid*. Having endured for centuries, these stories have been enjoyed and interpreted by generations of music and poetry lovers.

This presentation will include selections of aria and recitative from *Dido and Aeneas* as well as verse from *The Aeneid*. Textual analysis will display how both Purcell and Virgil use the text to influence the reader or listener. Text painting is a valuable operatic storytelling skill, and Purcell is able to precisely use the music to enhance the drama of the story through intricate musical themes. Elements of Virgil's story were unable to be adapted for the stage, including some elements of the tragic death of Queen Dido of Carthage, allowing us to explore how Purcell was able to portray it in the opera without sacrificing the affliction of the story.

11:05 – 11:25 am

Rise Up

Perri Foster

Mentor: Dr. Annissa Morgensen-Lindsay

Ribbons: Crossing Boundaries and Disciplines

Perri Foster's musical theatre recital is in preparation for her career in the performing arts. Through the requirements for a successful recital, such as collaboration, research, and rehearsal, she utilizes the Ribbon of Excellence: crossing boundaries and disciplines. She crosses boundaries by playing roles outside of her comfort zone. Comedic characters are outside her comfort zone, but she is pushing herself beyond that in order to play a range of characters. She crosses disciplines through her research. By researching and reading the musicals she selected, she learned about mental illness, history, economics, politics, and religion and theology. She prepares by gathering material for her recital, memorizing it, and rehearsing it with her partners, accompanist, coaches, and on her own. With the help of faculty and peers, she prepares her material in detail, in which she can present for auditions and other performances. The experience Foster receives from a musical theatre recital provides a focused training and learns to create her own repertoire. For her Ribbons of Excellence presentation, she will perform *It's a Perfect Relationship* from *Bells are Ringing*, *Before it's Over* from *Dogfight*, *Moments in the Woods* from *Into the Woods*, and *Pulled* from *The Addams Family*.

Abstracts

Poster Session

11:45 am - 12:30 pm

Peelle Addition Lobby

Profiling Terrorists Based on Decision Making

Hope Hornish

Mentor: Dr. Philip Howe

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

Today in the twenty-first century, we face many dangers from terrorist attacks on domestic and foreign soil. Profiling terrorists has never been successfully done. It has been done in trials and in theory but the accuracy of profiling a terrorist is still in the developmental process within the intelligence community. The intelligence community has looked at political, religious, and socioeconomic statuses of terrorists in efforts of profiling. However, if a certain mindset of a terrorist could be reached, specifically a decision making style, it would allow for a basic analyzation process that could save lives. The benefits from profiling terrorists are significant to countries, individuals, and to the world as a whole. This could stop terrorist attacks before they even happen which would save casualty counts, save military personnel, and not disrupt economies. To test this we must narrow the decision making field into smaller ideas and then create a system that can effectively evaluate and classify what specific type of decision making a person/terrorist could be. Finally, to reach an answer we will then compare the controlled group to the group of terrorists analyzing what type of decision making styles they are and are they relatively similar or different. If the styles of decision making is different between the controlled group and terrorists, then this is a possible process in the efforts to profile terrorists.

11:45 am - 12:30 pm

Effects of Control on Perceived Choice and Social Problem Solving Ability

Emily Nixon

Mentor: Dr. Amy Hillard

Ribbon: Thinking Critically

This study was conducted to determine whether present control affects perceived choice and social problem solving ability. 44 undergraduate participants were randomly assigned to one of three conditions with manipulations through a writing task: high, low, or neutral control. As the consequence of a failed manipulation check, a new quasi-independent variable of present perceived control was created to analyze results. As hypothesized, participants who reported a high feeling of present control also reported more perceived choice throughout their life, which filled a gap in previous research. However, there were no significant differences between participants with high and low control regarding social problem solving ability. The failed manipulation check was a limitation to this study so future research should use a different manipulation for control and focus on whether control can easily be changed. The current study will be presented in poster format and it most closely ties to the ribbon of thinking critically. I identified a problem within individuals throughout the current study stating that having control is important but not always present and I filled a partial gap in previous literature by finding that control is closely linked to perceived choice. Since social problem solving ability was also addressed in this study, I looked at what effects this critical thinking skill has depending on other variables. In addition, I offered directions for future research on expanding the topics above and how the research can be altered and improved to answer even more questions.

Abstracts

Poster Session

11:45 am - 12:30 pm

Dominant Water Contributor of Walden West Perennial Pond

Peelle Addition Lobby

Luke Taylor

Mentors: Dr. Sarah Hanson and Dr. Thomas Muntean

Ribbons: Thinking Critically and Crossing Boundaries and Disciplines

The Walden West property in Lenawee County, Michigan, is a 119-acre plot located within the River Raisin Watershed, which itself covers 1,072 mi² of land in both Michigan and Ohio. The property includes a variety of habitats, including a perennial pond fed by a natural spring, two streams, and direct surface runoff. The purpose of this study was to identify the dominant contributor of water to the pond.

To do this, weekly samples were collected over a seven-week period that included rainfall data, spring/stream width, stream/spring depth, and flow velocity. These data were used to determine overall average discharge rates in m³/min of the two inflow streams, the inflow spring, and the outflow stream.

Weekly discharge rates were averaged from the three inflow sources and the single outflow source. Of the three inflow sources to the pond, the west inflow stream had an average discharge rate of 0.881 m³/min and contributed 50.4% of inflow from the 3 sources, the stream to the north had an average discharge rate of 0.695 m³/min and contributed 44.5% of inflow, and the northeast spring had an average discharge rate of 0.071 m³/min and contributed 5.13% of inflow. The outflow stream had a discharge rate of 1.27 m³/min, the highest of any stream or spring in the study. Discharge rates of the streams appeared to fluctuate in relation to rainfall totals over the course of the study. The month of October saw 1.09 inches of rain, almost triple that of September which saw 0.39 inches. Discharge rates of the streams almost doubled for the month of October when compared to discharge rates of the streams in September.

The data show that inflow and outflow were not in balance during the weekly sample collections. Weeks 2 through 6 saw more total inflow than outflow. During this period, the average inflow discharge rate was 1.69 m³/min. The average outflow discharge rate was 1.26 m³/min during this same period. Week 7 saw more outflow than inflow. The calculated outflow discharge rate was 1.97 m³/min and inflow was 1.75 m³/min. More inflow than outflow is the result of large rain events adding more water to the inflow sources that is not able to leave through the outflow right away. More outflow than inflow is the result of groundwater and runoff entering the system that is not accounted for in the data that results in the appearance of more water leaving than entering.

The research concludes that the dominant contributor to the perennial pond at Walden West is the west inflow stream, followed by the north inflow stream, and lastly the northeast inflow spring.

Abstracts

Poster Session

11:45 am - 12:30 pm

Peelle Addition Lobby

A Critical Thinking Approach to Stage Managing A.R. Gurney's *Sylvia*

Alona Shewach

Mentor: Dr. Annissa Morgensen-Lindsay
Ribbon: Thinking Critically

A theatrical stage manager embodies the Thinking Critically Ribbon of Excellence as she shepherds a show from auditions through closing performance. She explores her responsibilities from multiple points of view to meet the needs of all participants in a production: producer, director, technical crew, and cast. To keep a show running smoothly, she develops critical organizational processes and habits, raises thoughtful questions for the production team, and identifies and finds solutions for daily rehearsal and performance problems. For her Department of Theatre and Dance capstone project, Alona Shewach stage managed Adrian College's production of *Sylvia* by A.R. Gurney, performed in Downs Hall in February, 2018. Shewach used her project to demonstrate leadership skill in running rehearsals and production meetings; organizational skill in coordinating all personnel and maintaining records and logs of all production activities; technical skill in "calling the show" for all performances; and, as a new challenge, professional skill in following Actors' Equity Association standards for stage managers. Shewach uses her poster presentation to share some of the tools of her trade: the research she conducted on professional stage management practices and the play, *Sylvia*; the materials she used to facilitate auditions and rehearsals; and her essential call book used to run performances.

11:45 am - 12:30 pm

Effects of Explanation on Social Stigma of Depression

Kailey Fuller

Mentors: Dr. Amy Hillard, Dr. Stacey Todaro, and Dr. Michelle Beechler
Ribbons: Caring for Humanity and the World, Thinking Critically

To determine if there is an influence of explanation of mental illness on a young adult's social stigma of a peer, participants were assigned to either a labeled depression condition or an unlabeled depression condition and read a corresponding vignette. Participants then reported their feelings towards the depressed individual in different social situations using a within-subjects method measuring acceptance. Participants, consisting of 46 undergraduate students, also answered questionnaires measuring depression stigma, social distance, knowledge of depression, and contact with mentally ill individuals. It was hypothesized that there would be a significant effect of depression explanation, with the unlabeled condition having less depression stigma than the labeled depression condition, as well as a significant effect of situation, with participants feeling most accepting when a peer misses a party and least accepting when they miss work. Additionally, contact with mentally ill individuals was hypothesized to reduce stigma further and correspond with less stigma compared to those who lack contact. The study found a significant main effect of situation, $p < .001$, where participants were most accepting of a depressed peer missing a party and least accepting of a depressed peer missing work. Results also indicate that working with or having a close friend with a mental health problem was associated with less personal depression stigma than not working with or having a close friend, $p < .05$ and $p < .01$ respectively, while other forms of contact did not have a significant effect. Due to the importance of social situations in most young adult's lives, understanding how peers view a mentally ill individual in regards to those situations can help find better ways to explain mental illnesses that is beneficial for everyone, allowing us to care for our mentally ill peers more effectively. Increased learning and understanding will promote better treatment and will encourage thinking critically as well as caring for humanity and the world.

Abstracts

Poster Session

11:45 am - 12:30 pm

Peelle Addition Lobby

Oriental Bittersweet and Forest Management at Hidden Lake Gardens

Sierra Woodcum

Mentor: Dr. Jeffrey Lake

Ribbon: Caring for Humanity and the World

Invasive species are a threat to the forests they invade, by reducing native plant populations and potentially changing ecosystem processes. Within southeast Michigan, oriental bittersweet (*Celastrus orbiculatus*) is a rapidly growing invasive woody vine that was imported from Asia as an ornamental. It frequently grows over trees, shrubs, and prairie plants, shading them out and at times causing their death. Hidden Lake Gardens, a 755- acre Lenawee County botanical garden near Tipton, MI, has a particularly heavy infestation of oriental bittersweet. This research has quantified the degree of invasion at various locations throughout the garden as a starting point for a forest management plan. Since the majority of the garden is forested land rather than actively tended horticultural space, bittersweet poses an especially large risk at this site. Collaborating with a WLEB MAEAP technician, I am working to develop a full forest management plan for Hidden Lake Gardens that incorporates this research and will provide a foundation for additional work at the Garden and for seeking federal remediation grant funding.

This research correlates well with "Caring for Humanity and World" because the research presented focus on the role of the biodiversity in this garden and the need to protect it and remediate the invasive species.

Abstracts

Poster Session

11:45 am - 12:30 pm

Water Chemistry Measurements at Walden West in Tipton, Michigan

Peelle Addition Lobby

Brandon Keller

Mentors: Dr. Thomas Muntean and Dr. Sarah Hanson

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

This study analyzed the water chemistry on the Walden West property located in Tipton, MI which lies near the headwaters of the River Raisin watershed (RRWS). It is approximately 1,070 square miles spanning from southeastern Michigan into northwestern Ohio ultimately draining into Lake Erie. About 65% of the watershed is in active agricultural production. With growing concerns regarding Lake Erie's reoccurring eutrophication, potential nonpoint water pollution is being investigated. The RRWS is a likely source of the excessive nutrient loading.

The goal was to determine if agricultural runoff from the RRWS is contributing to excessive nutrient loading into the watershed. Four separate points surrounding a pond were sampled for 7 weeks and analyzed to determine water chemistry. These include an inflow (stream), the spring (groundwater), an outflow (stream), and a connected swamp (groundwater). Data directly measured on site include water temperature and total dissolved solids (TDS). Samples collected and returned to the lab were analyzed within 24 hours for total nitrogen and total phosphorus.

The average nitrate concentration was 2.32 mg/l for the inflow and 25.90 mg/l for the swamp. The average phosphate concentration was 192.97 µg/l for the inflow, 535.07 µg/l for the swamp, and 409.23 µg/l for the outflow. The TDS remained low during weeks 1-6 but showed a sudden increase by week 7. Rainfall was not significant through the 7 weeks. Only reaching up to 0.20 inches of rainfall on 09/20/17 and 0.25 inches on 10/07/17.

While all the sample locations were consistently high in terms of nitrates and phosphates, the groundwater maintained a higher concentration in nutrients than the inflow. It was expected for the TDS to change after periods of rainfall, however there was no observed change after heavy rainfall. Since the study was on a weekly basis, it appears changes were immediate and brief. This research suggests that the nutrient loading here is primarily driven by soil runoff or vegetation litter sourced from the surrounding land. However, considering the geographical location of this study it is expected to contribute to nutrient loading downstream of Walden West. Some states are progressing toward a numeric nutrient water quality criterion with the EPA for both nitrogen and phosphorus. Michigan and Ohio are not participating in this program and are not planning to join through the year 2020. It is well known that nutrient loading into landlocked bodies of water can lead to eutrophication and ultimately algal blooms resulting in hypoxic or anoxic conditions. Lake Erie, being one of the highest volume bodies of freshwater in the world, continues to repeat these conditions and is progressively getting worse. It should also be recognized that Lake Erie is relatively shallow compared to the other Great Lakes and, therefore, is of smaller volume, thus is more readily affected by nutrient loading. This should be an obvious concern considering the large amount of people dependent on this water. This research helps illustrate how nutrients are being fed into Lake Erie via RRWS.

Abstracts

Poster Session

11:45 am - 12:30 pm

Fixed and Growth Mindsets and Their Effect on Creativity

Peelle Addition Lobby

Jake Keller

Mentors: Dr. Amy Hillard, Dr. Stacey Todaro, and Dr. Michelle Beechler
Ribbons: Thinking Critically and Developing Creativity

The role of proposed mindsets on one's creativity was explored. Forty two college students were given a prompt to read that will either imply the ideas of a fixed mindset or a growth mindset. Following the prompt, participants were tested for creativity by the Alternative Uses Task. It was predicted that participants who received the growth mindset prompt will have more creativity than the participants who received the fixed mindset prompt. The results of the analysis indicated that mindset did not have a statistically significant effect on creativity, $t(22) = 0.72, p > .05$. The results did not support the hypothesis or replicate the results of relative past research. However, the patterns of means were in the hypothesized direction, creating the possibility for adjustments to produce greater results. This information will be presented in a poster presentation format. Furthermore, this research ties into two of our Ribbons of Excellence: thinking critically and developing creativity. This research promoted the ribbon of thinking critically by requiring much thought into how the research would be conducted, what implications could be made from the results, and what the future holds for further research. This research also relates to the ribbon of developing creativity by examining what factors could influence creativity in general. Also, it required creativity to design a research method that would be best to test the hypothesis. Overall, this research gave insight to what effects creativity and what should be pursued in the future for research.

11:45 am - 12:30 pm

Student Perspectives on Police Use of Force

Bernard McCutcheon

Mentor: Dr. Christie Boxer
Ribbons: Caring for Humanity and the World, Thinking Critically

Although there is no universal definition for the use of force, it is clear that the police use force every day to complete their jobs. However, because the use of force can range from a police officer asking you to do something, to a police officer physically making you do something (handcuffs, taser, etc.) some people will find their experiences to have been negative and some will have been positive. Similarly, due to different experiences, some people will conclude the police handle the use of force appropriately, while others will conceive their use of force as inappropriate. The proposed study will measure students' perspective on police use of force, as well as if perspective on police can be changed by watching other people's encounters. Participants will be asked whether or not they have had an experience with the police, within the last four years, by answering yes or no. The participants will also be asked if their experience was positive, neutral, or negative. They will then be asked to write a short description on their perspective of police use of force. After completing this short survey, the participants will watch a video with a police encounter. They will then be asked if their view on police has changed and to write a short description on how the officer handled their use of force. It is expected that participants who have personally had negative experiences with the police will also find police use of force to be inappropriate, while those with positive experiences find it to be appropriate. Also, it is expected that participants who had neutral experiences with the police will change their views on police after watching a video. Participants who have not had an encounter with the police will be expected to have a negative view of police due to misrepresentation in the media. This research connects to the ribbon thinking critically, by analyzing and evaluating an issue seen in the United States to form a judgement. It also ties to caring for humanity by researching how police officers can better provide for their communities locally and globally.

Abstracts

Poster Session

11:45 am - 12:30 pm

Peelle Addition Lobby

The Past and Present of the Song Sparrow Song: An Analysis of Song after 50 Years of Chang

Sabrena Camp

Mentor: Dr. Ben Pawlisch

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

Birdsongs play a crucial role in the lives of birds, with the most important being the ability of birds to attract mates and defend their territories. Like human language, birdsong is learned. Young birds undergo a time of listening and acquiring song and then a time of practice. In many species of bird, this learning occurs when songs are passed from father to son early in development. Because learning allows for plasticity, birds sometimes can change their songs from generation to generation and sometimes have area-specific dialects. In the 1960's and 1970's, Dr. Peelle diligently recorded the songs of many species across the Midwest using reel-to-reel audio recording and wrote excellent notes about the location of recordings and observations. Although he is no longer with us, he left a collection of bird recordings that he personally captured over his time at Adrian College. This past summer, we began recording birdsongs from Walden West to catalog species there, using Wildlife Acoustics SM4, an auditory recording technology that lets us take long-term recordings. By comparing these recordings with the recordings of Dr. Peelle, his science can live on, allowing us to look across the 50 years of recordings to see if there are changes in song as a result of plasticity in this learned behavior.

For this poster, we are going to look primary at Song Sparrows (*Melospiza melodia*). We have specific location data about singing birds as well as excellent historical recordings of Song Sparrows in the surrounding area. Since Song Sparrows live at most 11.3 years, we will be able to look across almost 5 generations of Song Sparrows to observe possible changes in song across the years. We will compare the historical songs and recordings from Walden West to see if we can find differences in the structure of the songs. There is a lot of variability in the songs of Song Sparrows, which we can visualize and begin to quantify using visual depictions of song called spectrograms. The goal of this study is to observe the differences in Song Sparrows that may represent different dialects or cultural evolution of song in Southeast Michigan.

Throughout the duration of this project we have encountered and encompassed all of the Ribbons of Excellence. The core of this project really focused on caring for humanity and learning throughout a lifetime. The primary emphasis would be learning throughout a lifetime, since our first recording dates back to June of 1969. Nearly 50 years of recordings have been processed in the duration of this study. As time continues and more bird songs are recorded and analyzed, we will continue to increase the capacity to learn.

Abstracts

Poster Session

11:45 am - 12:30 pm

Mind Wandering During Reading: The Effects of Reading Skill

Peelle Addition Lobby

Michelle Siegel and Samantha Marie Foster

Mentors: Dr. Stacey Todaro and Dr. Seth Knox

Ribbons: Thinking Critically

Mind wandering is a subtle but pervasive phenomenon. In fact, 46.9% of our waking hours are spent mind wandering. In most situations, these task-unrelated thoughts (TUTs) are inconsequential, but in a learning environment, they can negatively affect performance. For example, Risko et al. (2013) found that 43% of students reported mind wandering at least once during the course of a 60-minute lecture. Moreover, the occurrence of mind wandering episodes was negatively correlated with recall of facts presented during that same lecture.

The goal of this research was to examine the extent to which mind wandering during reading influences comprehension and whether those effects are moderated by reading skill. Participants were undergraduate students currently enrolled in an introductory psychology course or an introductory German course. All participants completed a standardized test of reading comprehension and read about a soldier in the Vietnam War who frequently worries about his relationship with the girl he loves. Prior to reading the story, participants in the experimental group wrote about the most serious relationship problem they had experienced (or could imagine, in absence of a relationship), while participants in the control group wrote about their knowledge of the automobile. The experimental manipulation was designed to elicit resonance with one's chronicled experiences, as the reading itself focused heavily on a relationship problem. The control condition, on the other hand, involved a neutral topic that should not have resonated with the contents of the story. Mind wandering was assessed using a self-caught methodology, in which the participant hit a "mind wandering" key whenever his or her mind began to fixate on something other than the story.

We hypothesized that less-skilled readers in the experimental condition would be more likely to mind wander during reading, especially when the story content resonated with their previous writings. Moreover, these readers would be less likely to suppress this irrelevant information, which would be negatively correlated with comprehension. Our initial findings support these hypotheses, but data analysis is still underway. Final results will be delivered during the presentation.

Meet the Artist

11:45 am - 12:30 pm

Essence: Defining Aspects of Being

Valade Gallery (Shipman)

Alexandra Cavinee, Ciara Athy, Christina Bitson, Zachary Frappier, and Amanda LaVigne

Mentor: Prof. Garin Horner

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

What does it mean to be? *Essence: Defining Aspects of Being*; explores topics of human existence as well as the paths of struggle that encompass the very essence of human life. When examining the concept of essence and being, each artist addresses a different component and develops a new interpretation. Essence for Ciara Athy is portrayed through visual representations of emotional expression. Christina Bitson takes a spontaneous approach to being by intertwining aspects of board games with the human life cycle. For Alexandra Cavinee, inspiration is found in personal relationships and their effect on a life. Zachary Tait Frappier uses photography to explore the remnants of being; the paths left behind when a life has gone from a place. Lastly, Amanda LaVigne alludes to naturalistic elements using functional ceramics while exploring the relationship between objects and everyday life.

Abstracts

Session 3A

2:00 - 3:00 pm

Baer Lecutre Hall (Jones 110)

The Star Light Writing Award for Core Presentations

Amy Czuhajewski, Cheyenne Franklin, Megan Prsa, Dale Sanford, and Tara Tahl

Mentors (respectively): Dr. Andrew Winckles, Dr. Eric Hood, Dr. Lisa Richman, Dr. Bethany Shepherd, and Dr. Renuka Uthappa

In Academic Foundations I (AF I), the first course in Adrian College's First-Year Core Curriculum, students practice the kinds of 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 introduces students to 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 from all of the sections.

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 Presentations

Freya Holferty and Josephine Kennedy

Mentors: Dr. Eric Hood

Established in 2016, the Mahan Manuscript Honors Award recognizes the best essays written by students enrolled in the honors section of Academic Foundations. These projects are the outcome of a semester-long process of inquiry-based writing and research on 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.

Session 3B

2:00 - 3:00 pm

Peelle 207

Interpersonal Communication Theory in Film

Caleb Vanderlugt, Kevin Johnson, and Shawn Wichar

Mentor: Dr. Christy Mesaros-Winckles

Ribbons: Thinking Critically and Learning Throughout a Lifetime

Using the movies *La La Land* (2016), *Wonder Woman* (2017), and *Interstellar* (2008), our panel will illustrate how interpersonal communication theory and application is present in film. Interpersonal communication is defined as an exchange of information between multiple individuals. As we communicate our verbal and nonverbal actions can motivate, enhance opportunities for growth, or dismantle relationships. The interpersonal theories we address in our panel include Social Penetration Theory, Relational Dialectics, and Social Convergence Theory. The panel will discuss the examples of these interpersonal theories in film as we follow the characters of the films' through their relationship struggles. Arguments are had, sacrifices are made, and love is lost.

Abstracts

Session 3C

2:00 – 2:20 pm

Peelle 212

Effects of Unilateral Ankle Bracing on Vertical Jump Performance and Lower Extremity Kinematics

Casey Josz

Mentors: Dr. Tina Claiborne and Mr. Anthony Rossi
Ribbon: Thinking Critically

BACKGROUND: Ankle sprains are one of the most common injuries in sports, occurring almost seven times more often than all other ankle related injuries and accounting for 15% of all sport-related injuries (Feger et al., 2014; Olmsted et al., 2004). According to Ozer et al. (2009), applying an ankle brace can prevent approximately 30 ankle sprains per 1000 athletic exposures. While the restriction of motion may assist in injury prevention, it is unclear how sport performance is affected. The majority of the research related to lower extremity kinematics during a jump is focused on the landing phase, rather than the propulsion or “performance” phase of the activity. There is a clear gap in the literature, particularly with respect to brace type, bilateral vs unilateral bracing, and injury history. **PURPOSE:** The purpose of this study is to determine whether unilateral ankle bracing affects vertical jump performance and lower extremity kinematics in those with a history of unilateral ankle instability. **METHODS:** Twenty volunteers with a history of ankle sprains will participate in this study. Following informed consent and completion of the demographics and Foot and Ankle Ability Measure (FAAM), height and weight will be measured and a standing reach test will be completed for vertical jump height. Following a jogging warm-up, retroreflective markers will be placed according to the Helen Hayes marker configuration. Participants will then perform five vertical jumps with two minutes of rest between each jump. After a ten-minute sitting rest, five more vertical jumps will take place with the use of an ankle brace. Vertical jump height will be analyzed using a paired samples t-test, $p < .05$. Peak joint angles of the lower extremity for each condition will be measured using a within-subject ANOVA. **RESULTS & CONCLUSIONS:** Data collection is ongoing and the results will be presented at the time of the conference.

Abstracts

Session 3C

2:20 – 2:40 pm

Peelle 212

Multi-Directional Hopping Asymmetries in Individuals with a History of ACL Reconstruction Surgery

Matthew Scherer

Mentors: Mrs. Lorie Robinette and Dr. John Goetschius
Ribbon: Thinking Critically

Introduction: Anterior cruciate ligament (ACL) injuries are prevalent in the physically active populations. The primary treatment options for these injuries is reconstruction surgery and rehabilitation. After surgery, the primary objective of rehabilitation is restoring lower extremity muscle function and movement patterns so the patient can return to activity. Proper muscle function, specifically the quadriceps muscles, is important for attenuating of loads and providing stability to the knee joint. Patients commonly report experiencing difficulty with side-to-side movement and cutting when returning to activity, which recreates the mechanism of injury. Testing of the quadriceps strength and functional tasks, like single leg hopping, are done to objectively evaluate an individual's functional performance and limb symmetry index (LSI) to determine a patient's readiness to return to activity. Single leg hopping tests are widely used clinically for assessment but may not provide accurate representation of an individual's impairments following surgery. The hopping tests are traditionally only performed in the anterior direction which may not properly assess multi-directional joint function. The primary purpose of this study was to determine whether LSI's differ between anterior, medial, and lateral single-leg hop tasks in individuals with a history of ACL surgery.

Methods: This study was a descriptive laboratory study with a cross-over design. Data was collected at Adrian College and Siena Heights University. The independent variable was hopping directions (anterior, medial, lateral) and the primary dependent variable was hopping distance LSI (%). This study was approved by the Adrian College and Siena Heights University IRB's and all participants provided written informed consent. Participants were between the ages of 18 and 35 who had been cleared for return to full activity after ACL reconstruction surgery. Single leg hopping for distance measures were performed bilaterally in the anterior, medial, and lateral directions. Order of hopping direction was randomized for each participant. To perform the hopping tasks, participants balanced on a single leg and jumped as far as able in the specified direction. Participants were instructed to "stick" the landing and maintain balance for 3-seconds after landing. Participants performed three progressive practice trials and three test trials per limb for each direction. The mean of the three test trials was used for analyses. The LSI was calculated using the following formula: $LSI = (\text{injured leg} / \text{uninjured leg}) \times 100$. Quadriceps strength LSI was also measured for descriptive purposes using a handheld dynamometer to measure the participant's bilateral maximal voluntary isometric contraction (MVIC) during knee extension. A one way ANOVA with repeated measures was used to compare the single leg hopping LSIs between the three directions.

Results/Conclusions: This research is currently ongoing. Results and conclusions for this study will be discussed and presented at the Ribbons of Excellence conference

Abstracts

Session 3C

2:40 – 3:00 pm

Peelle 212

The Effects of Local Vibration to the Patellar Tendon on Quadriceps Function in Individuals with Patellofemoral Pain

Daniel Malcolm

Mentors: Dr. Tina Claiborne and Dr. John Goetschius
Ribbon: Thinking Critically

Purpose: Patellofemoral pain (PFP) is a musculoskeletal condition characterized by anterior knee pain felt behind the patella that often occurs during weight bearing activities. PFP tends to be more prevalent in younger populations with 7-40% of the active young adult population experiencing PFP symptoms. Quadriceps weakness may be a contributing factor to disabilities involving the knee such as patellofemoral pain. One factor that may contribute to the development of quadriceps muscle weakness in patients with patellofemoral pain is inflammation within the knee joint. Therapeutic vibration has been used to improve muscular strength in patients in many areas of the body, however, there is minimal evidence using vibration to enhance muscle function in patellofemoral pain populations. Therefore, the purpose of this study is to determine if the application of local vibration to the patellar tendon will increase maximal force during knee extension in patients with patellofemoral pain.

Hypothesis: Knee extension torque and quadriceps muscle activation will increase after local vibration is applied to the patellar tendon in patients with PFP.

Methods: This was a crossover study with a pretest-posttest design and all data was collected in a laboratory setting. The independent variables included intervention (vibration, control) and time (baseline, post-intervention). The dependent variables included knee extensor torque and quadriceps surface electromyography (EMG) muscle activation measured during maximum voluntary isometric contractions (MVIC). This study was approved by the Adrian College IRB and all participants provided written informed consent. Participants were 18-35 years of age, had self-reported non-traumatic knee pain behind or around the patella, and were excluded if they had surgery or had a dislocation to the affected knee. Participants completed two study visits (24-48 hours apart) during which MVICs were performed before and after vibration and control interventions which were applied to the patellar tendon after the baseline MVICs. The order of the interventions was randomly counterbalanced between the two study visits using pre-determined randomization. Procedures at each visit included EMG set-up on the vastus medialis, vastus lateralis, and rectus femoris muscles, a 5-minute self-paced cycling warm-up on a stationary bike, baseline MVIC trials, intervention application, and post-intervention MVIC trials. The effects of the vibration intervention on knee extensor torque and EMG muscle activation were evaluated using a 2x2 ANOVA (intervention x time) with repeated measures and post-hoc paired t-tests ($P=.05$). The magnitude of change from baseline to post-intervention were evaluated using Cohen's d effect sizes and 95% confidence intervals.

Results/Discussion: Data collection is still occurring. Final results and discussion will be presented at the ROE conference.

Abstracts

Session 3D

2:00 – 2:20 pm

Peelle 301

Effects of Blood Flow Restriction During Ankle Exercises on Muscle Activation in Individuals with Chronic Ankle Instability

Brian Killinger

Mentors: Dr. Jakob Lauver and Dr. John Goetschius
Ribbon: Thinking Critically

BACKGROUND: Ankle sprains are one of the most common injuries suffered during physical activity (Gribble et al., 2007). Individuals who experience recurrent sprains, ankle joint “giving way”, and decreased function following an ankle sprain can develop chronic ankle instability (CAI) (Delahunt et al., 2010). Individuals with CAI exhibit deficits in strength, neuromuscular function, and functional performance (Delahunt et al., 2010). Rehabilitation focuses on these deficits to reduce injury recurrence, but the presence of neuromuscular impairments and pain during exercise may limit the effectiveness of the rehabilitation protocol. Blood flow restriction (BFR) is a training technique that uses a tourniquet to reduce arterial blood flow to muscle while restricting venous outflow (Scott, et al., 2015). Studies have shown that using low-intensity resistance training (20-30% 1RM) combined with BFR may facilitate increased muscle activation, hypertrophy and strength compared to exercises without BFR (Yasuda et al., 2012). The use of BFR during an ankle rehabilitation protocol could provide an alternate method to improve muscular function in individuals with CAI. Therefore, the primary purpose of this study is to determine if strengthening and balance exercises performed with BFR results in greater muscle activation during the exercises compared to exercises without BFR in patients with individuals with CAI.

METHODS: This study was approved by the Adrian College IRB and all participants provided written informed consent. This was a pretest-posttest cross-over design. The independent variables were intervention (BFR or non-BFR) and exercise sets (1, 2, 3, 4). The primary dependent variable was electromyography (EMG) muscle activation of the fibularis longus and tibialis anterior muscle during isometric and balance exercise. A convenience sample of individuals ages 18-35 who are physically active and exhibit CAI symptoms participated in this study. All participants completed two laboratory visits, one BFR visit and one non-BFR visit. The order of BFR and non-BFR visits were randomized and visits were separated by 24 - 48 hours. For each visit, participants performed a 5:00 min light cycling warm-up on a stationary bike. Surface EMG of the fibularis longus and tibialis anterior muscles was measured during isometric eversion and dorsiflexion and single-leg balance exercises. Isometric exercises were performed at 30% of the participant's maximum contraction and included four sets of contractions (30 reps, 15 reps, 15 reps, 15 reps) at a 2:2 second contract-relax ratio with 5 minutes of rest following each exercise. Balance sets included four, single-legged, 30-second balance trials with 45 seconds of rest between each trial. For the BFR intervention, the BFR cuff was inflated to 80% limb occlusion during all exercises. For the non-BFR intervention, the cuff was worn but not inflated for exercises. The data will be analyzed using a 2x4 repeated measures ANOVA including a post-hoc paired T-tests with a statistical significance set at $P < 0.05$. For all post-hoc T-tests, Cohen's d effect size & 95% confidence intervals will be calculated.

RESULTS & CONCLUSIONS: Data collection is ongoing. The final conclusions will be presented at the ROE conference.

Abstracts

Session 3D

2:20 – 2:40 pm

Peelle 301

Blood Vessel Pattern Analysis Using Statistical and Mathematical Methods

Ashley Oram and Taylor Van't Land

Mentors: Dr. Marti Morales and Dr. Dorin Dumitrascu

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

The transport of blood throughout the body is carried via the circulatory system, more specifically through arteries and veins. Our efforts are to further understand such system through the application of mathematics and statistical methods. Previous work from mathematician and scientist, Wilhelm Roux, focused his research examining if there is a significant relationship between the angle at which blood vessels branch from one another based off their diameter. Additional work from a former Adrian College student, Rachel Walthren, examined Roux's work and applied further mathematical and statistical models using plastinate anatomical models and structures as her model. Here, we reexamine additional approaches and perspectives of Rachel's and Roux's work. Our efforts are to use additional mathematical statistical methods and expand on the anatomical models that we have available. This research best fits with the "Ribbons" learning throughout a lifetime, thinking critically, and crossing boundaries and disciplines

2:40 – 3:00 pm

Chemical Effects of Tattoo Ink in the Human Body

Alexander Egan

Mentor: Dr. Keith McCleary

Ribbons: Caring for Humanity and the World and Thinking Critically

Tattoos have become a part of society, and are more common than ever before. Canada and the United States are tied at having 24% of their populations being "inked up". There is always a major concern of infection or exposure to unsanitary parlors, but the issue no one pays attention to is what is going into their skin. People are not concerned with the tattoo ink itself, just because it is marked as "organic." Scientists and researchers alike have started to address the part of this process that could be potentially more dangerous than getting exposed to a dirty tattoo gun.

The big issue discussed was focused on the compounds being constructed to give the inks vibrant and stable colors. With these pigments now being deemed organic, this introduced the problem of possible carcinogenic compounds. The American Chemical Society along with the ESOF released articles on the potential degradation of these azo compounds into suspected carcinogens via ultraviolet light exposure. The other issue was the fact that metal compounds containing titanium, chromium, manganese and cobalt were being utilized to help brighten these colors.

Once this discovery was made that azo compounds are potentially released into the body from degradation, researchers decided to start investigating the possibility of where these compounds were ending up. Researchers at the European Synchrotron Radiation Facility discovered that these compounds are in fact traveling throughout the body, concentrating in the lymph nodes. They conducted examinations with samples from donors and received positive results. As well as the color of the lymph nodes themselves being altered.

The literature research conducted on tattoo ink is to help gain better knowledge that can be presented to the general public. With the lack of information given by tattoo artists in comparison with a minimal regulation in the industry, some type of action could be taken once more definitive evidence is solidified from these on-going studies. A regulation could be set in place for the U.S. once we have proven the potential hazard from these inks.

Abstracts

Session 3E

2:00 – 2:20 pm

Downs Hall Theatre

My Amazing Fantasy

Harrison Lange

Mentor: Dr. Annissa Morgensen-Lindsay
Ribbon: Developing Creativity

Acting recitals help build the skills an actor needs on and off the stage. Actors will perform pieces from all eras of theatre and playwrights from all eras. It is from reading and performing these pieces that an actor is "Developing Creativity". The theatre world is always changing and it is important to be able to stand out as an individual. An actor's creative process is what can help make an actor stand out between hundreds of others performing the same role. Creativity also becomes important when reading and understanding characters. In his "Ribbons of Excellence" presentation Harrison will discuss not only the importance of an actor's creativity, but also how he used "Developing Creativity" to create his acting recital.

2:20 – 2:40 pm

Sonder: Realizing the Vivid and Complex Lives of Others

Laurel Jordan

Mentor: Dr. Annissa Morgensen-Lindsay
Ribbon: Caring for Humanity and the World

For this Ribbons of Excellence presentation, Laurel Jordan has made the conscious effort to portray characters in some kind of socially underprivileged group - the abused, the LGBT, the imprisoned. In preparing to play these characters, Laurel has chosen roles that challenge her acting abilities and are also appropriate audition materials for professional theatres. Her hopes with her recital - and this presentation - was to show her audience that these fictional characters are based in truth. Through the ribbon, caring for humanity and the world, Jordan believes we can feel empathy for the characters and change our view-point of real people in these different groups and situations. Currently in a country filled with hate and disdain for anyone different from ourselves, Jordan believes that theatre can be an effective medium to put on display the lifestyles and challenges that many audience members may be unfamiliar with, but could also inspire positive change. After selecting pieces from thirty-six different plays, across a plethora of genres and eras, Laurel will be performing pieces from *Machinal* (Treadwell), *Happy Birthday*, *Wanda June* (Vonnegut), *The Trojan Women* (Euripides), and others. Laurel hopes to bring a variety of women to life that will capture your attention.

Abstracts

Session 4A

3:15 – 3:35 pm

Baer Lecutre Hall (Jones 110)

When Words Fail, Add a Filter

Megan Sauer

Mentor: Dr. Linda Learman

Ribbon: Crossing Boundaries and Disciplines

My project, "When Words Fail, Add a Filter," identifies the rhetorical canons, devices and strategies millennials use when posting on Instagram. While rhetoricians have explored how written content on social media can serve a rhetorical purpose, they are just beginning to consider the ways visual features on apps are employed as a new kind of persuasive platform. Using the lenses of rhetorical theory, I will conduct primary research by interviewing AC students about their social media use and analyzing popular Instagram pages as a means to find out about the ways young people deliberately post on the app to gain likes, attract followers, and create virtual identities. Although my subjects did not label their deliberate use of Instagram as rhetorical, many of them expressed the driving motivation to actively post is to persuade others to interact with their content. This study is important not only to rhetoricians and millennials, but to those who want to understand how language serves to connect us and how it is incessantly evolving with technology. For this reason, my project will focus on the "Crossing Boundaries and Disciplines" Ribbon because my presentation will be accessible to multiple disciplines and reveal the ways social media is connecting us, whether we are aware of them or not.

3:35 – 3:55 pm

The Voice of the Oxcart: Fostering Literary Citizenship

Rachel Kanaziz and Theresa Horowitz

Mentor: Dr. Carmon Curton

Ribbons: Caring for Humanity and the World and Developing Creativity

Oxcart, Adrian College's literary arts journal, has long been guided by the college's founding abolitionist traditions of fairness, freedom, and inclusion (est. 1859). As literary citizens and student editors, our goal is to create a literary magazine which evokes social change – not only on campus, but within our small-town college community. We are committed to carrying forward our magazine's tradition of giving voice to the marginalized and protesting injustices, but we are also interested in asking: how does our literary arts journal represent and reflect our present-day student body and college?

Both student editors will discuss the importance of conversation between literature and artwork in the magazine as well as the risks of making provocative editorial decisions. The editors will then speak on the victories they experienced while working on the 2018 issue, ranging from finding equilibrium between poetry and prose to utilizing the Oxcart's voice to make a sociopolitical statement.

Abstracts

Session 4B

3:15 – 3:35 pm

Effects of Allyl Isothiocyanate on Various Soil Bacteria

Peelle 207

Alex Mercer

Mentor: Dr. Janet Salzwedel

Ribbon: Caring for Humanity and the World

Garlic Mustard is an invasive species of herbaceous, flowering plant that has been exceedingly successful across North America. Garlic Mustard contains a compound known as Allyl Isothiocyanate (AITC); the chemical responsible for the pungency of mustard. It is normally used as a defensive mechanism against herbivores, but has been hypothesized to have antimicrobial and chemotherapeutic properties as well. This study utilized AITC extracted from the roots of locally harvested Garlic Mustard which was then tested against various soil bacteria to determine if it may have an effect on the microbiota of the soil surrounding the plant. It is hypothesized that AITC stored in the roots of the plant may be released into the soil, thereby affecting nearby microbes. In testing this hypothesis, AITC was extracted from the cut roots of plants harvested from the Kiwanis Trail in Adrian, MI, and further purified for use in bacterial cultures. Bacteria tested were common soil bacteria which painted a picture of the wider effects on the local soil microbiota. Plants depend on a healthy microbial ecosystem and even minute changes can have compounding consequences on larger levels of diversity. The extracted compound was compared to a chemical standard AITC in vitro and work will be continued with examination of cells under fluorescence microscopy to examine the mechanism behind AITC's bactericidal properties. This work represents the ribbon of Caring for Humanity and the World as it provides a better understanding of how effects on the microbiological community can alter the diversity of plant life in our own backyard. Garlic Mustard has caused profound changes in the understory of forests across the country and has created a new arena of competition both above and below the terrain beneath our feet. This work intends to bring a new awareness of the difficulties in eradicating invasive species in our community.

*** This research was generously supported by an Undergraduate Student Research Summer Grant from the Office of Academic Affairs at Adrian College ***

3:35 – 3:55 pm

Two-component Signaling System used for Motility in *Myxococcus xanthus*

Bailey Sarka

Mentor: Dr. Dan Bretl

Ribbon: Thinking Critically

Myxococcus xanthus is a gram negative soil bacteria with a complex, social lifecycle that includes multicellular fruiting body formation, predation, and motility. This motility is further described as adventurous (A), in which single cells "venture" out using a complex form of gliding motility, and social (S), which is dependent on the formation of Type IV Pili. S-motility is regulated in part by two-component signaling systems (TCS), which are biological signaling machines composed of a histidine kinase (HK) and a response regulator (RR). In particular, the PilSR TCS is important for producing PilA, the protein that makes up the pilus. It has been previously shown that in the absence of PilR, suppressor mutations arose in another TCS that compensated for the loss of PilR. We hypothesized that deleting another RR that has been shown to be important for motility, the gene known as *mxan_7440*, we would be able to identify suppressor mutations that would restore motility and may be in yet another uncharacterized RR. However, we found that a $\Delta mxan_7440$ strain was still able to move on 1.5% CYE agar (A-motility) and 0.4% CYE agar (S-motility). This was true in the wild-type strains *M. xanthus* DZ2 and *M. xanthus* DK1622, demonstrating the discrepancy between our results and previously published data was not due to strain differences that are known to exist between these commonly used laboratory strains. We speculated that the differences in observed phenotypes were likely due to the type of mutation made (in-frame vs. insertion mutation). To investigate this we repeated the experiments using the the specific insertion mutant previously published. We were able to reproduce the non-motile phenotype of this strain, and to our surprise suppressor mutations arose that restored motility. These suppressor strains are to be characterized and whole genome sequencing will be done to determine the genomic location of these mutations.

Abstracts

Session 4B

3:55 – 4:15 pm

Peelle 207

Using feature selection and machine learning to find cis-regulatory elements important for response to combined stress in *Arabidopsis thaliana*

Michael Douglas

Mentor: Dr. Jeffrey Lake

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

Plants encounter many different deleterious conditions such as heat, drought and pathogen stresses, and express certain genes that play a role in defense to these stresses. Under certain combinations of stresses, plants may display gene expression patterns that are highly unpredictable and synergistic in nature. In this study, we used machine learning approaches in order to attempt to predict synergistic gene expression response patterns in plants upon being placed under combinations of stresses. In previous studies, plants were exposed to combinations of stresses. Based on the plants' observed gene expression patterns, their genes were classified into certain response groups. This experimental data was ran through random forest machine learning algorithms to produce decision trees that attempted to predict whether a gene is in a response group or not. The full data sets, along with shortened data sets containing the 50 best features selected using three different algorithms were ran through the machine learning models. The accuracy of the decision tree models were assessed using AUCROC methods. Machine learning algorithms displayed a level of usefulness in predicting expression responses, with accuracy ranging from ~70-85%. The decision trees using only the 50 best features performed as well as the full data sets, implying the existence of key features. Future work will seek to determine which features are the most critical in expression responses. Increased understanding of expression patterns will further knowledge of gene regulation, hopefully leading to development of crops better suited for thriving in spite of a changing climate. This project suits the Ribbons of Excellence conference well, as it crosses boundaries and disciplines, emphasizing a unique combination of biology and computer science.

Session 4C

3:15 – 3:35 pm

Peelle 212

Division III College Athletes' Perception of Care Provided by the Athletic Trainer

Mikayla Kemp

Mentors: Dr. Heather Schuyler and Mrs. Meg Sharp

Ribbons: Thinking Critically

Background: The athletic trainer is the first line of care to an athlete. In order to provide effective care to the athlete Pfeiffer and Magnus (1995) found that building a relationship with the athlete is an integral part of providing care. We know from previous research that there are differences in the athlete's perception of care from the athletic trainer when comparing gender, institution division, and sport profile (Unruh, 1998). Previous research has also found that social support can positively influence both physical and psychological recovery outcomes of injured collegiate athletes (Yang, Peek-Asa, Lowe, Heiden, & Foster, 2010). **Purpose:** The purpose of this study is to determine if NCAA DIII collegiate athletes' perception of care and perception of social support is different when comparing the assigned athletic trainer to the unassigned athletic trainer; and to determine if there is a relationship between perception of care and social support from the athletic trainer. **Methods:** A 15-page survey used to measure perception of care and social support was given to various athletes at Adrian College. These athletes were recruited for the study by contacting their coaches initially to set up meeting times with the athletes. At the beginning of the meeting participants were asked to read and complete the informed consent form upon agreement of participation in the study. Paper surveys were then handed out to the participants for completion. The paper survey took approximately 10 minutes to complete. Participants were encouraged to ask any questions while completing the survey. **Results/Conclusions:** Data is collection is currently ongoing. Results and conclusions will be presented at the time of the conference.

Abstracts

Session 4C

3:15 – 3:35 pm

Peelle 212

An Examination of Policy and Procedure Practices of Secondary School Athletic Trainers

Micaela Dunbar-Gaynor

Mentor: Prof. Victor Liberi
Ribbon: Thinking Critically

Background: The NATA recommends that every secondary school employ a full-time athletic trainer, however studies have reported that only 70% of secondary schools across the US employ an AT, and of those schools only 37% of them are employed full-time (Pryor et al., 2015). There are different employment models in the field of athletic training. These employment models include directly employed, where the AT is employed by the secondary school that they work for, or being considered outreach, which is an AT that is not directly employed by the secondary school but is assigned to that school by an outreach company. Policies and procedures manuals assist in organizing the athletic training department's risk management policies in preparation for anything from daily activities to emergency situations. The most recent research reported that only 79.7% of survey respondents at NCAA collegiate schools had policies and procedures in existence (Zimmerman, 2007). Previous research does not describe the extent that secondary school athletic training policy and procedure manuals across the United States address important risk management topics. Previous research also does not describe the extent that policy and procedure manuals exist based upon the employment model of the secondary school athletic trainer. **Purpose:** The purpose of this study is to identify and describe the policy and procedure practices of secondary school athletic trainers based on employment models. **Methods:** Using Google Forms as an online survey tool, the NATA utilized an algorithm to randomly select 4000 participants who met the criteria of certified AT or certified AT student in the United States currently employed in the secondary school setting. Following an online informed consent confirmation, participants completed a Policies and Procedures Status questionnaire and a demographics questionnaire. Two reminder emails were dispersed after the original email to increase response rate. Descriptive statistics means, frequencies, and percentages were utilized to describe the current status of policies and procedures. A chi-square analysis was utilized to compare the status of policies and procedures between employment models (directly employed, outreach). **Results and Conclusions:** Data collection is ongoing and the results will be presented at the time of the conference.

3:55 – 4:15 pm

A Review of Literature on the Effects of Peppermint on Exercise Performance

Austeen Freeman

Mentor: Dr. Heather Schuyler
Ribbons: Crossing Boundaries and Disciplines, Learning Throughout a Lifetime

Many studies have been completed in regards to the cognitive effects of peppermint essential oil. The mere presence of odors leads to a cognitive, social, psychological, physiological and physical performance enhancement (Zoladz & Raudenbush, 2005). Performance enhancement has been strongly correlated with mood and motivation (Pournemati, Azarbayjani, Rezaee, Ziaee, & Pournemati, 2009). Therefore, the presence of odors may influence exercise performance. Peppermint is being used to enhance performance and give athletes a mental or physical edge in competition because of its natural properties. According to sports illustrated, the amount of athletes searching for the best ergogenic aid has been increasing steadily since the foundation of sports. This desire for enhancing exercise performance has lead researchers to natural herbs. Natural herbs and essential oils are used in the pharmaceutical industry as an active ingredient in their medicinal formulation such as peppermint, eucalyptus, thyme, fennel, and anise (Jaradat et al., 2016). A considerable amount of research has been conducted on various kinds of essential oils in relationship to increasing exercise performance. In a world where victories are won over mere hundredths of a second, the effect of peppermint essential oil may be significant.

Abstracts

Session 4D

3:55 – 4:15 pm

Peelle 301

Who Chooses the Surgical Device?

Madison Tluczek

Mentor: Dr. Jeffrey Lake

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

There are several influences that go into the shared decision-making process of choosing a surgical device. While many patients may believe this is the choice of the physician alone, it often involves the hospital or health care facility, insurance companies, device providers, and the patient themselves. The current decision-making process may pose many complications however, including a lack of transparency between physicians and their patients, financial conflicts of interest, and the potential for personal or cultural beliefs to influence device selection. This presentation will highlight current discussion within the medical community regarding the technical and ethical issues which influence the selection of medical devices for surgical procedures. In addition, I will introduce the first-hand perspective of a local orthopedic surgeon on the selection of devices he uses in the operating room. This topic encompasses aspects of each of the Ribbons of Excellence, particularly "Crossing Boundaries and Disciplines" between the realms of biology and ethics, as well as "Caring for Humanity and The World" within the global healthcare community. In addition, the Ribbons of "Thinking Critically" and "Developing Creativity" must be utilized as healthcare professionals "Learn Throughout a Lifetime" and develop potential solutions to these difficult decisions.

3:35 – 4:15 pm

Ribbons in Reality: How to Take Advantage of Liberal Arts and Play an Active Role in Your Future

Allyse Zondlak and Mackenzie King

Mentors: Dr. Jeffrey Lake

Ribbons: Thinking Critically

"I came to college with an idea of what my life was going to look like and the exact steps I was going to take to get there; but 30 different prerequisites were not part of that plan". Each fall many students matriculate Adrian College with this same view without realizing the unique value that a small liberal arts college has to offer. The education that gets you a degree is the same no matter where you attend college. But, the soft skills that a liberal arts education provides are the qualities that will get you ahead in the future. The ability to network with professors, join multiple clubs, sports teams, and organizations at Adrian allows students to actively seek out opportunities for experience and growth. And while some required classes may just seem like another box that needs to be checked in order to graduate, they force us to consider multiple viewpoints and 'think outside the box'. By deliberately taking advantage of our opportunities at Adrian College, we have been able to obtain research opportunities at prominent institutions. While at face value these are experiences to build our resumes and expand our scientific education, the take aways expand far beyond learning how to operate a PCR machine. Our active understanding of liberal arts allowed us to cross boundaries, gaining experience in other areas such as culture, business, and application for research. We were forced to see things through a new lens and work through a new level of intense problem solving. As we move into the 'real world' after Adrian College, it will become evident how each prerequisite class will play an important role in whichever path we choose. Although we haven't reached the 'real world' quite yet ourselves, we have conducted interviews with faculty and working adults regarding the practical applications of our liberal arts education. Throughout our interviews, we determine the importance of recognizing the value of our liberal arts education sooner rather than later. Moreover, we will establish the power in actively applying this education as well as its various perspectives throughout the rest of your life; to help you hit the ground running and keep climbing once you're there. We discuss how a liberal arts education can get you ahead in the future, how to apply your liberal arts education outside of the classroom, how take advantage of all the opportunities Adrian College provides, and ultimately how to actively use your education to drive your own success.



Alpha Chi Induction

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.



Thank You!

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. Jeffery 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, guidance in organization, 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 2017-2018 Committee – for all the planning and thought that go into this day
 - Dr. Michael Claus
 - Dr. Dorin Dumitrascu
 - Dr. Elizabeth McGaw
 - Dr. Christy Mesaros-Winckles
 - Prof. Beth Myers
 - Prof. Mike Neal
 - Dr. Ben Pawlisch
 - Dr. Lisa Richman
 - Dr. Heather Schuyler
- Adrian College Institutes – for their sponsorship of breakfast and snacks for the conference
 - Career Planning
 - Creativity
 - Entrepreneurial Studies
 - George Romney Institute for Law and Public Policy
 - Health Studies
- 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
- Zachary Frappier – for the hours he spent on the program and graphic design work for many of our printed items
- Prof. Carley Augustine – for her advice and assistance with graphics design questions and recommending a student to help
- Olivia Neumann – for her assistance with organizing abstracts for the program, gift wrapping, and the many small tasks that help this day run smoothly
- Dr. Bethany Shepherd – 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.
- Mrs. Becky Ghena and Mrs. 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
- Cynthia Beaubien – for her assistance with floral arrangements for the luncheon
- Sodexo – for catering the breakfast and luncheon

Author Index

Adams, Jacob.....	34
Ahmed, Khalied.....	20
Armour, Connor.....	36
Athy, Ciara	45
Balzer, Brandi.....	36
Bartlett, Katherine.....	30
Bartley, David.....	27
Beechler, Michelle	40, 43
Benbrook, Doris.....	27
Berg, Amelia.....	36
Berka, Chloe.....	32
Bitson, Christina.....	45
Boxer, Christie.....	43
Bretl, Daniel.....	54
Brinton, Scott.....	20
Budnik, Ashley.....	35
Camp, Sabrena.....	28, 44
Cavinee, Alexandra.....	45
Chambers, Kirsten.....	23
Claiborne, Tina.....	33, 34, 47, 49
Clark, Kristin Boggs.....	37
Claus, Michael.....	9
Coy, Robert.....	31
Crandle, Madeline.....	31
Cribbs, Casey.....	31
Curton, Carman.....	34, 53
Czuhajewski, Amy.....	46
Dangel, Amanda.....	19
Dansby, Gage.....	29
DeBrabander, Megan.....	24, 35
Doney, Thomas.....	23

Author Index

Douglas, Michael.....	55
Dumitrascu, Dorin.....	51
Dunbar-Gaynor, Micaela.....	56
Egan, Alexander.....	51
Elliott, Scott.....	25
Feekings, Bailey.....	33
Field, Deborah.....	24
Foster, Perri.....	37
Foster, Samantha Marie.....	45
Franklin, Cheyenne.....	46
Frappier, Zachary.....	45
Freeman, Austeen.....	56
Fryman, Anastasia.....	26
Fuller, Kailey.....	35, 40
Gannon, Travis.....	20
Goetschius, John.....	48
Graves, Liz.....	31
Gray, Amber.....	31
Hanson, Brady.....	29
Hanson, Sarah.....	19, 39, 42
Hawkins, Hannah.....	25
Helfer, Suzanne.....	35, 36
Hernandez, Kevin.....	26
Hillard, Amy.....	38, 40, 43
Holferty, Freya.....	46
Hood, Eric.....	46
Horner, Garin.....	45
Hornish, Hope.....	30, 38
Horowitz, Theresa.....	53
Howe, Philip.....	30, 38
Hughey, Melanie.....	23

Author Index

Jackson, Terry.....	35, 36, 30
Jaynes, Kyle.....	21
Jellison, Drake.....	25
Johnson, Kevin.....	46
Jordan, Laurel.....	52
Josz, Casey.....	47
Kanaziz, Rachel.....	20, 53
Keller, Brandon.....	42
Keller, Jake.....	43
Kemp, Mikayla.....	55
Kennedy, Josephine.....	46
Killinger, Brian.....	50
King, Mackenzie.....	57
Knox, Seth	45
Kramer, Mariah.....	31
Lake, Jeffrey.....	19, 26, 28, 41, 55, 57
Lange, Harrison.....	52
Lauver, Jakob.....	50
LaVigne, Amanda.....	45
Learman, Linda.....	53
Liberi, Victor.....	34, 56
Malcolm, Daniel.....	49
Martin, James.....	20, 21
Massey, Carissa.....	30
Maxwell, Patrick.....	20
McCleary, Keith.....	51
McCutcheon, Bernard.....	43
Mercer, Alex.....	54
Mesaros-Winkles, Christy.....	36, 46
Morales, Marti.....	51
Morgensen-Lindsay, Annissa.....	37, 40, 52

Author Index

Muntean, Thomas	42
Myers, Beth.....	9
Myers, Daniel.....	31
Nixon, Emily.....	38
Nutter, Cheryl.....	23
Olson, Nicole.....	29
Oram, Ashley.....	51
Pastula, Alana.....	22
Paul, Kristofer.....	31
Pawlisch, Ben.....	22, 44
Price, Kourtney.....	10
Price, Samuel.....	31
Prsa, Megan.....	46
Quinlan, Patrick.....	31
Richman, Lisa.....	46
Robinette, Lorie.....	48
Roesler, Samantha.....	22
Rossi, Anthony.....	47
Salzwedel, Janet.....	54
Sanford, Dale.....	46
Sarka, Bailey.....	54
Sauer, Megan.....	53
Schaefer, Hannah.....	27
Scherer, Matthew.....	48
Schuyler, Heather.....	55
Sementa, Luci.....	31
Sharp, Meg.....	33, 55
Shepherd, Bethany.....	46
Shewach, Alona.....	40
Siegel, Michelle.....	34, 45
Simon, Ashley.....	37

Author Index

St. John, Sydney.....	29
Szilagyi, Alicia.....	36
Tahil, Tara.....	46
Taylor, Luke.....	39
Tluczek, Madison.....	57
Todaro, Stacey.....	40, 43, 45
Tomasek, Peter.....	11
Turner, Kate.....	29
Uthappa, Renuka.....	46
Vanderlugt, Caleb.....	46
Van't Land, Taylor.....	51
Ward, Danielle.....	23
Wichar, Shawn.....	46
Winckles, Andrew.....	46
Wiza, Morgan.....	26
Woerner, Benjamin.....	20
Wojcik, Ryan.....	30
Woodcum, Sierra.....	41
Wrbelis, Tara.....	28
Wright, Rebekah.....	29
Young, Kelley.....	11
Zondlak, Allyse.....	57

