

THE COLLEGE OF ARTS AND SCIENCES 15TH ANNUAL SUMMIT FOR

# UNDERGRADUATE RESEARCH, SCHOLARSHIP, AND CREATIVE ACTIVITY



**NATURAL  
SCIENCES**

BIOLOGICAL SCIENCES CHEMISTRY &  
BIOCHEMISTRY GEOGRAPHY GEOLOGICAL  
SCIENCE PHYSICS & ASTRONOMY  
MATHEMATICS CHEMISTRY &  
BIOCHEMISTRY GEOGRAPHY GEOLOGICAL

**FINE PERFORMING ARTS  
&  
HUMANITIES**

FINE PERFORMING ARTS  
LITERATURE  
ART & ART HISTORY ENGLISH GENDER &  
GRACE STUDIES MODERN LANGUAGES  
& CLASSICS MUSIC PHILOSOPHY RELIGIOUS  
RELIGIOUS STUDIES THEATRE DANCE  
ART & ART HISTORY ENGLISH GENDER &  
GRACE STUDIES MODERN LANGUAGES

**SOCIAL SCIENCES**

AMERICAN STUDIES ANTHROPOLOGY  
COMMUNICATIVE DISORDERS CRIMINOLOGY  
& CRIMINAL JUSTICE HISTORY NEW COLONIAL  
POLITICAL SCIENCE PSYCHOLOGY  
AMERICAN STUDIES ANTHROPOLOGY  
COMMUNICATIVE DISORDERS CRIMINOLOGY

**URSCA.UA.EDU**

**APRIL 13, 2018  
MOODY MUSIC HALL**



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# MESSAGE FROM THE DEAN

Dear Participants:

Welcome to the College's 15th annual 2018 Summit for Undergraduate Research, Scholarship, and Creative Activity (URSCA). Undergraduates representing all divisions of the College—the humanities and fine arts, the natural sciences and mathematics, and the social sciences—will present their research and creative works today.

The College of Arts and Sciences is proud of the many high-quality research and creative activities it offers to our undergraduates. Our faculty knows that hands-on learning experiences in the laboratory, the studio, or in the archives fuel the spirit of curiosity and discovery and open the mind to new vistas in learning. This is the process for intellectual discovery and for developing highly productive individuals who will serve their communities and their professions with great expertise and understanding. My sincerest thanks to each faculty mentor for your dedication.

We are equally proud of the many undergraduates who have chosen to present their investigations here today. These men and women represent the best of our College, and it will be a wonderful experience, indeed, to visit with them today and hear about their discoveries. I congratulate each participant for their excellent work and look forward to seeing their intellectual journey continue to unfold during their undergraduate years in the College.

I would like to extend special thanks to Dr. Roger Sidje and the faculty judges for the important roles they play and their valuable feedback to the students.

Thank you for joining us today.

Sincerely,

A handwritten signature in black ink that reads "Robert Olin". The signature is written in a cursive style with a large, stylized "R" and "O".

Robert F. Olin, Ph.D.  
Professor and Dean

# SCHEDULE OF EVENTS

Attendance is open to all UA students and the general public, but presenters are UA students (from any program) that have A&S faculty mentors. Below is an outline of the schedule of events. Attendees and the public are welcome to watch the presentations and the creative interlude.

<b>8:00–8:45 a.m.</b>	Oral Presentation Registration and Set-Up	Lobby
<b>9:00 am–1:00 p.m.</b>	Oral Presentations	Classroom Wing
<b>9:00 am–1:00 p.m.</b>	Poster Presentations Registration and Set-Up	Lobby
<b>1:00–2:00 p.m.</b>	Creative Interlude: Watch the creative interlude while waiting on results from oral presentations. The interlude features a selection of performances by students in the fine and performing arts.	Concert Hall
<b>2:00–6:00 p.m.</b>	Poster Presentations	Million Dollar Band Wing

# FINE ARTS AND HUMANITIES

## ORAL PRESENTATIONS

### Group 1 – Room 180

**9:00 a.m.**

**CAITLYN BELL** (p. 16)

Department: Religious Studies

Faculty Mentor: Steven Ramey  
(Religious Studies)

*Exhibiting Asia: When Asia Meets America in Contemporary Museums*

**9:20 a.m.**

**MOLLY BUFFINGTON** (p. 16)

Department: History

Faculty Mentor: George McClure (History)

*A Faith That Sings: Lutheran Liturgy as a Theological Tool in the Reformation*

**9:40 a.m.**

**RHIANNON HEIN** (p. 16)

Department: History

Faculty Mentor: Daniel Riches (History)

*Nationalist Sentiment in the Era of German Unification*

**10:00 a.m.**

**KYLE VAN FRANK** (p. 17)

Department: Theatre and Dance

Faculty Mentor: Stacy Alley (Theatre and Dance)

*Kidnapped Culture: The Story of Tap Dancing America*

**10:20 a.m.**

**ANNIE YONGE** (p. 17)

Department: Theatre and Dance

Faculty Mentor: Donna Meester  
(Theatre and Dance)

*The 25th Annual Putnam County Spelling Bee: How Costume Research Influences Design*

**10:40 a.m.**

**TALLY ROBISHAW** (p. 18)

Department: New College

Faculty Mentor: Jane Cassidy  
(Art and Art History)

*Community Without (Verbal) Communication*

**11:00 a.m.**

**JARED TUBBS** (p. 18)

Department: Music

Faculty Mentors: Andrew Dewar (New College)  
Holland Hopson (New College)

*Internal: Sonifying the Human Body*

**11:20 a.m.**

**RYAN TUMBLESON** (p. 18)

Department: Modern Languages and Classics

Faculty Mentor: Alecia Chatham

(Modern Languages and Classics)  
*A Timeless Fight*

## Group 2 – Room 181

**9:00 a.m.**

**BRITTANY GRADY** (p. 19)

Department: New College

Faculty Mentor: Julia Cherry (New College)

*The Impact of Service Learning Courses on First Generation and Pell Grant Eligible Students*

**9:20 a.m.**

**YASMINE NANA-YEBOAH** (p. 19)

Department: American Studies

Faculty Mentor: Stacy Morgan  
(American Studies)

*An Observation of Jazz Music to Hip-Hop: Black Music and the Impact on American Pop Culture*

**9:40 a.m.**

**ANNEMARIE LSKO** (p. 20)

Department: Modern Languages and Classics

Faculty Mentor: Alessandra Montalbano  
(Modern Languages and Classics)

*"[A]s the assassination of President John F. Kennedy Shocked Americans": American Media Representations of the Aldo Moro Kidnapping*

**10:00 a.m.**

**GABRIEL ROSSER** (p. 20)

Department: New College

Faculty Mentors: Andrew Dewar (New College)  
Holland Hopson (New College)

*Building a Modular Synthesizer*

**10:20 a.m.**

**ALEXIA ACEBO** (p. 20)

**ALEXANDRA MANNINGS**

Department: Theatre and Dance

Faculty Mentor: Rebecca Salzer (Theatre and Dance)

*Mixed Reality*

**10:40 a.m.**

**ALEXANDER TAMEZ** (p. 21)

Department: Religious Studies

Faculty Mentor: Theodore Trost  
(Religious Studies)

*The Death of Film*

**11:00 a.m.**

**BRADLEY JOHANSEN** (p. 21)

Department: Philosophy

Faculty Mentor: Rekha Nath (Philosophy)

*The Noncombatant Naked Soldier*

# FINE ARTS AND HUMANITIES

## POSTER PRESENTATIONS

### Group 1-Band Room

**101**

**RACHEL CANO** (p. 22)

Department: New College

Faculty Mentor: Marysia Galbraith  
(Anthropology)

*Where's Your Dirty Laundry: An Ethnography of a  
Modern Day Watering Hole*

**102**

**ANNIE ROBERSON** (p. 22)

Department: Music

Faculty Mentor: Elllary Draper (Music)

*A Survey of the Thoughts and Attitudes of Music  
Faculty and Staff Towards Music Therapy*

**104**

**GRACE ALBRIGHT** (p. 23)

Department: Psychology

Faculty Mentor: Patricia Parmelee (Psychology)

*Moderating Effects of Coping on Objective and  
Subjective Health in Older Adults*

**105**

**ABIGAEL FURMAN** (p. 23)

Department: English

Faculty Mentor: Dilin Liu (English)

*Great, Awesome, Terrific, and Fantastic: Analyzing  
the Lexical Semantic Change of a Set of Near  
Synonyms using Corpora*

**107**

**KATHERINE METCALF** (p. 24)

Department: English

Faculty Mentor: Marni Presnall (English)

*Montaigne and Woolf: Humility, Experimentation,  
and Power in the Personal Essay*

**108**

**ALEXANDRA VANCE** (p. 24)

Department: Modern Languages and Classics

Faculty Mentor: Bryan Koronkiewicz  
(Modern Languages and Classics)

*Pronouns in Code-Switching: Comparing Spanish-  
English and French-English*

**109**

**MEGAN GOLDMAN** (p. 25)

Department: Art and Art History

Faculty Mentor: Pete Shulte  
(Art and Art History)

*Shadow Series*

# NATURAL SCIENCES AND MATHEMATICS

## ORAL PRESENTATIONS

### Group 1 – Room 258

**9:00 a.m.** (p. 26)

**COURTNEY THOMPSON**

Department: Chemistry

Faculty Mentor: Elizabeth Papish (Chemistry)

*Synthesis and Characterization of Transition Metal Complexes as Redox Mediators for Dye-Sensitized Solar Cells*

**9:20 am**

**PEDRAM MALEKNIA** (p. 26)

Department: Biological Sciences

Faculty Mentors: Cheng-Yu Li

(Biological Sciences)

Ryan Earley (Biological Sciences)

*Can Rivulus Fish See Through the Müller-Lyer Visual Illusion?*

**9:40 am**

**NATHAN MONIZ** (p. 27)

Department: Biological Sciences

Faculty Mentors: Kim Caldwell

(Biological Sciences)

Guy Caldwell (Biological Sciences)

*Identifying Intrinsic Modulators of Neuronal Resilience in a C. elegans PD Model*

# NATURAL SCIENCES AND MATHEMATICS POSTER PRESENTATIONS

## Group 1-Band Room

**301**

**JALEN CATES** (p. 28)

**ANDREW STEWART**

Department: Physics and Astronomy and Chemistry

Faculty Mentor: Adam Hauser

(Physics and Astronomy)

*The superconducting properties of YBa<sub>2</sub>Cu<sub>3</sub>O<sub>7</sub> samples minutely-doped with dysprosium*

**302**

**CLARE OLS** (p. 28)

**VANESSA MARSHALL**

**CHARLES PITSEMBERGER**

Department: Biological Sciences

Faculty Mentor: Jeffrey Lozier

(Biological Sciences)

*DNA Barcoding as a Tool to Assess Pollinator Diversity in a Fragmented Landscape*

**303**

**JOSHUA GOBLE** (p. 29)

Department: Biological Sciences

Faculty Mentor: Dr. Kevin Kocot

(Biological Sciences)

*The Biodiversity of Deep-Sea Icelandic Aplacophoran Molluscs*

**304**

**LAKBIRA SHEFFIELD** (p. 29)

Department: Biological Sciences

Faculty Mentor: Stanislava Chtarbanova

(Biological Sciences)

*Identification of Novel Factors in Age-Dependent Anti-Viral Innate Immunity*

**305**

**CARIS SMITH** (p. 29)

Department: Chemistry

Faculty Mentors: David Dixon (Chemistry)

Monica Vasiliu (Chemistry)

*Computational Chemistry Studies of Modular Approaches to Contemporary Complexants for Separations*

**306**

**TYLER MORGAN** (p. 30)

Department: Chemistry

Faculty Mentor: Silas Blackstock (Chemistry)

*Redox Switching of a Bis(Azobenzene)Amine*

**307**

**CONNOR KIRKLAND** (p. 30)

Department: Geological Sciences

Faculty Mentor: Joe Lambert (Geological Sciences)

*Seasonal Growth of Speleothems in Northern Alabama Cave Systems: A Watch Plate Study*

**308**

**CHARLES WATTS-KERR** (p. 30)

Department: Biological Sciences

Faculty Mentor: Stephen Secor (Biological Sciences)

*Postfeeding Energetics of Centipedes*

**309**

**AUSTIN WHITE** (p. 31)

Department: Biological Sciences

Faculty Mentor: Katrina Ramonell (Biological Sciences)

*The Characterization of Arabidopsis thaliana Fungal Pathogen Receptor-Like Kinase, PMRK1*

**310**

**ALYSSA KANDOW** (p. 31)

Department: Chemistry

Faculty Mentor: Jennifer Howeth  
(Biological Sciences)

*Effects of Zebra Mussel Invasion on Water Quality in Texas Reservoirs*

**311**

**CATHERINE OWENS** (p. 31)

Department: Chemistry

Faculty Mentors: Silas Blackstock (Chemistry)  
Ariel Kelley (Chemistry)

*Magnetic Anisotropy of Nitrosoarenes*

**312**

**LUCAS GLISSON** (p. 32)

Department: Biological Sciences

Faculty Mentor: Carla Atkinson  
(Biological Sciences)

*Impact of Temperature Gradients on Phosphorus Content of Mayflies in the Alaskan Tundra*

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## Group 2-Band Room

**313**

**TAYLOR PERKINS** (p. 32)

Department: Chemistry

Faculty Mentor: Carolyn Cassady (Chemistry)

*Influencing Charge State Distribution of Biological Peptides in Electrospray Ionization Mass Spectrometry Using Chromium (III) Nitrate*

**314**

**BLAIR MORRISON** (p. 33)

Department: Biological Sciences

Faculty Mentor: Ryan Earley  
(Biological Sciences)

*Green Invaders: Life Stages of the European Green Crab (Carcinus maenas) in Southern Maine*

**315**

**ALLISON CUMMINS** (p. 33)

Department: Biological Sciences

Faculty Mentor: Stanislava Chtarbanova  
(Biological Sciences)

*Involvement of the Receptor Croquemort in Bacterial Phagocytosis by Glial Cells in the Brain of Drosophila melanogaster*

**316**

**CHRISTOPHER MCCULLERS** (p. 33)

Department: Engineering—Chemical and Biological

Faculty Mentor: John Yoder (Biological Sciences)

*Expression Level Regulation of Transcription Factor Dsx and Hox Protein Abd-B in Drosophila melanogaster Embryo*

317

**ALAA ABUSAAD** (p. 34)

Department: Geological Sciences

Faculty Mentor: Marcello Minzoni  
(Geological Sciences)

*Constructing Synthetic Seismic Images of Cambrian Microbialite Exposures in Mason, Texas to Aid Exploration of the Jurassic Smackover in the Gulf of Mexico*

318

**LANEY BRAGER** (p. 34)

Department: Geography

Faculty Mentor: Justin Hart (Geography)

*Drought-Induced Growth Response of Longleaf Pine in the Alabama Line Hills*

319

**ALEXANDER SHAVER** (p. 35)

Department: Chemistry

Faculty Mentor: Stephen Woski (Chemistry)

*Cyanocarbazole Derivatives as Universal Bases*

320

**RACHEL RIDGWAY** (p. 35)

Department: Chemistry

Faculty Mentor: Silas Blackstock (Chemistry)

*Redox-Auxiliary Catalysis of bicyclo[3.2.0]heptene ring-openings*

321

**HOPE BURNHAM** (p. 35)

Department: Chemistry

Faculty Mentor: Shane Street (Chemistry)  
Matthew Confer (Chemistry)

*A Raman Investigation of Ammonia Borane Thermal Decomposition*

322

**LAUREN COOK** (p. 36)

Department: Biological Sciences

Faculty Mentors: Kim Caldwell (Biological Sciences)  
Guy Caldwell (Biological Sciences)

*Gene-by-Environmental activation of DAF-7/TGF- $\beta$  signaling in response to exposure to a noxious stimulus in a C. elegans model of Parkinson's Disease*

323

**CONNOR MEYERS** (p. 36)

Department: Chemistry

Faculty Mentor: Silas Blackstock (Chemistry)  
*Redox auxiliary mediated Z->E switching of a stable cis azobenzene*

# SOCIAL SCIENCES

## ORAL PRESENTATIONS

### Group 1 – Room 257

**9:00 a.m.** (p. 37)

**MARUKA WALKER**

Department: History

Faculty Mentor: John Giggie (History)

*Hidden Figures: The Women Behind the Montgomery Bus Boycott (The Case of Jo Ann Robinson)*

**9:20 a.m.**

**JOHN DENTON** (p. 37)

Department: Modern Languages and Classics

Faculty Mentor: Bronwen Lichtenstein

(Criminology and Criminal Justice)

*Accept or Decline?: Deciding Factors in a Voluntary HIV Testing Program for Probationers and Parolees*

**9:40 a.m.**

**KYLIE HOPKINS** (p. 38)

Department: Biological Sciences

Faculty Mentor: Bronwen Lichtenstein

(Criminology and Criminal Justice)

*Is Divorce Fair?: The Gendered Dynamics of Property Disposition*

**10:00 a.m.** (p. 38)

**KATY ANN THAXTON**

Department: History

Faculty Mentor: Lesley Gordon (History)

*The Conflicting Views on Andrew Jackson*

# SOCIAL SCIENCES

## POSTER PRESENTATIONS

### Group 1-Band Room

**201**

**CLAIRE MANDERFIELD** (p. 39)

Department: Psychology

Faculty Mentor: Joan Barth (ISSR)

*Gender Role Norms in High School Girls' Social Groups and STEM Interest*

**202**

**GRACIE SMITH** (p. 39)

Department: Political Science

Faculty Mentor: Allen Linken (Political Science)

*The Modern Major General*

**203**

**CHARLOTTE MCRAE** (p. 39)

**ALEXANDRA THOMASSON**

Departments: New College and Psychology

Faculty Mentor: Beverly Roskos (Psychology)

*Drawings of Hope*

**204**

**JULIA SPONHOLTZ** (p. 40)

Department: Anthropology

Faculty Mentor: Chris Lynn (Anthropology)

*Keeping the Home Fires Burning: The Impact of Sociability on Fireside Relaxation*

**205**

**HANNA BENKHRABA** (p. 40)

**ERIN MCNEIL**

Department: Criminology and Criminal Justice

Faculty Mentor: Diana Dolliver

(Criminology and Criminal Justice)

*Anonymity and TOR: Weapons Trade on the Darknet*

**206**

**ABIGAIL KAPPELMAN** (p. 41)

Department: Political Science

Faculty Mentor: Jacqueline Morgan

(Political Science)

*Cuba's Response to Zika: How a Socialist Island Nation Avoided The Biggest Disease Outbreak of 2015*

**207**

**ROXANNA HARE** (p. 41)

**COURTNEY DIEBOLD**

**JACK SCHWARZ**

**JULIANNA BOSKUS**

Department: Psychology

Faculty Mentor: Jessica Mendoza (Psychology)

Beverly Roskos (Psychology)

*Perceiving Nuances and Punctuation from Online Textual Communications*

**208**

**TONI REBALDO** (p. 42)

Department: Psychology

Faculty Mentor: Beverly Roskos (Psychology)

*Wayfinding: Navigation in an Outdoor Environment*

**209**

**JORDAN BOLLING** (p. 42)

Department: Biological Sciences

Faculty Mentor: Ian McDonough (Psychology)

*Transcranial Direct Current Stimulation with Language and Memory*

**210**

**MADYSON POTTER** (p. 43)

**ALEXA TOMLAK**

Department: Psychology and Biological Sciences

Faculty Mentor: Beverly Roskos (Psychology)

*Relations Among Video Game Training, Gender, and Spatial Skills*

**211**

**AISLINN TANSEY** (p. 43)

Department: Psychology

Faculty Mentor: Lauren Kois (Psychology)

*The Impact of a Psychopathy Diagnosis and Affect of a Defendant on Juror Perceptions*

**212**

**ALEXIS CORZINE** (p. 43)

**NICHOLAS MERRING**

Department: Psychology

Faculty Mentor: James Hamilton (Psychology)

*Learning about Factitious Disorder Through Published Legal Cases: The Use of Experts and Terminology Issues*

**213**

**WHITNEY HOVATER** (p. 44)

Department: Psychology

Faculty Mentor: Lauren Kois (Psychology)

*Effective Measures for Detecting Malingering and Deception in Adolescents*

**214**

**KIRSTEN WILLIAMS** (p. 44)

Department: Psychology

Faculty Mentor: Joan Barth (Psychology)

*The Effect of Self-Efficacy on the Career Goals of College and Elementary-Age Students*

**215**

**JENNIFER FOURROUX** (p. 45)

Department: Psychology

Faculty Mentor: Christopher Lynn (Anthropology)

*Caregivers' Perspectives on their Human-Nonhuman Primate Relationships*

**216**

**MILLIE SARTAIN** (p. 45)

**ANNA CHAN**

Department: Communicative Disorders

Faculty Mentors: Angela Barber (Communicative Disorders)

Candace Cook (Communicative Disorders)

*What Parents Want: Examining Parental Preference of Intervention for Children with Autism*

## Group 2-Band Room

217

**STEPHANIE MACKENZIE** (p. 46)

Department: Psychology

Faculty Mentor: James Hamilton (Psychology)

*Understanding Death Acceptance*

218

**HAROLD ACOSTA** (p. 46)

Department: Psychology

Faculty Mentor: Christopher Lynn  
(Anthropology)

*The Genetics of Attention: Preliminary Results from a Pilot Study of Absorption, Mental Boundaries, and Catechol-o-Methyltransferase*

219

**ALAYNA WATSON** (p. 47)

Department: Psychology

Faculty Mentor: Ansley Gilpin (Psychology)

*The developmental relationship of inhibitory control and emotion regulation in preschoolers: A longitudinal study*

220

**BROOKE BOYLES** (p. 47)

**MOLLY BAILEE**

**SOPHIE NORGAARD**

**GRACE SHIRAH**

**JACKSON GIST**

Department: Communicative Disorders

Faculty Mentor: Memorie Gosa

(Communicative Disorders)

*Reliability and Validity of the IDDSI Flow Test as a Measure of Liquid Consistency*

221

**RACHEL LEE** (p. 48)

Department: Psychology

Faculty Mentor: Jessica Mendoza (Psychology)

*Sub-Criterion A PTSD*

222

**TANNER MULLENIX** (p. 48)

**ANTHONY FANT**

Department: Psychology and Biological Sciences

Faculty Mentors: Beverly Roskos (Psychology)

Qichen Zhao (Psychology)

*Group Creativity and the Incubation Effect*

223

**SALENA LEE** (p. 49)

Department: C&BA—Management

Faculty Mentor: Rachel Stephens

(Art and Art History)

*Uncovering Slavery at The University of Alabama*

224

**KIRA YANCEY** (p. 49)

Department: Anthropology

Faculty Mentor: Christopher Lynn (Anthropology)

*Stars, Bars, and Skin Marks: A Preliminary Study of Tattoos in the American Military*

225

**TAYLOR PUCKETT** (p. 49)

Department: Anthropology

Faculty Mentor: Christopher Lynn (Anthropology)

*Tattoos and Piercings Among Undergraduate Populations*

**226**

**TESSA HAWKINS** (p. 50)

Department: Psychology

Faculty Mentor: Alexa Tullett (Psychology)

*Cognitive Bias and Scientific Self-Correction in Psychologists*

**227**

**ALICIA RAMBO** (p. 50)

Department: Communicative Disorders

Faculty Mentors: Angela Barber

Candace Cook (Communicative Disorders)

*The Effect of Manualized vs. Traditional Therapy Methods on the Preparation of Successful Speech-Language Pathologists Working with Children who are at Risk for an Autism Spectrum Disorder*

**228**

**ROLANDA TURNER** (p. 51)

Department: Political Science

Faculty Mentor: Nicholas Kerr (Political Science)

*Exploring the Electoral Fraud During Kenya's 2013 Election*

**229**

**WADE TIDWELL** (p. 51)

Department: Anthropology

Faculty Mentor: Lisa LeCount (Anthropology)

*Artifact Ubiquity as Indices of Ancient Maya Socioeconomic Variability at Actuncan, Belize*

**230**

**LAUREN MCGUIRE** (p. 51)

Department: Psychology

Faculty Mentor: Ian McDonough (Psychology)

*Encoding Activity in Sedentary Versus Physically Active Jobs using fMRI*

**231**

**PHILIP PITTS** (p. 52)

**ZOE BERNDT**

**PEYTON BADURA**

Department: Geography, Biological Sciences, and C&BA—Information Systems, Statistics, and Management Science

Faculty Mentor: David Bolus (Theatre and Dance)

*The Beautification and Revitalization of Marion, Alabama*

**232**

**VALERIE MOORE** (p. 52)

Department: Communicative Disorders

Faculty Mentor: Angela Barber

(Communicative Disorders)

*Examining Vocabulary and Social Communication in Young Children with ASD*

# FINE ARTS AND HUMANITIES

## ORAL PRESENTATION ABSTRACTS

**9:00 a.m.**

**CAITLYN BELL**

Department: Religious Studies

Faculty Mentor: Steven Ramey

Department: Religious Studies

*Exhibiting Asia: When Asia Meets America in Contemporary Museums*

Abstract: Representations have significant societal effects. Though there exist many ways to view the world around us, these variations are often obscured by the representations constructed through institutions of authority, such as news stations or museums exhibits. To illustrate both the weight of these representations and the various ways to go about constructing them, this paper will examine the presentation of Asian cultures within three museums, each operating at varying degrees of influence: the Birmingham Museum of Art, the Michael C. Carlos Museum at Emory University, and the Freer and the Sackler Galleries of the Smithsonian Institute, analyzing the ways in which these representations are constructed through the museum's choice of labels, exclusions, organization, experiential quality and the overall narrative these decisions create.

**9:20 a.m.**

**MOLLY BUFFINGTON**

Department: History

Faculty Mentor: George McClure

Department: History

*A Faith That Sings: Lutheran Liturgy as a Theological Tool in the Reformation*

Abstract: Martin Luther's alteration of the Roman Catholic Mass into the Lutheran Gottesdienst (or "God's service") has been critiqued as an afterthought or an act of theological compromise to appease the conservative German princes and peasants. However, Luther's worship rite, especially the ceremonies surrounding the Sacrament of Communion, was crafted to teach and comfort the faithful while also battling heterodoxy. Luther and those in his circle crafted a distinctly "Lutheran" way to celebrate Communion in response to the needs of their congregations, especially with the undereducated peasantry in mind, as a means of explaining complex theological concepts through word and act. Further, they allowed for practices considered unnecessary in order to console the weak in faith or to facilitate the conversion of former Catholics. The early Lutheran Service of the Sacrament was even influenced by the arguments and liturgies of non-Lutherans, such as Zwingli, Karlstadt, Schwenkfeld, and others, as the Lutherans countered other teachings on Communion and even tried purposefully to offend non-Lutherans through their liturgical choices. Thus the liturgy was not intended as a static, repetitive rite as a means to itself, but rather an educational, pastoral, and polemic tool to deliver forgiveness of sins and strengthen the laity in their faith.

**9:40 a.m.**

**RHIANNON HEIN**

Department: History

Faculty Mentor: Daniel Riches

Department: History

*Nationalist Sentiment in the Era of German Unification*

Abstract: Before its unification in 1871, Germany had been, for centuries, a loose confederation of self-governing territories. The unification of 1871, led by Prussia, one of Germany's largest states, finally forged these heterogeneous territories into a singular political entity. My senior honors thesis for the history department, a paper entitled "Nationalist Sentiment in the

Era of German Unification,” analyzes the dissemination of nationalist expressions in Germany from a small but influential class of bourgeois intellectuals and artists to broader populations at the time of unification in the early 1870s. In order to accomplish this undertaking, I conducted research with German and French documents at the Staatsbibliothek zu Berlin, one of Europe’s largest libraries, over the course of two months.

The paper examines why German nationalists in the 1870s disseminated their narratives, the characteristics of these views, and how these messages might have reached citizens beyond the bourgeoisie. I argue that in response to certain intellectuals’ critiques and doubts of the new Prussian-dominated Reich, nationalists strove to propagate patriotic mythology in the forms of new German identity and founding legends through a variety of means to as broad a population base as possible. I have utilized published poems, newspaper articles, memoirs, history texts, images, songs, and monuments of the era in making my argument. Current scholarship focuses on the fact that these ideas were generated by a small segment of the population but leaves room for exploration as to where and how these ideas traveled. My argument builds upon current scholarly conversation in its recognition that although these nationalists messages were generated by few, they had the potential to impact broad swaths of the German population’s collective consciousness.

**10:00 a.m.**

**KYLE VAN FRANK**

Department: Theatre and Dance

Faculty Mentor: Stacy Alley

Department: Theatre and Dance

*Kidnapped Culture: The Story of Tap Dancing America*

Abstract: The Jazz Age ushered in an era of new, expressive, and exciting art forms. Among these art forms, tap stands out as the most unique and discernible dance styles of the era. Though praised for being an art form derived from American culture, the origins of tap are, by in large, not American, but a blend of Irish folk dancing and African Slave dance. My research conveys how tap further weaves African American influence into the tapestry of American culture and tradition.

**10:20 a.m.**

**ANNIE YONGE**

Department: Theatre and Dance

Faculty Mentor: Donna Meester

Department: Theatre and Dance

*The 25th Annual Putnam County Spelling Bee: How Costume Research Influences Design*

Abstract: Introduction: Designing the costumes for a theatrical production is a collaborative process that requires research and communication of that information. In the Fall of 2017, I designed the costumes for The University of Alabama’s production of *The 25th Annual Putnam County Spelling Bee*, a show about 6 wacky kids competing for first place in their county bee. The show is set in present day, and the kids all fulfill some sort of stereotype- nerd, Boy Scout, sweet girl next door, etc. These two aspects of the show highly influenced the way I researched the costumes- unlike a period show where one may do primarily historical costume research, my research was based on the script’s descriptions of these characters, the actor’s portrayal of his or her character, and the director’s vision.

Method: I began my research by reading the script and taking notes on the characters’ costume pieces that were specifically mentioned. These are necessities, unless the director says otherwise. Next, I analyzed the characters’ personalities- age, gender, any extracurricular activities they participated in, jobs for the adults, and general stereotype that they fulfilled. I came up with a color palette of bright, fun primary colors for a grade school feel. I also met with the director multiple times to get an idea of his vision for the characters’ costumes, as it may differ slightly from the script. After our initial meeting, I came up with design options for the director and furthered my research. For example, Chip Tolentino, the Boy Scout, required me to research his rank in Boy Scouting and the appropriate uniform for him. Marcy Park, the Catholic school girl, had a pleated plaid jumper that I designed after combining a variety of elements found in my research. These elements suited the director’s vision and the actress’s needs in terms of movement- during her solo, she tumbled across the stage into a split. All of the costumes were researched and designed in this manner.

Results/Conclusion: Research is necessary for the final construction of any costume. My research worked as a guide to develop my design vision in a focused and accurate way. Without it, a designer can end up with inaccurate costumes that do not make sense in the scope of the production. My research allowed me to design costumes that would fulfill the director’s vision, meet the actor’s needs, and satisfy audience expectations of what these characters would wear.

**10:40 a.m.**

**TALLY ROBISHAW**

Department: New College

Faculty Mentor: Jane Cassidy

Department: Art and Art History

*Community Without (Verbal) Communication*

Abstract: This study investigates the opportunities available for students with disabilities among student organizations, university run programs, and academic accommodations with the goal to spread advocacy for these groups and promote integration between students of any ability. The first phase of the project was an investigation of the available programs and applicable, on-campus research projects via university databases. This led to a series of interviews with faculty and staff of various programs including Dr. Hlebowitsh of the Department of Education and Dr. Davis of the UA-ACTs program. The last stage of the project is the distribution of pertinent data in the form of three posters which will be distributed around campus. Eventually, this research and specifically the poster designs will act as the basis for a centralized, cumulative website where students of any ability can find resources and opportunities specifically accessible for individuals with disabilities.

**11:00am**

**JARED TUBBS**

Department: Music

Faculty Mentors: Andrew Dewar and Holland Hopson

Department: New College

*Internal: Sonifying the Human Body*

Abstract: Internal is a sonic project created by Jared Tubbs, a Creative Campus Arts Research Fellow under the mentorship of Dr. Andrew Raffo Dewar, Dr. Todd Freeborn, and Holland Hopson. Drawing inspiration from Alvin Lucier's "Music for Solo Performer" and its use of brain waves as generators of sound, this project aims to explore further the musical creations that can be made from the human body by creating additional variables based on biological signals. Internal does this by combining the use of a survey system in the Max media programming environment with electroencephalogram and electromyogram sensors detecting brain and muscle activity as well as heart rate to create a system capable of creating unique sounds from each individual when they partake in the project. This project is intended to emphasize the uniqueness within each individual, as well as encourage continued exploration and collaboration between the arts and engineering.

**11:20am**

**RYAN TUMBLESON**

Department: Modern Languages and Classics

Faculty Mentor: Alecia Chatham

Department: Modern Languages and Classics

*A Timeless Fight*

Abstract: The ancient Olympic sport of pankration was amongst the earliest organized forms of no-holds-barred (NHB) or mixed martial arts (MMA) fighting. Using primary accounts from ancient Greek and Roman writers and artistic depictions of pankration fighters from the same time period, this research project will compare the techniques, rules, and training methods of ancient pankration and modern MMA. The work of Jim Arvanitis and others to revive pankration fighting as a martial art is compared to the development of NHB fighting styles in Europe, East Asia, and South America, and their eventual integration through the Ultimate Fighting Championship into the sport of MMA. This research project will examine the possibility that the rules and similar training methods of ancient Olympic wrestling influenced not only the strategies of wrestlers but that of pankration fighters. The primary purpose will be to explain how, like Brazilian Jiu Jitsu and wrestling influenced the rules and strategies of modern MMA, ancient wrestling training practices and culture influenced pankratiasts to abandon positions and techniques that were not penalized under the rules of pankration. Both ancient authors and artists often depicted gods and men fighting using the same techniques as pankration fighters in fictional and nonfictional contexts. Other avenues for research include comparisons of ancient and modern fighters' motivation to compete. For example, pankration champions enjoyed "deified status" in their communities, although there is evidence that pankration fighters usually fought for political appointments and monetary rewards, rather than gods and glory. The wealth of ancient evidence and modern information makes this research project both appealing and promising, as well as the fact that it is an understudied area in modern scholarship.

**9:00 a.m.**

**BRITTANY GRADY**

Department: New College

Faculty Mentor: Julia Cherry

Department: New College

*The Impact of Service Learning Courses on First Generation and Pell Grant Eligible Students*

Abstract: During the 2016-2017 academic year, The University of Alabama offered 157 service learning courses, of which 8,700 students participated, myself included (1). Service learning courses are designed to create more civic minded leaders by getting students involved in their surrounding communities and invoking critical thought. However, despite the appeal for experiential learning the participation for first generation and pell grant eligible students was extremely low with very few studies explaining this phenomenon. The Department of Education reports first generation students comprise 50 percent of students at post-secondary institutions and 30 percent of students specifically at four year universities (2), yet this growth was not being represented in service learning classrooms.

For my research, I partnered with The University of Alabama Center for Ethics and Social Responsibility to survey first generation and pell grant eligible students from the service learning course "Poverty, Faith and Justice in America". The goal of this project was to gather qualitative data from a sample group to determine why this demographic strayed away from service learning classes and to create a campus wide survey to evaluate The University of Alabama's effectiveness at helping first generation and pell grant eligible students transition to and later matriculate from our institution.

The study surveyed 5 students, self identifying as first generation or pell grant eligible. Students were asked to attend 3 group discussions, conduct 1 personal interview, and write 1 reflection. Afterwards the sessions were transcribed and analyzed for common themes to compose the comprehensive survey for the entire campus. This project served to present the University of Alabama's administration with data regarding a vastly underrepresented group and offer recommendations to ensure these students have the tools necessary to succeed in post-secondary education.

**9:20 a.m.**

**YASMINE NANA-YEBOAH**

Department: American Studies

Faculty Mentor: Stacy Morgan

Department: American Studies

*An Observation of Jazz Music to Hip-Hop: Black Music and the Impact on American Pop Culture*

Abstract: A young Barack Obama once said "what is truly American is black culture to a degree." Jazz music quickly became the music of all things modern and rebellious in the 1920's a time where the United States experience a massive economic boom. When we discuss music being modern and carefree jazz music was that. Today, we have hip-hop culture that in 2018 has surpassed Rock and Roll music as one of the most listened to genres. But, jazz music at its peak allowed both black and white Americans to believe in a certain way of living. Duke Ellington and Louis Armstrong for example introduced African-American performers into the mainstream culture of American entertainment. Armstrong brought to the stage feeling and expression. Ellington came with what many see as the American dream that for once included African-American people in the larger picture of fine living. Americans were drawn to Ellington and Armstrong two black performers. Both performers expressing a certain type of feeling that an American audience could relate to. This leads to other performers to almost copy Ellington and Armstrong. Many of the popular performers to come after being white Americans. In 2018, we have Hip-Hop culture that is no longer exclusive to the black and brown youth of the inner city. We have performers like Iggy Azalea and Justin Bieber. Azalea and Bieber believed to be apart of the pop music world, but by way of black culture. While many debate culture appropriation, the opposing side define the success of these artist as culture appreciation. This body of work aims to bridge the success of jazz music of the 1920's a black art form to the state of Hip-Hop music and their identical impact on American pop culture. Ultimately, American pop culture is black culture. But, how does this reflect on American society at large. This research aims to explain how pop culture is a direct reflection of American history and feelings.

**9:40 a.m.**

**ANNEMARIE LISKO**

Department: Modern Languages and Classics

Faculty Mentor: Alessandra Montalbano

Department: Modern Languages and Classics

*“[A]s the assassination of President John F. Kennedy hocked Americans”: American Media Representations of the Aldo Moro Kidnapping*  
Abstract: On 16 March 1978, Aldo Moro, five-time prime minister of Italy and leader of the country’s ruling Christian Democracy party, was kidnapped by the extreme leftist Red Brigades terrorist organization. His fifty-five day imprisonment and subsequent assassination became one of the defining episodes of the political tension and violence that pervaded Italy throughout the 1970s. My project examines the ways in which these events were presented in American mass media during the spring of 1978, seeking to understand Americans’ perspectives on this critical event in recent Italian history. It analyzes American journalists’ contextualization of the kidnapping: their descriptions of Moro, the Red Brigades, and the tense political climate of 1970s Italy. It notes which details of the case were emphasized and which were omitted in American media coverage. And it focuses upon the strategies journalists employed to demonstrate the relevance of these foreign occurrences for their American audiences.

**10:00 a.m.**

**GABRIEL ROSSER**

Department: New College

Faculty Mentors: Andrew Dewar and Holland Hopson

Department: New College

*Building a Modular Synthesizer*

Abstract: My New College depth study is Electronic Music as a Folk Art, which posits that Do-It- Yourself (DIY) electronics design culture exists in the domain of a folk art, combining aspects of electronic music synthesis in relation to electrical engineering, music and art. This practice is an accessible art for individuals with various levels of learning and from a range of socio-economic situations and creative ability due to the use of recycled and repurposed electronics. The URCA grant I received went towards building a modular synthesizer using DIY projects offered by multiple synth manufacturers, as well as members from various online synth communities. The result is a two-tier eurorack modular synthesizer, featuring two synth voices, two algorithmic composition generators, a clock, a mixer, and a sequencer. A Eurorack synthesizer is unique in that each module plays a unique role in affecting the overall sound design or composition. The modules are connected by 8th inch audio cables, known as “patch” cables. A patch runs from one module, into another, and modifies the voltage based on the role of the synth module. My presentation will be based around explaining the discourse of sound in the context of a modular synthesizer, as well as how building one falls into the folk art discourse based on internet communities and Printed Circuit Board designers.

**10:20 a.m.**

**ALEXIA ACEBO**

**ALEXANDRA MANNINGS**

Department: Theatre and Dance

Faculty Mentor: Rebecca Salzer

Department: Theatre and Dance

*Mixed Reality*

Abstract: Mixed Reality is an exploration of the nature of dance-making and performance, led by Creative Campus Fellows Alexia Acebo and Alexandra Mannings. Through employing virtual reality technology and immersion into the dance performance, the research duo seeks to highlight the differences between live and recorded performance in 360 degrees. The project presents a series of modules that explore different movement and spatial ideas as well as a non-traditional relationship between performer and audience. The ultimate questions of Mixed Reality revolve around the different methods of immersion and how they change the experience of creation and reception.

**10:40 a.m.**

**ALEXANDER TAMEZ**

Department: Religious Studies

Faculty Mentor: Theodore Trost

Department: Religious Studies

*The Death of Film*

Abstract: Is film a legitimate art form? The answer might seem self-evident, but throughout its history critics and filmmakers alike have struggled to find film's place within the art world. "The Death of Film" will explore two main critiques towards film: the economic critique, and the theological critique. Of course, to say that film is or is not an art form, thus implies what ones means by term 'art.' Consideration will be given to how one can arrive at a definition of art through films themselves.

**11:00 a.m.**

**BRADLEY JOHANSEN**

Department: Philosophy

Faculty Mentor: Rekha Nath

Department: Philosophy

*The Noncombatant Naked Soldier*

Abstract: Imagine you are a sniper, perched high in a nest above the landscape, scanning the horizon for threats. You come upon a lone enemy soldier far away in the distance. You take aim, but you hesitate to pull the trigger. This soldier is no threat to you; he is not armed at the moment - he is not even clothed! Is it just for you, the sniper, to kill this man? In just war theory, one of the core principles of the just conduct of war, *jus in bello*, is the equal rights of soldiers on both sides of the battlefield—it is just, or morally acceptable, to kill soldiers because it is their sole purpose in war to fight. But, what of this naked soldier? Conventional just war theory says that because the naked soldier is a soldier, it is permissible for you, the sniper, to kill him. However, I argue that because of certain distinct features of the naked soldier class—distance, imminence of threat and whether or not they are conducting the business of war—it is not permissible for them to be killed.

# FINE ARTS AND HUMANITIES

## POSTER PRESENTATION ABSTRACTS

**Poster Number: 101**

**RACHEL CANO**

Department: New College

Faculty Mentor: Marysia Galbraith

Department: Anthropology

*Where's Your Dirty Laundry: An Ethnography of a Modern Day Watering Hole*

Abstract: This ethnography focuses on the interactions of people who wash their clothes at a laundromat. Everyone has to do laundry. How does this environment compare to past watering holes where people came together to wash their linens and cloths? The methodology for this project includes participant-observation, interviews, and photography. At this modern "watering hole", I observed a great deal of gossip, children running around, and relationships being built between regulars and employees. Different ethnic groups, as well as rich and poor, make themselves at home. Although I found many acts of random generosity between people, there was also hostility between ethnic groups. Washing clothes is an intimate chore. I argue that intimacy breeds familiarity among strangers, perhaps a sense of community and extended family, although the darker side of social groups is shown when there is a lack of space and resources.

**Poster Number: 102**

**ANNIE ROBERSON**

Department: Music

Faculty Mentor: Elllary Draper

Department: Music

*A Survey of the Thoughts and Attitudes of Music Faculty and Staff Towards Music Therapy*

Abstract: Background: Though surveys in music therapy literature have been conducted to evaluate both the thoughts and attitudes towards a professional music therapy program (Hughes, Robbins, & King, 1988) and the thoughts and attitudes of students towards a university's music therapy program (Clark & Krantz, 1996), no surveys have been conducted evaluating music faculty's attitudes toward these programs. Such surveys reveal potential advocacy opportunities within schools of music.

Objective: The objective of this survey was to evaluate the knowledge, thoughts, and attitudes of the music faculty and staff at the University of Alabama (UA) towards music therapy both as a whole and as a specific program at the UA for the purpose of identifying potential advocacy opportunities within the School of Music.

Method: A Qualtrics survey was distributed via email to all members of UA music faculty and staff (N=22). The survey included questions prompting respondents to provide their knowledge and attitudes about music therapy through Likert scales and free responses. Participants were given approximately one month to return the survey and were prompted again one week before the survey closed.

Results: A total of 56 surveys were sent out and 22 completed surveys (39.2% response rate) were analyzed. Most respondents (86.4%) expressed positive attitudes towards the music therapy program at UA. Only 13.6% of respondents said that music therapy was evidence-based, and only 23% of respondents mentioned board certification at any point during the survey.

Conclusion: Although music faculty and staff at UA have a positive view of music therapy both as a whole and as a program at UA, there is a clear need for education and advocacy about what music therapy is and what professional music therapists do. It is recommended that similar studies be replicated at other universities to identify advocacy opportunities both regionally and nationally.

**Poster Number: 104**

**GRACE ALBRIGHT**

Department: Psychology

Faculty Mentor: Patricia Parmelee

Department: Psychology

*Moderating Effects of Coping on Objective and Subjective Health in Older Adults*

Abstract: As people grow older, health declines and many adults develop health problems they have never faced before (CDC, 2018). People may deal with these changes in different ways, implementing both active and passive coping strategies to deal with new health issues (Snow-Tureka, Norrison, & Tan, 1995). Active coping can be defined as taking direct action to alleviate a problem (Carver, Scheier, & Weintraub, 1989), while passive coping is characterized by helplessness or reliance on others for health management (Nicholas et al., 1992). Past research has demonstrated that maladaptive coping behaviors such as those that define passive coping may lead to worsened subjective health (Hill & Kennedy 2002). While passive coping may have detrimental effects on subjective health, forms of active coping such as positive-cognitive coping correlate with increases in subjective health (Lohr et al., 1988). The present study seeks to expand upon past research by exploring the specific moderating effects of active and passive coping in the relationship between objective and subjective health in adults clinically diagnosed with Osteoarthritis.

Data was collected as part of The Alabama Research Institute on Aging's EQUAL project. The subjective health and objective health conditions checklist (Multilevel Assessment Instrument; Lawton et al., 1982) assessed participant subjective and objective health, while the COPE Inventory (Carver, Scheier, & Weintraub, 1989) assessed active and passive coping strategies used by participants. Linear regressions will address the relationship between objective and subjective health as well as the moderating effects of active and passive coping.

**Poster Number: 105**

**ABIGAELE FURMAN**

Department: English

Faculty Mentor: Dilin Liu

Department: English

*Great, Awesome, Terrific, and Fantastic: Analyzing the Lexical Semantic Change of a Set of Near Synonyms using Corpora*

Abstract: The focus of this research is on the cultural and semantic change over time for the words great, awesome, terrific, and fantastic, looking specifically at the convergence from relatively varied senses to simply meaning "very good." Most of the research on groups of near-synonyms tends to focus only on the differences in meaning between each word. This paper seeks to not only study a set of near-synonyms but also to track the lexical semantic change of each word over time, showing that each word's previous meanings were much more distinct and that the set has become more homogeneous over time. Broadly speaking, how have the words great, awesome, terrific, and fantastic changed in meaning over time?

To study the change over time for this set of near-synonyms, there are multiple factors to consider. The field of semantic change itself is complex, but people can search corpora to find words' contexts and common collocates over time. In addition, dictionaries have information about definitions and etymologies of polysemic words throughout history. To study the semantic change of these words, I performed searches in corpora and analyzed noun collocates for each adjective, using the Oxford English Dictionary to check my findings. By doing this, the semantic change of each word and its uses throughout history can be described.

The results of the study show that each of these words are near-synonyms for each other in today's world, but they all have distinct prior meanings that have faded. Great had a similar meaning to grand; awesome meant awe-inspiring; terrific was closer to terrifying; and fantastic had implications of fantasy. The group of near-synonyms studied are polysemic and have undergone semantic change over the course of their lives. These four words are currently as closely linked semantically as they have ever been.

**Poster Number: 107**

**KATHERINE METCALF**

Department: English

Faculty Mentor: Marni Presnall

Department: English

*Montaigne and Woolf: Humility, Experimentation, and Power in the Personal Essay*

Abstract: In *A Room of One's Own* Virginia Woolf writes, "No need to hurry. No need to sparkle. No need to be anybody but oneself," which reveals how Michel de Montaigne and Virginia Woolf believed that complete acceptance of self is the foundation for how humans live well. Though Virginia Woolf started writing her personal essays a few centuries after Montaigne's death, she arguably drew thematic references from his novel *The Essays*. In this research project, I analyze the literary works of Montaigne and Woolf through inquisitive thematic elements and common writing techniques: writing for the common reader, experimentation in prose forms, and asking probing questions that guide them to understanding themselves and the outside world. I focus primarily on Montaigne's essays in dialogue with sections of Woolf's collection of essays, *Moments of Being*, and one of her short stories "The Lady in the Looking Glass: A Reflection." I also study the language and syntax in all three works in order to draw conclusions about their reflections in conjunction with their self-discoveries. Through interpretation of humility in these texts, I show how their styles suit the common reader, the men and women of different class systems would appreciate their points of view on human imperfections. Further, I suggest that asking questions and revealing public and private perspectives helped both writers accept their true selves. Lastly, I conclude how writing personal essays encouraged both Montaigne and Woolf to reflect on the past and make sense of events that happen in their present lives. Ultimately, this inquiry on the personal essay through two prominent writers may prompt current and future generations to appreciate their imperfections, unique personalities in realizing that these aspects are important elements when seeing human beings from holistic perspectives.

**Poster Number: 108**

**ALEXANDRA VANCE**

Department: Modern Languages and Classics

Faculty Mentor: Bryan Koronkiewicz

Department: Modern Languages and Classics

*Pronouns in Code-Switching: Comparing Spanish-English and French-English*

Abstract: Code-switching is the act of alternating between two or more languages within one conversation or sentence. This phenomenon occurs frequently among bilinguals and multilinguals. Although often stigmatized and believed to be a non-standard use of language, code-switching is a natural reaction to bilingual or multilingual environments, and research has shown the mixing of languages is not random, but rather has its own rules and structure.

The academic study of code-switching can reveal important information about the nature of language. Certain fragments of sentences can be switched into another language in a way that is acceptable to bilinguals, while others cannot. For example, for Spanish-English bilinguals, it is unacceptable to substitute a Spanish pronoun into an English sentence (1b), but it is acceptable to do so with lexical subjects (1a).

- (1) a. Ese hombre speaks Spanish.  
'That man speaks Spanish.'
- b. \*Él speaks Spanish.  
'He speaks Spanish.'

Less is known about the behavior of French pronouns in code-switching. French, as a Romance language, is very similar in structure to Spanish, but it also has the added option to use disjunctive, or stressed, pronouns. There are, therefore, two possible variations of the pronoun switches for French (2).

- (2) a. Ce garçon speaks French.  
'That man speaks French.'
- b. Il speaks French.  
'He speaks French.'
- c. Olivia parle français, et lui does too.  
'Olivia speaks French, and he does too.'

It is possible that both, one, or neither of the pronoun sentences are acceptable code-switches. Using an acceptability judgment task, this study aims to gain more information about differences and similarities between French-English and Spanish-English code-switches involving pronouns. Specifically, the ratings of Spanish-English bilinguals will be used as a control to compare the ratings of French-English bilinguals. Data collection for this study is in progress.

**Poster Number: 109**

**MEGAN GOLDMAN**

Department: Art and Art History

Faculty Mentor: Pete Shulte

Department: Art and Art History

*Shadow Series*

Abstract: The Shadow Series is a group of pastel drawings with emerging and fading forms that teeter between presence and void. A shadow is a silhouette of a thing but not the thing itself, it is a result of a physical object generating a non-tangible occurrence. With the pastel drawings I try to capture the ephemeral effects of a shadow using an actual shadow as a source. The presence of the shape and the flip between if it is substantive or absent pushes the viewer into a place where they choose how to fill the space. Presence and void, emergence and fading, appearing and disappearing are phenomena difficult to capture in a two dimensional world. I hope that the drawings achieve such ephemeral qualities through application of materials and source.

# NATURAL SCIENCES AND MATHEMATICS

## ORAL PRESENTATION ABSTRACTS

9:00 a.m.

**COURTNEY THOMPSON**

Department: Chemistry

Faculty Mentor: Elizabeth Papish

Department: Chemistry

*Synthesis and Characterization of Transition Metal Complexes as Redox Mediators for Dye-Sensitized Solar Cells*

Abstract: With world energy consumption steadily increasing, there exists a need for renewable energy sources, the largest potential source being solar. Dye-sensitized solar cells (DSCs) offer advantages in industry such as low production costs and lightweight and flexible designs. Electrolyte systems and dyes, components of DSCs, are increasingly investigated. The most efficient and commonly used redox shuttle (also known as a redox mediator) to date is iodide/triiodide (I<sup>-</sup>/I<sub>3</sub><sup>-</sup>) due to its high carrier collection efficiencies and desirable kinetic properties. Transition metal complexes are studied as iodide free redox shuttles in order to offset disadvantages of I<sup>-</sup>/I<sub>3</sub><sup>-</sup> such as high corrosion in the presence of metals and high absorptivity of blue light. Nickel(II) and Cobalt(II) PDTA (1,3-Diaminopropane-N,N,N',N'-tetraacetic acid) complexes were synthesized in an effort to test their effectiveness as redox mediators in DSCs. These complexes were characterized and tested by cyclic voltammetry (CV) in an attempt to determine redox potentials and compatibility in a DSC. The CV data so far suggest irreversibility. In addition, the compounds are highly soluble in water, but not acetonitrile, the preferred solvent for DSCs. The Papish group has also synthesized other transition metal complexes of CDTA and EDTA (both derivatives of PDTA) that are being investigated as potential redox mediators for DSCs.

9:20 a.m.

**PEDRAM MALEKNIA**

Department: Biological Sciences

Faculty Mentors: Ryan Earley and Cheng-Yu Li

Department: Biological Sciences

*Can Rivulus Fish See Through the Müller-Lyer Visual Illusion?*

Abstract: The correlation between interpreting visual illusions and the autism spectrum disorder (ASD) has been studied, dating back to 1996. These studies have shown that subjects with ASD are better at interpreting visual illusions and not be “fooled”. In mangrove rivulus fish, *Kryptolebias marmoratus*, previous studies have revealed that losing individuals behave more submissively, similar to autistic behavioral types. To determine whether mangrove rivulus fish might be an emerging model for autism research, we aim to assess the effects of social experience on behaviors that align more directly with autism - interpretations of visual illusions. We hypothesize that losing individuals will be less likely to be “fooled” by visual illusions than winning or control individuals.

To assess the interpretations of visual illusions, we first test whether rivulus fish can associate visual cues with rewards. Thirty mangrove rivulus fish will be challenged to learn the association between visual cues (a long line or a short line) and the location of the petri dish containing rewards (water and food). During the training phase, fish will be divided into two groups: one group is trained to associate the reward with the short line, and the other group is trained with the long line. After three training sessions, the positions of the short and long lines will be switched and both petri dishes will be empty. Fish will be tested to recall the location of rewards. Then we will test differences in abilities of distinguishing Müller-Lyer visual illusions among winner, loser and control individuals. To achieve this goal, we will replace the long and short lines with a visual illusion that makes it seem as if one line is longer than the other. We predicted the fish with losing experiences will have a better aptitude of distinguishing visual illusions than winners and control individuals.

9:40 a.m.

**NATHAN MONIZ**

Department: Biological Sciences

Faculty Mentors: Guy Caldwell and Kim Caldwell

Department: Biological Sciences

*Identifying Intrinsic Modulators of Neuronal Resilience in a C. elegans PD Model*

Abstract: The resiliency effect, whereby a subset of individuals within a population respond more favorably to stress than the rest of the population, has long been observed as a consistent, yet poorly understood phenomenon across living species. This study aims to identify the intrinsic molecular and cellular factors that modulate the protective effects toward a specific stressor: the toxic misfolding of the human  $\alpha$ -synuclein ( $\alpha$ -syn) protein, which is implicated in the degeneration of dopaminergic (DA) neurons in Parkinson's Disease. Prior published work from our group has demonstrated that predictable, age-dependent, dopaminergic neurodegeneration can be achieved in isogenic, clonal populations of the nematode *Caenorhabditis elegans* (*C. elegans*) by overexpressing  $\alpha$ -syn via an integrated transgene. Utilizing this model system, we hypothesize that genetic and epigenetic factors, along with downstream targets of these factors, can be discovered that underlie the resilience we observe in select animals that combat the stress of  $\alpha$ -syn more effectively than others. By using the Basal Slowing Response (BSR), a quantifiable behavioral readout based on the dopaminergic neuronal integrity and subsequent signaling, we have developed a trans-generational behavior enrichment scheme where individuals expressing the human wild-type  $\alpha$ -syn are selected for resilience from its induced proteotoxic stress. As *C. elegans* are hermaphrodites, by selective choice of self-propagating animals exhibiting a BSR more like wild-type across multiple generations, we are able to produce heritable enrichment that has been found to last through four or more generations. After this, it resets and resembles the defective BSR that individuals expressing  $\alpha$ -syn in the DA neurons characteristically exhibit. Alongside examining the neurodegeneration of DA neurons in strains of *C. elegans* over-expressing candidate neuro-protective genes, as well as strains under-expressing these same genes via depletion by double-stranded RNA interference (RNAi), a better understanding of the innate cellular mechanisms that resilient individuals employ to actively combat the proteotoxic stress of  $\alpha$ -syn in dopaminergic neurons can be ascertained. We envision these studies as laying the groundwork for identification of new classes of therapeutic strategies that focus on enhancement of overall stress responsiveness vs. correction of specific genetic defects, as is currently the most common strategy proposed for intervention.

# NATURAL SCIENCES AND MATHEMATICS

## POSTER PRESENTATION ABSTRACTS

**Poster Number: 301**

**JALEN CATES**

Department: Physics and Astronomy

**ANDREW STEWART**

Department: Chemistry

Faculty Mentor: Adam Hauser

Department: Physics and Astronomy

*The superconducting properties of YBa<sub>2</sub>Cu<sub>3</sub>O<sub>7</sub> samples minutely-doped with dysprosium*

Abstract: YBa<sub>2</sub>Cu<sub>3</sub>O<sub>7</sub> (YBCO), currently in use as a 2nd generation superconducting wire material, offers low energy loss over long distances when it is kept below its critical temperature (~90 K). These wires are particularly useful to mitigate power loss in high-power lines nearest to the power plants. Improvements in the critical temperature or critical current (the amount of current that can be conducted while maintaining the superconducting state) has been shown through doping of cation sites. Remarkably, Dysprosium doping of members of the cuprate family is rarely done, and in the few cases of YBCO-doping, the results indicate significant impurity states. Furthermore, dysprosium doping in the larger cuprate family is inconsistent, with some reports showing increased critical temperature and critical current, and others showing decreased critical temperature, but higher critical current. We will present initial results toward incorporation of dysprosium doping into YBCO powders and critical temperature measurement that will provide a path forward in the proposed work.

**Poster Number: 302**

**CLARE OLS**

**VANESSA MARSHALL**

**CHARLES PITSENERGER**

Department: Biological Sciences

Faculty Mentor: Jeffrey Lozier

Department: Biological Sciences

*DNA Barcoding as a Tool to Assess Pollinator Diversity in a Fragmented Landscape*

Abstract: Pollinators, particularly bees, are important parts of the global ecosystem. However, they are increasingly subject to anthropogenic threats such as habitat fragmentation, pesticide use, and the effects of climate change. Increased understanding of species composition, abundance, and community interactions of native bees is a critical tool in preserving pollinator populations. We examined how landscape variation affects local pollinator diversity at The University of Alabama's Arboretum (<https://arboretum.ua.edu/>). To evaluate diversity, pollinator specimens were collected using pan traps from the same 38 locations once a month from September 2015 until July 2016. Locations consisted of three unique habitat classes within the Arboretum—garden and native prairie, open weedy areas adjacent to native woodlands, and ornamental gardens with flowering shrubs and trees. Following collection, specimens were identified to species-level using a combination of morphological examination and “DNA barcode” sequencing. We examined patterns of alpha and beta diversity across sampling locations and over time. This examination of pollinator diversity over multiple spatial and temporal scales will aid in determining the best methods to improve pollinator habitats in the region and mediate threats to vulnerable pollinator populations.

**Poster Number: 303****JOSHUA GOBLE**

Department: Biological Sciences

Faculty Mentor: Dr. Kevin M. Kocot

Department: Biological Sciences

*The Biodiversity of Deep-Sea Icelandic Aplacophoran Molluscs*

Abstract: Aplacophorans are a group of small, worm-like animals that are closely related to snails and other molluscs. Aplacophora only has about 415 described species, but estimates indicate that there may be up to ten times as many species that have yet to be named. These animals are particularly difficult to study due to their small size, morphological similarity, and ecological niche restricted largely to the deep sea. As a result, only 5 labs worldwide study the taxonomy of this group, and its phylogeny has yet to be fully elucidated. Fortunately, the amount of available specimens has increased, and we are now capable of performing a large-scale phylogenetic analysis of mitochondrial gene sequence data for the purpose of developing a family tree that more accurately reflects the biodiversity and evolutionary relationships among species in this group. We took 75 specimens spanning the diversity of Aplacophora, imaged them using light and scanning electron microscopy, and developed a library of sequences from each for the mitochondrial COI gene. COI encodes a protein subunit that is essential for eukaryotic metabolism, and thus experiences mutations at a slower rate than most of the mitochondrial genome. Using these sequences and transcriptome data from select taxa spanning the diversity of Aplacophora, we inferred evolutionary relationships between genera in this group. Our results shed light on the phylogeny of Aplacophora, the utility of morphological characters traditionally used to classify this group, and provide a database of DNA barcode sequences for many different genera that can be used by future scientists specializing in other fields to identify unknown specimens.

**Poster Number: 304****LAKBIRA SHEFFIELD**

Department: Biological Sciences

Faculty Mentor: Stanislava Chtarbanova

Department: Biological Sciences

*Identification of Novel Factors in Age-Dependent Anti-Viral Innate Immunity*

Abstract: Elderly people are particularly vulnerable to infectious diseases, including viral infections, due to the age-related functional decline of both the innate and adaptive immune systems. Although considerable progress has been made in understanding how aging affects the adaptive immune system, much less is known about the role of aging on innate immunity, which is the first line of defense against infections. With its short lifespan and the presence of numerous genetic and genomic tools, the fruit fly, *Drosophila melanogaster*, represents an excellent model system to investigate age-dependent antiviral innate immune reactions. Previous studies have reported that infection of older flies with the Flock House Virus (FHV) leads to premature death in comparison with younger flies. We have very limited knowledge about the factors that contribute to age-dependent anti-viral defenses, and it is our goal to identify them using an in vivo genetic approach.

**Poster Number: 305****CARIS SMITH**

Department: Chemistry

Faculty Mentors: David Dixon and Monica Vasiliu

Department: Chemistry

*Computational Chemistry Studies of Modular Approaches to Contemporary Complexants for Separations*

Abstract: Closure of the nuclear fuel cycle is contingent on the development of effective separations processes for the selective removal of desired radionuclides from used nuclear fuel allowing for further transmutation. Liquid-liquid separation techniques involving multidentate, soft Lewis basic donors have demonstrated significant promise in recent decades. The goal of the current research is to understand the properties of the actinides/lanthanides and their complexation processes with a range of N-scaffolds. The core scaffolds represent frustrated Lewis base complexants. The C-N hybridization as well C-N bond length of the complexes can enhance the viability of complexant-based strategies for chemoselective actinide/lanthanide separations. Electronic structure calculations on these complexants and their actinide/lanthanide complexes are being used to determine the best sites for functional group interconversion to improve performance by predicting the complexation energetics. The geometries were optimized and frequencies were calculated using density functional theory (DFT) with the hybrid B3LYP exchange-correlation functional and DZVP2 basis sets for all atoms except for the actinides/lanthanides where Stuttgart effective

core potentials basis sets to deal with the effects of relativity for the actinides were used. The solvation free energies in water at 298 K were calculated using a self-consistent reaction field (SCRF) approach with the COSMO parameters. These calculations were done with the Gaussian program system. This work is supported in part by the Department of Energy.

**Poster Number: 306**

**TYLER MORGAN**

Department: Chemistry

Faculty Mentor: Silas Blackstock

Department: Chemistry

*Redox Switching of a Bis(Azobenzene)Amine*

Abstract: Azobenzene compounds exist in two isomeric forms: a thermodynamically favored trans and a less stable, higher energy cis structure. Photo-stimulation can be used to reversibly change between the two isomers, and thus azobenzenes can be utilized as molecular switches. The photoisomerization and lifetime effects of linking two azobenzenes to the amine redox center of methoxyaniline forming 4-methoxy-N,N-bis(4-(4-methoxyphenyl)diazinyl)phenyl)aniline are investigated. This bis(azobenzene)amine, BA, was synthesized by Buchwald-Hartwig Cross Coupling of 4-methoxyaniline and two equivalences of 1-(4-bromophenyl)-2-(4-methoxyphenyl)diazene. The photo-conversion to trans,cis and cis,cis BA forms will be presented as well as the thermal lifetimes of these species. Redox catalysis for fast and efficient cis-to-trans switching of both azo linkages will be reported.

**Poster Number: 307**

**CONNOR KIRKLAND**

Department: Geological Sciences

Faculty Mentor: Joe Lambert

Department: Geological Sciences

*Seasonal Growth of Speleothems in Northern Alabama Cave Systems: A Watch Plate Study*

Abstract: The overarching goal of this project is to answer whether stalagmite and stalactite growth is controlled by seasonal temperature variations. A two-year cave monitoring study at Cathedral Caverns State Park in Grant, Alabama where Speleothems are used as an invaluable tool for paleoclimate cave research. Speleothems are thought to primarily grow through precipitation, however, we believe calcite growth rates are controlled by annual changes in the temperature. The purpose of these bi-annual trips were to gather air samples, and to place/replace watch-plates on selected drip sites throughout the cave. By using sand-blasted glass watch plates, we created an artificial stalagmite cap to collect, then weigh precipitated calcite to establish a yearly rate of growth.

**Poster Number: 308**

**CHARLES WATTS-KERR**

Department: Biological Sciences

Faculty Mentor: Stephen Secor

Department: Biological Sciences

*Postfeeding Energetics of Centipedes*

Abstract: For our study of invertebrate energetics we are examining the pre- and post-feeding metabolic rates and specific dynamic action (SDA, cost of meal digestion) of the Vietnamese giant centipede, Scolopendra dehaani. It is a large species, reaching sizes of 20 centimeters, and while its native range is in southeast Asia, it has been introduced into many tropical areas. They are active predators, feeding on both invertebrate and vertebrate prey. We are interested in studying their standard metabolic rates, postfeeding metabolic rates, and SDA, and comparing them to those of other invertebrates. We used closed-system respirometry to quantify their metabolic rates while fasting and feeding at 30°C in order to determine the energy cost of digesting a cricket meal. We observed postfeeding metabolism peak at 6 hours post feeding, returning to SRM rates at 36 hours. We determined that centipedes exhibit SDA similar to that of other invertebrates.

**Poster Number: 309**

**AUSTIN WHITE**

Department: Biological Sciences

Faculty Mentor: Katrina Ramonell

Department: Biological Sciences

*The Characterization of Arabidopsis thaliana Fungal Pathogen Receptor-Like Kinase, PMRK1*

Abstract: With organisms constantly under attack from different pathogens, there is a molecular arms race for survival. For animals, the development of an adaptive immune system enables the animal to recognize recurring pathogens and have a systemic response. Plants do not have an adaptive immune system; instead one type of defense they utilize is broad- spectrum, innate immunity. With its innate immunity, plant cells are able to both recognize and respond to biomarkers of a foreign invader called pathogen-associated molecular patterns (PAMP's). Within the plasma membrane of the plant cell, Receptor-Like Kinases (RLK) recognize the PAMPs and trigger a resistance response. In a previous study, our laboratory identified a novel gene in Arabidopsis thaliana involved in fungal defense called Powdery Mildew Resistant Kinase 1 (PMRK1; Ray et al., 2018 in press). From this initial work, we have set out to further identify its precise function in plant defense. Using knock-out pmrk1 mutants, we observed that Arabidopsis was more susceptible to the fungal pathogen Golovinomyces cichoracearum (powdery mildew), supporting the hypothesis that PMRK1 is a critical component of the plant's innate immunity against fungal pathogens. PMRK1's protein function was found to be essential in the early stages of defense and critical to chitin-induced signaling, indicating that it is a PAMP Receptor-Like Kinase. Finally, using confocal imaging, we showed that PMRK1 is localized in the plant cell membrane. However, the detailed regulation of PMRK1's in plant resistance response is still unclear. Our current work focuses on using Western Blotting and an in-house global cDNA Library to identify candidate molecules that may interact with PMRK1 during the plant defense response.

**Poster Number: 310**

**ALYSSA KANDOW**

Department: Chemistry

Faculty Mentor: Jennifer Howeth

Department: Biological Sciences

*Effects of Zebra Mussel Invasion on Water Quality in Texas Reservoirs*

Abstract: The zebra mussel (*Dreissena polymorpha*) is an aquatic invasive species that was first introduced to North America via transcontinental shipping to the Great Lakes in 1988. In the introduced geographic range, the non-native species has had negative ecological and economic impacts through reducing plankton biomass from omnivory, and fouling boat hulls and water intake pipes. The introduced range of zebra mussels in North America continues to expand in the southwestern United States, yet the ecological effects of the non-native species in these reservoir ecosystems is unknown. The first zebra mussel infestation in Texas was discovered in 2009, and the mussels have since spread to invade numerous lakes throughout the state. Zebra mussels are efficient filter feeders which is thought to connect their colonization with changes in water quality. In this study, we analyzed the effect of zebra mussels on the water quality indicators transparency and chlorophyll a. Water column transparency and chlorophyll a were sampled in both invaded and uninvaded reservoirs in the summer of 2017. Additionally, a long-term analysis of transparency was performed using monitoring data 5 years before and after invasion for a subset of the surveyed reservoirs. There was a significant difference in transparency and chlorophyll a between invaded and uninvaded reservoirs. Invaded reservoirs had greater water column transparency and lower chlorophyll a. These differences are likely caused by effective filter feeding of zebra mussels reducing phytoplankton biomass. The results provide the first quantitative evidence that zebra mussel populations can significantly alter the water quality of southwestern reservoirs, and further highlight the need for invasion prevention and awareness in the southwestern United States.

**Poster Number: 311**

**CATHERINE OWENS**

Department: Chemistry

Faculty Mentors: Silas Blackstock and Ariel Kelley

Department: Chemistry

*Magnetic Anisotropy of Nitrosoarenes*

Abstract: The unique magnetic properties of the nitroso group (-N=O) are investigated through the synthesis and nuclear magnetic resonance (NMR) spectroscopic observation of 2-nitrosobiphenyl (1) and 1-nitrosonaphthalene (2). NMR was used to observe the large magnetic field effect of the nitroso group on the hydrogen's syn and anti to the nitroso group.

<sup>1</sup>H-NMR analysis of 1 shows the hydrogen syn to the nitroso oxygen to be very shielded, while the other aryl hydrogens on the ring are deshielded. 2 is currently being synthesized and characterized. B3LYP/6-31G\* <sup>1</sup>H-NMR calculations of 2 predict the hydrogen anti to the nitroso oxygen to be very deshielded (9.8 ppm) and the hydrogen syn to the nitroso oxygen is not very shielded (6.7 ppm). 2D NMR techniques such as COSY, HSQC, HMBC, and NOE are employed to accurately assign the hydrogens of 1 and 2.

**Poster Number: 312**

**LUCAS GLISSON**

Department: Biological Sciences

Faculty Mentor: Carla Atkinson

Department: Biological Sciences

*Impact of Temperature Gradients on Phosphorus Content of Mayflies in the Alaskan Tundra*

Abstract: The Arctic is anticipated to increase in average annual temperature more so than temperate or tropical regions in the Northern Hemisphere. As temperature increases in the Alaskan tundra, we hypothesize that organisms will have a higher phosphorus demand. This is implied by the Growth Rate Hypothesis as faster growth rates in organisms enhances rRNA production. The increased demand of rRNA requires phosphorus, thus an animal's tissue will reflect the higher amount of phosphorus storage needed for survival. The first part of the experiment included verifying the Growth Rate Hypothesis by placing *Baetis* spp. in growth chambers and observing their growth at varying elevations and temperatures. Once confirmed, the goal of our experiment was to test the hypothesis that rising temperatures in the Alaskan tundra will positively correlate with an increased proportion phosphorus these organisms require. In this experiment, stream-dwelling mayflies (*Baetis* spp.) were collected in small streams ranging from 300-900 meters in elevation with lower temperatures found at higher elevations. The mayflies were dried at the field station and brought back to the lab for particulate phosphorus analysis. The increasing importance of phosphorus demand in these organisms are presenting some of the life history constraints brought on by climate change. These findings will provide evidence towards how rising global temperatures are affecting one of the world's most sensitive biome to anticipated climate change.

**Poster Number: 313**

**TAYLOR PERKINS**

Department: Chemistry

Faculty Mentor: Carolyn Cassidy

Department: Chemistry

*Influencing Charge State Distribution of Biological Peptides in Electrospray Ionization Mass Spectrometry Using Chromium (III) Nitrate*

Abstract: Living organisms synthesize millions of structurally diverse proteins to execute critical roles in metabolism, immune response, respiration, transport and storage. Primary structural determination is integral in understanding the mechanisms by which proteins carry out their diverse and vital roles within living organisms. Mass Spectrometry is a technique commonly applied to analyze biological molecules such as peptides and proteins. This technique employs mass analysis to characterize peptides, which are small amino acid chains that compose proteins.

In order to use mass spectrometry to analyze molecules, these molecules must become charged. Peptides can acquire positive charges via protonation, metal adduction, or derivatizations that append a fixed charge. For large peptides and proteins, high charge states are desired to force ions into a lower mass-to-charge region, increase fragmentation, and improve mass accuracy obtained.

This work focuses on the protonation of biological peptides during electrospray ionization (ESI) for analysis in the positive ion mode. Our group has previously demonstrated that the addition of Cr(NO<sub>3</sub>)<sub>3</sub> can promote multiple protonation during electrospray ionization of heptalaanine (A7). The goal of this work is to investigate the effects of Cr(NO<sub>3</sub>)<sub>3</sub> on the protonation state of biological peptides after electrospray ionization.

The set of twenty biological peptides for this study was chosen to possess structural diversity in size, sequence and covalent modifications. Solutions of these peptides will be prepared at with varying molar ratios of Cr(NO<sub>3</sub>)<sub>3</sub> added, then subjected to electrospray ionization. The spectra obtained were analyzed seeking to understand the mechanism by which chromium nitrate promotes protonation and potential sample preparation methods for native sample analysis.

The results obtained suggest that the addition of Cr(NO<sub>3</sub>)<sub>3</sub> can alter the charge state distribution obtained for peptides that form primarily singly or doubly protonated ions. This presentation addresses various findings of this study and their implications.

**Poster Number: 314**

**BLAIR MORRISON**

Department: Biological Sciences

Faculty Mentor: Ryan Earley

Department: Biological Sciences

*Green Invaders: Life Stages of the European Green Crab (Carcinus maenas) in Southern Maine*

Abstract: The European green crab (*Carcinus maenas*) is an invasive shore crab established in Maine's coastal estuaries. The proliferation of the green crab is tied to significant declines in Maine's commercial soft-shelled clam fishery—a 15-million-dollar industry. Despite its overwhelming impact on estuaries, little is known about the species' autecology outside of its native range. To better understand the life history of the green crab in southern Maine, a 3-pronged approach was used to target specific aspects of green crab reproduction: size-of-maturity, timing of reproductive events, and survivorship of zoea under low pH conditions. Carapace widths of gravid females from local populations were measured and compiled (average: 52.54 mm). Zoea from an archival time series were identified to determine the timing of *Carcinus* hatchings; four spawning events were noted. Zoea were hatched to test acute effects of low pH on mortality and phototaxis; low pH conditions yielded higher survivorship and phototoxic rates than control pH conditions. Overall, preliminary results indicate that local green crabs have an early size of maturity, punctuated spawning events, and larvae that are resilient to low pH. Therefore, green crabs are a continued threat to local and global coastal communities, especially as coastal waters warm and acidify.

**Poster Number: 315**

**ALLISON CUMMINS**

Department: Biological Sciences

Faculty Mentor: Stanislava Chtarbanova

Department: Biological Sciences

*Involvement of the Receptor Croquemort in Bacterial Phagocytosis by Glial Cells in the Brain of Drosophila melanogaster*

Abstract: The molecular mechanisms of innate immunity are conserved from flies to humans. However, still little is known with regard to how pathogens are recognized and eliminated following brain infection. It has been previously reported that *Drosophila* Croquemort (Crq), which is related to the human CD36 family of scavenger proteins, acts as a phagocytic receptor on macrophages in clearance of apoptotic cell material during *Drosophila* development. Additionally, Crq has been shown to be involved in the elimination of bacteria via phagocytosis in adult flies, with crq deficient flies exhibiting a decreased lifespan and higher susceptibility to various microbial infections. Here we present preliminary data supporting that Crq also plays a role in bacterial clearance within the fly brain when the tissue is exposed to the bacterium *Escherichia coli*. By using genetic and confocal microscopy techniques we were able to identify the cell type within this tissue that is responsible for engulfing bacteria and also show that this process is mediated by Crq.

Better understanding of how the innate immune system works within the fly brain would be a key step in further understanding the mechanisms in the human brain that, when dysregulated, lead to age related diseases such as Parkinson's and Alzheimer's that are becoming ever more prevalent as human populations continue to live longer.

**Poster Number: 316**

**CHRISTOPHER MCCULLERS**

Department: Engineering - Chemical and Biological

Faculty Mentor: John Yoder

Department: Biological Sciences

*Expression Level Regulation of Transcription Factor Dsx and Hox Protein Abd-B in Drosophila melanogaster Embryo*

Abstract: Hox proteins control regional development identity in multicellular animals. In *Drosophila melanogaster*, Abdominal-B (Abd-B) is the most posteriorly expressed Hox protein and is expressed at different levels in a posterior to anterior gradient from the fruit fly's abdominal segments A7 to A4. The Yoder lab has shown the Abd-B protein activates expression of a transcription factor, Doublesex (Dsx), by directly binding to specific enhancers. Enhancers are stretches of DNA associated with individual genes that control when, and in what cells, a gene is expressed. Gene expression involves making a mobile copy of a gene, mRNA, that serves as instruction for synthesizing proteins. Some of these proteins are transcription factors, which bind to specific DNA sequences to control the rate of mRNA synthesis, and thus the rate of certain proteins' production. Dsx encodes the founding member of a deeply conserved transcription factor family that promotes sexual differentiation. Dsx generates sex-specific isoforms that control somatic sexual identity. The Dsx protein

expression is sexually dimorphic and is alternatively spiced to form male and female isoforms (Dsxm and Dsxf). Dsx is believed to regulate Abd-B and itself, by enhancing both expression levels in the male isoform and repressing both levels in the female isoform. Our lab has already shown Dsx is enriched in male A7 compared to female A7 approximately 1.5 fold (Wang and Yoder, 2012). Our lab seeks to test whether the Dsx isoforms control expression levels of Abd-B and Dsx in this same pattern in the fly embryo. To test this, our lab will create different transgenic fly lines using the gal4 uas driver system to drive expression of both Dsx isoforms where certain proteins of known regional identity are expressed. We will collect and antibody stain embryos from these transgenic lines, allowing us to visually and systematically compare the expression levels among Dsx isoforms and Abd-B. We expect to see the same pattern of expression in the fly embryo as in the adult.

**Poster Number: 317**

**ALAA ABUSAAD**

Department: Geological Sciences

Faculty Mentor: Marcello Minzoni

Department: Geological Sciences

*Constructing synthetic seismic images of Cambrian microbialite exposures in Mason, Texas to Aid Exploration of the Jurassic Smackover in the Gulf of Mexico*

Abstract: The Jurassic Smackover Formation is an extensive carbonate ramp that is located in the Gulf of Mexico. Resting above the Norphlet Formation, the Smackover resulted from a transgressive-regressive interval which resulted in the formation of microbial carbonate buildups. The Smackover is an unconventional play. It is laterally sourced and has two main reservoir facies: microbial thrombolite and oolitic grainstone. The trap is stratigraphic and it is sealed by the Buckner Anhydrite Formation. The Smackover has proven to be a prolific source for hydrocarbons and continues to be analyzed and explored today.

**Poster Number: 318**

**LANEY BRAGER**

Department: Geography

Faculty Mentor: Justin Hart

Department: Geography

*Drought-induced growth response of longleaf pine in the Alabama Line Hills*

Abstract: Historic forest management reduced unique longleaf pine forest ecosystems to 5% of their original extent. Current practices are attempting to restore and manage ecosystems by optimizing forest resiliency to disturbance events. However, the factors influencing longleaf pine forest resiliency are understudied. To help fill this gap, we studied the effects of the exceptional 2007 drought on the productivity (growth) of longleaf pine in the Alabama Fall Line Hills.

Tree productivity was determined by calculating the Basal Area Increment (BAI) from tree core samples of 60 longleaf pines. Tree cores were collected from longleaf pine trees occurring on two different sites: a thinned (lower tree density) site that favors longleaf pine growth and an un-thinned (higher tree density) site. The Palmer Drought Severity Index (PDSI) was used for climate data. PDSI was used to quantify long-term climate effects on tree productivity from the years 1980-2016. Longleaf pine drought response and recovery time were tested based on site condition and age.

The drought resulted in a 42% precipitation reduction from the previous 30-year average. There were no significant ( $p > 0.05$ ) differences in growth reduction or recovery time among individuals occurring on the thinned and un-thinned sites, or among older ( $\leq 71$ -year-old) and younger ( $> 71$ -year-old) individuals. There was a significant positive correlation ( $p < 0.05$ ) between BAI and PDSI in July, August, September, and the previous November. These findings show that site condition and age did not affect radial growth response as we initially hypothesized.

In order to support optimal management strategies, more research should be done to investigate other possible factors that influence drought response in longleaf pine forests, including microclimatic site conditions and temporal variability of drought.

**Poster Number: 319**

**ALEXANDER SHAVER**

Department: Chemistry

Faculty Mentor: Stephen Woski

Department: Chemistry

*Cyanocarbazole Derivatives as Universal Bases*

Abstract: The natural variation and degeneracy of the genetic code often complicates the design of functional oligonucleotide primers and hybridization probes. The design of these important biological tools can be facilitated with the realization of a stable and indiscriminate base analogue. When incorporated into DNA, such a universal base should pair non-selectively with any of the natural bases, should not destabilize the double helix structure, and should ideally maintain functionality as a substrate for DNA polymerases. We describe efforts toward the synthesis of four new N-2-deoxyribonucleosides: 3-cyanocarbazole, 3,6-dicyanocarbazole, 2-cyanocarbazole, and 2,7-dicyanocarbazole. We hypothesize that the residues with largest dipole moments will behave as superior universal bases. This will be evaluated by incorporation of these novel nucleosides into synthetic DNA strands and examination of their stability when duplexed with complementary DNA strands.

**Poster Number: 320**

**RACHEL RIDGWAY**

Department: Chemistry

Faculty Mentor: Silas Blackstock

Department: Chemistry

*Redox-Auxiliary Catalysis of bicyclo[3.2.0]heptene ring-openings*

Abstract: The thermal ring opening of ring-fused bicyclo[3.2.0]hept-6-ene to 1,3-cycloheptadiene proceeds very slowly and requires high temperatures because geometric constraints force a thermally forbidden conrotatory ring-opening. We propose that attaching an aryl amino redox-auxiliary group to the skeleton of the bicyclo[3.2.0]hept-6-ene will allow a fast ring-opening reaction at room temperature by catalytic electron loss/gain. Reversible isomerizations such as this can be applied in the design of nano-mechanical molecular switches.

**Poster Number: 321**

**HOPE BURNHAM**

Department: Chemistry

Faculty Mentor: Shane Street and Matthew Confer

Department: Chemistry

*A Raman Investigation of Ammonia Borane Thermal Decomposition*

Abstract: Ammonia borane (AB) has been a compound of interest since the 1960's due to its large percent of hydrogen by weight. AB is approximately 19 wt% hydrogen and is a relatively stable solid at room temperature, therefore it is being studied for use as a chemical hydrogen storage material. Another possible use for AB is as a regenerable energy cell, in which the hydrogen is used to power a system and then reattached to the molecule. A detailed understanding of the degradation of the product will facilitate development of an improved regeneration method. The purpose of this investigation was to use raman spectroscopy to track the thermal decomposition of ammonia borane. Raman spectroscopy of AB thermal degradation products has previously been performed, however, these products were exposed to atmosphere during spectrum acquisition. In our investigation the raman spectra were acquired under inert gas because the products react with water. Infrared (IR) spectroscopy has been used in the past to study AB materials. Raman and IR spectroscopies are complimentary; between these two vibrational spectroscopies, all active modes can be seen. Raman spectra of the decomposition materials were acquired as a function of temperature and time. These raman spectra were then compared to previous results, including computationally determined raman spectra. This work provides another method for determining the products of AB thermal degradation with respect to temperature and time by combining in situ raman spectroscopy, computational chemistry, and data analysis.

**Poster Number: 322****LAUREN COOK**

Department: Biological Sciences

Faculty Mentors: Kim Caldwell and Guy Caldwell

Department: Biological Sciences

*Gene-by-Environmental activation of DAF-7/TGF- $\beta$  signaling in response to exposure to a noxious stimulus in a C. elegans model of Parkinson's Disease*

Abstract: Characterized mainly by the loss of dopaminergic neurons within the brain, Parkinson's Disease (PD) is the second most common neurodegenerative disorder. Although 5-10% of Parkinson's cases have been directly linked to genetic origins, PD is still largely considered an idiopathic disease. One potential risk factor appears to be living in a rural environment; as this is often correlated with exposure to pesticides, increased contact with soil, and drinking well water. *Caenorhabditis elegans* (*C. elegans*), a microscopic nematode with relatively simple neuronal circuitry, has proven incredibly valuable as a model for Parkinson's disease and the overall study of neurodegeneration. Previous projects performed by our lab have identified and studied the potential link between a secondary metabolite produced by the common soil bacterium *Streptomyces venezuelae* (*S.ven*) and neurodegeneration. It was also observed by our lab that the DAF-7/TGF- $\beta$  molecular signaling pathway which controls an avoidance behavior in *C. elegans* is triggered by the *S. ven* metabolite. To further study the mechanisms behind the effects of the *S. ven* metabolite, we have been studying the details of the avoidance behavior through a specific assay. The behavioral assay depends on the fact that the worms normally stay centered on bacterial lawns, which serve as their source of nutrition when growing on petri dishes in the lab, but will avoid either pathogenic bacteria or normal innocuous bacteria when it has been mixed with the noxious stimulus. *C. elegans*, which is the only animal to have had its complete neuronal circuitry mapped and defined, affords the possibility to link behavior to individual neurons. This, in turn, enables unprecedented accuracy in quantifying cell-specific effects. Therefore, we have been looking at the neuronal circuitry that contains the chemosensory ASI and ASJ neurons which control avoidance. The ASI and ASJ neurons are where the activation of the DAF-7/TGF- $\beta$  signaling pathway begins and have been labeled with a fluorescent indicator, green fluorescent protein (GFP) in our *C. elegans* strain. This fluorescence becomes brighter when the neurons are activated. Using this marker, we are able to quantify the degree of brightness through measuring pixel intensity. Thus, we can quantify the degree of activation of the signaling pathway in response to the *S. ven* metabolite exposure. Through these studies, we hope to uncover a mechanistic relationship between an evolutionarily-conserved genetic pathway linked to neurobehavior and an environmental component that may alter the balance of neuronal activity as it pertains to PD and those in rural areas more exposed to such factors.

**Poster Number: 323****CONNOR MEYERS**

Department: Chemistry

Faculty Mentor: Silas Blackstock

*Redox auxiliary mediated Z->E switching of a stable cis azobenzene*

Abstract: Unsubstituted azobenzene possesses a Z-isomer thermal half-life of ca. 2 days, while many of its derivatives possess Z-isomer half-lives on the order of hours or minutes. Bleger, Schwarz, Brouwer, and Hecht reported that introducing ortho-fluorine atoms to the azobenzene core structure drastically increases the thermal stability of the Z-isomer. When an easily oxidized aryl amine "redox auxiliary" is attached to ortho-fluoro-azobenzene, a compound with an unusually long Z-isomer half-life is reported ( $t_{1/2} \sim 20$  days). The addition of a catalytic amount of oxidant results in a thermal Z->E rate acceleration that yields catalytic and quantitative Z->E conversion upon mixing. The details of the photo-electro switching of this azobenzene will be reported.

# SOCIAL SCIENCES

## ORAL PRESENTATION ABSTRACTS

**9:00 a.m.**

**MARUKA WALKER**

Department: History

Faculty Mentor: John Giggie

Department: History

*Hidden Figures: The Women Behind the Montgomery Bus Boycott (The Case of Jo Ann Robinson)*

Abstract: This oral presentation will investigate the role of black women in the origins of the Montgomery Bus Boycott. Unlike most scholars, I will argue that black women and especially Jo Ann Robinson were central to the unfolding of the boycott. The case of Robinson illustrated the efforts of black women in combating discrimination in Montgomery prior to Rosa Parks' refusal to give up her seat on December 1st, 1955. Robinson's work in negotiating with city officials and publicizing the boycott exemplify the value of the Women's Political Council as a catalyst and driving force in creating structures which helped sustain the Montgomery Bus Boycott. This presentation is designed to illuminate the hidden role of black women in the movement. Robinson demonstrates how limitations and obstacles due to race and gender sometimes forced black women to operate in a narrow scope, often behind the scenes.

**9:20 a.m.**

**JOHN DENTON**

Department: Modern Languages and Classics

Faculty Mentor: Bronwen Lichtenstein

Department: Criminology and Criminal Justice

*Accept or Decline?: Deciding Factors in a Voluntary HIV Testing Program for Probationers and Parolees*

Abstract: Introduction: HIV in the United States is concentrated in the South, where mass incarceration of African-Americans and lack of sexual education worsen the epidemic. Probationers and parolees are at higher risk for infection because they may engage in high-risk behavior while forgoing testing and education programs offered in Alabama prisons.

Purpose: My presentation focuses on HIV education and testing of community-based offenders. I will describe my role as an HIV education and testing advocate at a probation and parole office, where I conducted research on HIV testing intake among these correctional populations.

Methods: I attended the county parole office on three testing days per month over two semesters. The program offers a \$10 gift card for being tested, and I sought to determine if this was the primary incentive for accepting a test. After eliciting reasons for people's acceptances or refusals, I logged their responses, categorized them by type, and analyzed the results.

Results: Of the 2,276 offenders present during the data collection period, 25% volunteered to be tested. Reasons for accepting centered on wanting to know their HIV status (46.5%) and the gift card (44.2%). Of the 75% of offenders who declined testing, reasons included recently being tested for HIV (34.2%), not having enough time (20.9%), fear or distrust (11.8%) and perceptions of not being at risk for HIV infection (9%). Almost one-fourth (24.1%) of people who refused the test also refused to give a reason beyond a firm "no" or shake of their head.

Conclusions: An intake rate of 25% with opt-in testing is encouraging for HIV prevention efforts in community corrections. Strong responses to the monetary incentive suggest that opt-in testing in this environment requires cash incentives to achieve acceptable intake rates. This study helps to set groundwork for similar programs in correctional facilities across the US.

**9:40 a.m.**

**KYLIE HOPKINS**

Department: Biological Sciences

Faculty Mentor: Bronwen Lichtenstein

Department: Criminology and Criminal Justice

*Is Divorce Fair?: The Gendered Dynamics of Property Disposition*

Abstract: Splitting property in divorce proceedings often includes awarding of the marital residence. This study focused on the gendered outcomes of property dispositions. I strove to understand who receives the house in a divorce settlement, and discern if there are general advantages or disadvantages according to gender. I used the public access computer in the Domestic Relations office of the Tuscaloosa County Courthouse to view full divorce files, and I then recorded the data in a spreadsheet, consisting of demographic information about each couple, as well as who filed for divorce, and who had the highest income at the time of divorce. I compared this data to who actually received ownership of the property. The results showed that women are less likely to receive the house than men, even when children are involved. Women are also more likely to be the one filing for divorce, yet do not usually win the property even if they want it. These data can be used to identify the gender disparities within property dispositions, and to illuminate how the law itself discourages a “fair and equitable” division of the marital property. Although judges cannot reach outside their legal bounds, they can recognize the general disadvantage of women in divorce cases, and use this knowledge when making their decisions.

**10:00 a.m.**

**KATY ANN THAXTON**

Department: History

Faculty Mentor: Lesley Gordon (History)

*The Conflicting Views on Andrew Jackson*

For my honors history thesis I will be analyzing the opposing views of contemporaries and historians about Andrew Jackson's presidency and character. I will be drawing upon letters and documents written by Jackson, his political allies, family friends, and the people who despised him. I will also be studying the opinions of modern historians who have analyzed Jackson and have found him to be a great president and those who have found his presidency to be harmful to the nation.

# SOCIAL SCIENCES

## POSTER PRESENTATION ABSTRACTS

**Poster Number: 201**

**CLAIRE MANDERFIELD**

Department: Psychology  
Faculty Mentor: Joan Barth  
Department: ISSR

*Gender Role Norms in High School Girls' Social Groups and STEM Interest*

Abstract: The gender gap in Science, Technology, Engineering, and Mathematics (STEM) careers is well documented. While many factors contribute to girls relatively low interest in STEM, the influence of friends and peers on a girl's future career decision is not well documented. The present study will examine gender role conformity in high school girls and their peer groups to see if it plays a role in determining whether a girl pursues a STEM career in higher education and in career interests. The study examined three hypotheses: H1) Girls who endorse less traditional gender stereotypes are more likely to be interested in STEM careers; H2) Girls with higher interest in STEM belong to groups that are less likely to conform to traditional gender roles; H3) Girls who are enrolled in STEM classes and have less gender role conflict across friend groups will have higher interest in STEM careers. Female participants (N=69) were recruited from central Alabama high schools who were enrolled in advanced math and science classes. Data was collected through an online survey and the results were analyzed using correlations and a regression. Results indicated various amounts of support for each hypothesis: H1 was supported in that girls who endorsed less traditional gender stereotypes were more interested in STEM careers; H2 was partially supported in girls with higher interest in STEM was related to their friend's gender stereotypes, but not other peer group's gender stereotypes; H3 was not supported as participant's friend's gender stereotypes were related to interest in STEM regardless of the participants own beliefs. In conclusion, the results suggests that girls are more likely to be interested in STEM, and thus pursue careers in the field, if their friends do not hold traditional gender stereotypes.

**Poster Number: 202**

**GRACIE SMITH**

Department: Political Science  
Faculty Mentor: Allen Linken  
Department: Political Science

*The Modern Major General*

Abstract: Previous literature has identified a growing gap between between the characteristics, attitudes, and beliefs of military and civilian society. The purpose of this project was to more closely identify these differences, specifically in terms of status relative to the poverty line. Data from the 5-year (2011-2015) American Community Survey public-use file was used to examine Supplemental Nutrition Assistance Program (SNAP) use by military service status: active duty personnel, veterans, reserve/guard members, and civilian non-service members. The results of this study can be used to further evaluate policies that may impact demographic representation in the military such as Don't Ask, Don't Tell, female Soldiers and Sailors on the front lines and on submarines, and most recently, the proposed ban on transgender service members.

**Poster Number: 203**

**CHARLOTTE MCRAE**

Department: New College

**ALEXANDRA THOMASSON**

Department: Psychology  
Faculty Mentor: Beverly Roskos  
Department: Psychology

*Drawings of Hope*

Abstract: The importance of creativity in developing children has been deemed paramount, however very little is known concerning how creativity is affected by a child's environment. In addition, the social contexts of an adolescent's life are thought

to influence their ideas of hopefulness and subsequently, their risk factors for crime and addictive behaviors. Therefore, this study aims to investigate how the social and physical environment of a child can affect their conceptions of hopefulness. This study will utilize the Substance Use Decision Study data (SUDS) which were collected from students, comprised mostly of low socioeconomic African-Americans between the ages of ten and twelve, who had participated in the Mobile Youth and Poverty Study. Approximately 500 students and their parent(s)/guardian(s) participated in this study. The parent/guardian was asked questions about their family structure, income, and demographic factors (questions concerning number of parental figures in the home, number of children supported by the parent/guardian, and the education of the parent/guardian). Then the students were asked to illustrate what 'Hope' signified to them and write an explanation. Students were not guided in the drawing process outside of this one prompter. This data was collected to look for risk factors of crime and addictive behavior in the students. The hope drawings will be qualitatively categorized by theme; then, they will be quantitatively coded using the four creativity descriptors of Guilford's creativity model. As such, their drawings will be evaluated based on the number of items drawn (fluency), the different types of items drawn (flexibility), their originality, and their elaboration. By coding overt behavior, we hope to find notable connections between aspects of a child's environment and how they depict hope. Once all drawings have been evaluated we will use correlation and regression models to determine if the social constructs can be used to predict certain themes and see how these predictions correlate with creativity. This study looks for connections between the social context of where a child lives—their social environment, demographics, family structure, income, hopefulness—and the themes and creativity of their drawings of hopefulness.

**Poster Number: 204**

**JULIA SPONHOLTZ**

Department: Anthropology

Faculty Mentor: Christopher Lynn

Department: Anthropology

*Keeping the Home Fires Burning: The Impact of Sociability on Fireside Relaxation*

Abstract: Fire is a defining part of human development and evolution. Not only was it important in expanding the variety of food we could eat, research by Lynn et al. among others suggests that sitting around a fire may have helped our ancestors to develop prosocial behavior and group cohesiveness by providing a relaxing place for people to consistently interact. It is even hypothesized that human language evolved around the fire. With this in mind, for this study we tested how fire affects participants' relaxation levels under varying conditions with a focus on their sociability and absorbance. To test relaxation levels, we recorded participants' skin conductance and heart rate while they watched a picture of a fire, a video of a fire, an upside down fire, and a blank screen, with and without sounds of fire. We also collected demographic and personality questions to determine if there were any covariables affecting participants' responses to the fire, such as susceptibility to absorbance and sociability. Our results show that participants were more relaxed in response to fire, which supports our central hypothesis. Also, those that scored higher in sociability also had lower systolic blood pressures, which supports our hypothesis for this study that social interaction and group bonding occurred around and were facilitated by fire.

**Poster Number: 205**

**HANNA BENKHRABA**

**ERIN MCNEIL**

Department: Criminology and Criminal Justice

Faculty Mentor: Diana Dolliver

Department: Criminology and Criminal Justice

*Anonymity and TOR: Weapons Trade on the Darknet*

Abstract: Though TOR, otherwise known as the Onion Router, has been around since 2002, it remains largely in the shadows of the research world despite its increase in usage. As criminologists, we hypothesized that, due to the sense of safety and security that anonymity provides an individual, illegal activity, particularly weapons trafficking, would be common on the darknet. Our project focused on the AlphaBay international marketplace, the darknet equivalent of the clearnet's eBay. We wanted to know what types of weaponry was being sold, from where, for what price, and in what quantity. We also were interested in learning about the way that these products were advertised by vendors. To achieve these goals, we utilized a web crawler, which allowed us to capture a web scraping from AlphaBay. The data from the scraping was cleaned and coded to yield a catalog of all weapons postings on the site at the time of the crawl.

**Poster Number: 206**

**ABIGAIL KAPPELMAN**

Department: Political Science

Faculty Mentor: Jacqueline Morgan

Department: Political Science

*Cuba's Response to Zika: How a Socialist Island Nation Avoided The Biggest Disease Outbreak of 2015*

Abstract: Zika virus is an infectious disease that became prevalent throughout the Western hemisphere in early 2015. Zika is transmitted by the Aedes mosquito species, Aedes aegypti, which lives primarily in urban slums. Zika has also been shown to be sexually transmitted. Though Zika appears clinically as a mild fever in adults (a much less severe disease than that of its closely related cousins, dengue and chikungunya), in pregnant women the disease can manifest as severe congenital birth defects including microcephaly, making the long-term impact of Zika on national medical systems and productivity potentially severe. For this reason, it is essential that methods to prevent Zika are discovered. Due the suddenness and severity of the Zika epidemic through the Western hemisphere and Latin America, the WHO in 2016 declared Zika a Public Health Emergency of International Concern. Interestingly, however, Cuba was not affected by Zika in the same way as its Latin American neighbors. My past research on the prevalence of Zika in Latin America focused on my hypothesis that directing funding against Zika through existing channels and health systems for dengue, malaria, and HIV would be the most effective and efficient method to combat Zika, due to its biological and sociological similarities to those three diseases. Cuba is known for having exceptionally strong preventative health systems for these same diseases. I predict the main reason for Cuba's success in combating Zika is this nation's ability to capitalize on existing systems and modify and direct them against the new disease. I explore how Cuba's society and style of government contributed to their success in combating Zika. Finally, if my recommendations on methods to combat Zika (i.e., modeling a response based on health plans that effectively combat dengue, etc.) prove to be responsible for Cuba's success, this model provides strong support for my predictive research conducted in 2016.

**Poster Number: 207**

**ROXANNA HARE**

**COURTNEY DIEBOLD**

**JACK SCHWARZ**

**JULIANNA BOSKUS**

Department: Psychology

Faculty Mentors: Jessica Mendoza and Beverly Roskos

Department: Psychology

*Perceiving Nuances and Punctuation from Online Textual Communications*

Abstract: This study aims to investigate how the use of punctuation (i.e., exclamation points and periods) can influence the perception of the sender of an email in a professional setting. The importance of this study is aimed at understanding communication that takes place in online settings. Often times when communicating online, individuals lack the benefits of using the tone of voice and other non-verbal behaviors to establish a good first impression. This is critical when the context of communicating online bears no room for the use of emoticons or repeated letters to convey a positive impression (i.e., work emails or emails sent to professors). The study will recruit from a sample of college students at The University of Alabama. Participants will be presented with a scenario in which they are reading an email that is sent by a fictitious person with a gender neutral name and the person is looking to set up an interview for a job position. Participants will be randomly assigned to one of the following conditions: Condition 1; where the reader will receive a message in which the sender is using exclamation points or Condition 2; where the reader will receive a message in which the sender uses only the period. Specifically, we predict that the use of an exclamation point in the message will increase the reader's ratings on trustworthiness, approachability, and the likelihood of wanting to meet with the sender of the message in person. Participants will also be asked to rate if they believed the sender of the message gave off either a positive or negative impression. Past research has found in casual settings (i.e., texting), the use of a period is often times interpreted as being insincere (Houghton, Upadhayay, Klin, 2017). Another study has found that the use of exclamation points results in the readers perceiving the message more positively than when using periods (Mendoza, 2016). Researchers predict that those who are in Condition 1 will report higher scores on the dependent measures of trustworthiness and approachability. It is also predicted that those in Condition 1 will show a greater likelihood of wanting to meet the sender of the message in person. Finally, those who read messages in Condition 1 will report the sender of the message as more positive than those who read the message in Condition 2. Researchers believe that the conclusions of the findings will help anyone looking to make a good impression online use exclamation points to their advantage.

**Poster Number: 208**

**TONI REBALDO**

Department: Psychology

Faculty Mentor: Beverly Roskos

Department: Psychology

*Wayfinding: Navigation in an Outdoor Environment*

Abstract: Previous research on human navigation to two or more destinations (Fu, Bravo, & Roskos, 2015) has revealed a relationship between the choice of route to the first destination and the location of a secondary destination. Given two routes equivalent in length to the first destination, people are more likely to pursue the route that is in the direction of the second destination. This relationship has been termed the later-destination attractor bias and can be applied to predict route choice when there are multiple consecutive destinations. This bias has been tested in small scale environments such as a large conference room as well as in both virtual small- and large-scale environments such as a virtual conference room and in a downtown area. This bias has not been tested in actual large outdoor environments. With this study the investigators aim to understand (a) if the later-destination bias is applicable in outdoor environments, and (b) whether the size/shape of buildings in the environment bias navigation differently. Forty students from a PY 101 class will have participated in the experiment. We expect to collect data during March. One group of participants will navigate around Clark Hall (narrow building), the other group will navigate around Woods Hall (wide building). After signing consent form, the participants in each group will be shown a map of two destinations. The first destination is always directly on the other side of the building. The second destination is either left, center, or right of the starting location. Researchers will record the paths taken by participants (left/right side of the building) to and from the destinations. Participants will complete the trial nine times—three times for each second-destination location. We will calculate the percentage of times participants walked around the right side of the building for each location. If the later-destination attractor bias is in effect, then as the location of the destination changes from left to center to right, the percentage of times participants take the right-side path should increase. We will conduct tests for each building separately and then combined. After examination, the study may reveal that the later-destination attractor bias is influential in determining navigation routes in outdoor environments. This study is important because it is important to know what paths people take naturally when evaluating evacuation routes in disaster situations.

**Poster Number: 209**

**JORDAN BOLLING**

Department: Biological Sciences

Faculty Mentor: Ian McDonough

Department: Psychology

*Transcranial Direct Current Stimulation with Language and Memory*

Abstract: Memory is the ability to encode, store, and retrieve information, which is critical for learning a foreign language. While children acquire new languages relatively easily, learning a new language as an adult is quite difficult. Thus, research is needed to understand how adult language learning occurs and how to facilitate this process. Most studies investigating the neural correlates of novel language acquisition use correlational techniques like EEG or fMRI. However, because these techniques are correlational, it is not clear whether the brain regions implicated in those studies is necessary for encoding, storing, and/or retrieving foreign language words. A non-invasive procedure called Transcranial Direct Current Stimulation (tDCS) uses electrodes to send low intensity electrical currents through regions of the brain, modulating brain activity. The present study aims to use this technique to gain causal inference as to which brain regions are involved in foreign language learning and, in the process, learn how to improve language acquisition. This study contains three phases- two study phases, and one testing phase- each 24 hours apart. During the study phases, participants will receive 20 minutes of stimulation at one of three placement sites (F3, P3, or T3) and given an additional 20 minutes to learn a set of English-Swahili word pairs. During the testing phase, subjects will be given a cued-recall test, where the Swahili word is provided, and participants type the English equivalent. We hypothesize that, overall, participants who receive tDCS will have higher retention levels than those who receive the placebo. We will analyze the results using a 3 (Brain Region) x 2 (Stimulation Type) ANOVA with 10 participants per condition. We expect that a comparison of the different groups will shed light on the main cognitive processes and physiological areas of the brain involved with learning a new language as an adult.

**Poster Number: 210**

**MADYSON POTTER**

Department: Psychology

**ALEXA TOMLAK**

Department: Biological Sciences

Faculty Mentor: Beverly Roskos

Department: Psychology

*Relations Among Video Game Training, Gender, and Spatial Skills*

Abstract: This study investigates the effect playing digital games can have on improving spatial and mathematical skills. Studies have shown that mathematical literacy at an early age is critical primarily because it predicts greater future academic success regardless of other factors such as socioeconomic status, cognitive ability, and demographics. Specifically, this study seeks to analyze whether playing spatial games can serve as an effective means of improving spatial skills, which in turn may enhance mathematical reasoning skills. We found that training improved performance for one spatial skill (Guay Visualization, GV) but not the other (Mental Rotation, MR). Also, males performing better than females on one spatial skill (GV) but females performed better than males on the other spatial skill (MR). Females did not improve significantly better than males on either task. Further, Level of participation in active pass-times was positively correlated with GV but negatively correlated with MR. Finally, whether participants played video games was related to higher levels of GV but lower levels of MR.

**Poster Number: 211**

**AISLINN TANSEY**

Department: Psychology

Faculty Mentor: Lauren Kois

Department: Psychology

*The Impact of a Psychopathy Diagnosis and Affect of a Defendant on Juror Perceptions*

Abstract: The proposed study examines whether defendant psychopathy and affect impact jurors' perceptions of guilt and sentencing recommendations. A psychopathy diagnosis has a considerable effect on juror's decision making processes, with numerous studies demonstrating that a psychopathy label increases the likelihood that jurors will perceive defendants as deserving of a harsher sentence. Defendants' affect also appears to impact juror perceptions, as research has found that jurors prefer defendants with a moderate or high affect, over those with a low one. This finding is particularly relevant to psychopathic defendants, given that shallow affect is a characteristic of psychopathy. While there have been numerous studies on how psychopathy and affect individually effect jurors, there has been little research into how the two factors interact to impact juror's perceptions and trial outcomes. To address this gap, we will conduct a mock trial to assess whether the psychopathy label and varying levels of affect can impact undergraduate psychology students' perceptions of guilt and sentencing recommendations. Participants will be randomized to one of six vignettes, with only the diagnosis (psychopathy/no psychopathy) and the level of affect (low, medium, or high affect) varying between them. Participants will provide their perceptions of the mock defendants and provide sentencing recommendations. We will conduct a chi-square analysis to examine differences in jurors' perceptions of guilt and sentencing recommendations across the experimental conditions. We anticipate that defendants higher in affect and without the psychopathy label will be perceived as less guilty, and defendants lower in affect and with a psychopathy label will be perceived as guiltier. Since there are such great sentencing disparities created by a psychopathy diagnosis, the findings of this study could potentially shed light on ways that jurors might be influenced by the defendant's behavior, and on ways that the defendants themselves can improve jurors' perceptions of them.

**Poster Number: 212**

**ALEXIS CORZINE**

**NICHOLAS MERRING**

Department: Psychology

Faculty Mentor: James Hamilton

Department: Psychology

*Learning About Factitious Disorder Through Published Legal Cases: The Use of Experts and Terminology Issues*

Abstract: Factitious disorder (FD), sometimes called Munchausen Syndrome, is a psychiatric condition characterized by intentional deceptive presentations of oneself as being ill or injured. People with FD exaggerate, fabricate, simulate, or self-

induce a wide variety of physical and mental illnesses. It is distinguished from malingering by the apparent fact that the motivations for deceiving others about their health are primarily psychological in nature. Due to the fact that faking illness is so strongly disapproved in our culture, people with factitious disorder are very secretive and elusive, seldom admitting their deception or submitting to psychological assessments or investigations. This creates the need for alternative means of studying the problem. People with factitious disorder sometimes become embroiled in legal disputes, and when decisions are appealed, the results of the appeal are made public. The current research collected and analyzed these published cases to learn about features of factitious disorder presentations, and how evidence about them is represented in legal proceedings. Using Google Scholar and the Lexis-Nexis databases we search for legal cases containing the terms “factitious” or “Munchausen”. Cases in which factitious disorder was a central issue in the case were identified and were coded for a number of features. This presentation will focus on the training and quality of expert testimony in cases involving factitious disorder, and the accuracy of terminology use. In general, we found that few cases employed consultants with specific expertise in factitious disorder, and that terminology was used inexactly, with particular confusion of factitious illness behavior and malingering.

**Poster Number: 213**

**WHITNEY HOVATER**

Department: Psychology

Faculty Mentor: Lauren Kois

Department: Psychology

*Effective Measures for Detecting Malingering and Deception in Adolescents*

Abstract: The Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (APA, 2013) classifies malingering as “the intentional production of false or grossly exaggerated physical or psychological symptoms, motivated by external incentives” (p. 726). Until recently, studies surrounding adolescents who malingering were nearly absent from literature. However, adolescent malingering appears to occur more often than previously thought (Slick, 2011). A book published in 1998 provided a comprehensive review on the topic and drew many conclusions about understanding malingering in adolescents and effective methods of detection (McCann). The author concluded that while difficult to detect, a few measures such as SIRS, MMPI-A, and MACI were potentially effective tests to determine malingering or feigning in an adolescent (McCann, 1998).

Since the publication of this book, numerous studies have been conducted to further investigate the psychometric properties of measures used to detect malingering in adolescents. The MMPI-A has continued to be a valuable method of detection (Salekin, 2008; Walker, 2011; Rogers & Granacher, 2011). Additionally, the SIRS and MACI have been suggested as promising measures (Salekin, 2008). New research has uncovered multiple new measures that can be utilized for detecting feigning and deception. However, nearly all studies were in agreement that every measure needs further validation, and all should be used in combination with other measures and clinical interviews. Future research should seek to continue to validate these measures as they pertain to the detection of malingering and to acquire a standardized method of detection when malingering is suspected in an adolescent.

**Poster Number: 214**

**KIRSTEN WILLIAMS**

Department: Psychology

Faculty Mentor: Joan Barth

Department: Psychology

*The Effect of Self-Efficacy on the Career Goals of College and Elementary-Age Students*

Abstract: Academic efficacy is a student’s confidence that he or she can achieve academically. A great deal of research indicates that academic efficacy is a better predictor of academic outcomes than academic performance. Academic efficacy is also a strong predictor of career-efficacy and career interests. While academic efficacy has been studied extensively, the developmental aspect of academic efficacy has been largely forgotten. This study tried to amend this gap by determining when and if students become subject-specific in their academic efficacy, as opposed to having a general academic efficacy that is similar across all subject areas. This study further investigated the relations between academic efficacy and career efficacy and career interest for two age groups. We examined these variables in 100 college students and 98 fifth grade students across four subjects: math, science, reading, and music. Participants were given a survey with academic efficacy questions, career-specific efficacy questions, and career-specific interest questions. A description was given with each career before the participants were asked about their efficacy or interest. Academic efficacy, career efficacy and career interest questions were answered for each of the four subject areas, with seven different careers per subject. For the elementary students, we hypothesized

that academic efficacy would be broader and more general (e.g., similar across all subject areas) than the college students, who we expected to have much more differentiated, subject-specific academic efficacy. We also expected that the relation between academic efficacy and career efficacy would be more strongly subject-specific for college participants compared to the elementary participants. The data were analyzed using correlational and t-test analyses to determine if our hypothesis was correct. Comparisons were made between the two age groups with respect to how differentiated academic efficacy was across the four subject areas. The results are interpreted in light of developmental changes in efficacy.

**Poster Number: 215**

**JENNIFER FOURROUX**

Department: Psychology

Faculty Mentor: Christopher Lynn

Department: Anthropology

*Caregivers' Perspectives on Their Human-Nonhuman Primate Relationships*

**Abstract:** There are few places in the world where nonhuman primates (NHPs) do not interact regularly with humans. Even with an absence of native NHPs in North America, sanctuaries, zoos, and labs are frequent areas of sympatry (i.e., species overlap). Within these settings, primate caregivers develop some degree of relationship with the NHP residents. Previous research suggests that zoo professionals form bonds with their animals, and the most frequent bonds reported were with primates. This study looks at primate caregivers' perspectives on their relationships with NHPs. We hypothesized that type of facility predicts how caregivers view their personal human-NHP relationships with regard to the importance, strength, complexity, and reciprocity of the relationships. We predicted that (1) zoo and sanctuary caregivers have higher agreement in these aspects because of low numbers of NHPs cared for, as well as consistent and long-term interactions and (2) lab caregivers have lower agreement in these aspects because of higher number of NHPs cared for and inconsistent interactions. To conduct this study, we administered an online questionnaire in which sanctuary, zoo, and lab primate caregivers (n=76) answered detailed questions about their demographics and job, as well as agreement statements about their personal human-NHP relationships. Our results show that zoo and sanctuary caregivers tend to view their relationships as more important, stronger, more complex, and having higher reciprocity than lab caregivers, which supports our hypotheses. There are also other variables influencing this view among all facility caregivers, including job duration, total primates cared for, and time spent interacting. Almost all participants agreed that their relationships with their primates has a positive influence on their well-being and positively influences their job satisfaction. This data suggests that the human-NHP relationship may be a factor influencing caregiver well-being. Similar inferences can be made for NHP well-being but needs to be further studied.

**Poster Number: 216**

**MILLIE SARTAIN**

**ANNA CHAN**

Department: Communicative Disorders

Faculty Mentors: Angela Barber and Candace Cook

Department: Communicative Disorders

*What Parents Want: Examining Parental Preference of Intervention for Children with Autism*

**Abstract:** Background: Project ImPACT (Ingersoll & Dvortcsak, 2010) is a family-oriented early intervention program centered around improving communication, play and social targets in children with Autism. The parental involvement component of ImPACT emphasizes the vital part parents play in the therapy process through parent education, coaching, and integration in the home. Previous findings of similar programs indicate that parents' buy in belief, or believe in their child's therapy is related to improved child outcomes (Solish & Perry, 2018). The goal for ImPACT and similar treatment programs is to educate parents and teach them techniques by involving them in the therapy process in order for parents to be brought into intervention, which increases chances of implementation in the home (Kasari et al., 2010). Determining parent preference in therapy structure and implemented techniques is important in order to foster parent engagement and maximal improvement in children's communication and behavior skills.

**Method:** Ten families participated in a twelve-week ImPACT intervention following which, caregivers expressed satisfaction of their therapy sessions using the Parent Treatment Satisfaction Scale. Specifically, parents rated their confidence level when facilitating communication skills independently with their child. The Parent Treatment Satisfaction Scale also focuses on clinician techniques and instruction that enhance understanding of learning content. The Parent Treatment Satisfaction Scale noted parent preferences of session structures ranging from one-on-one sessions, where the parent is not involved, to group sessions, where parents are

encouraged to participate in the therapy session. The survey allowed parents to leave commentary on particular instances in which they felt confidence in their therapeutic integration at home.

Results: Preliminary analysis of parent responses indicated that parent preferences were highly dependent on the individual child. That is, themes were not detected relative to implemented therapy techniques or teaching strategies, with the exception of a mild preference of group over individual sessions. Data regarding preferred learning environments will be presented.

Conclusion: This study addresses the importance of parent perceptions and preferences in order to support parents' likelihood of carrying over intervention strategies at home. Findings also support the need for clinicians to be flexible and responsive when working with children with Autism and their families. Tailoring therapy to the individual and their family to create highly individualized intervention, compared to blanket strategies for children with Autism, emphasizes the need for clinicians get to know their clients and their families to best serve their needs.

**Poster Number: 217**

**STEPHANIE MACKENZIE**

Department: Psychology

Faculty Mentor: James Hamilton

Department: Psychology

*Understanding Death Acceptance*

Abstract: Death acceptance has been defined as the acknowledgement and positive emotional assimilation the reality of one's own and others' deaths. However, with the advance of medical technology, death has become increasingly regarded as medical failure in Western cultures, leading to lower death acceptance. Viewed in this way, death, a natural and inevitable feature of human life, can lead to fear and depression, negatively impacting quality of life. There has been an abundance of descriptive research on correlates of death acceptance as a measured trait. In contrast, there has been little experimental research testing if it is possible to experimentally increase or decrease death acceptance. We investigated whether the age of a decedent implicitly influences observers' ratings of the tragicness of the death (i.e., greater acceptance with older age), and whether people's acceptance of the death of another is greater after a death has occurred than when the same type of death is imminent, holding all other aspects of the scenario constant. The data we found were consistent with our hypothesis that, with all else held constant, individuals are more accepting of a death after it has occurred than before it has occurred. These data may suggest that individuals are unaccepting of death and defensively become more accepting following another's death. Alternatively, it may be that there are negative associations with death that inflate the rating of tragedy for imminent deaths as compared to deaths that have already occurred. Our findings suggest that death acceptance and the perceived tragedy of a death are not monolithic and unchangeable, suggesting the possibility that interventions can be developed to increase death acceptance.

**Poster Number: 218**

**HAROLD ACOSTA**

Department: Psychology

Faculty Mentor: Christopher Lynn

Department: Anthropology

*The Genetics of Attention: Preliminary Results from a Pilot Study of Absorption, Mental Boundaries, and Catechol-o-Methyltransferase*

Abstract: Humans have an evolved capacity for absorption, a form of learning allowing for the fast and efficient acquisition of skills through focused attention. Individuals vary in their capacity for absorption. A polymorphism in the Catechol-o-Methyltransferase (COMT) gene may be associated with an enhanced capacity to absorb new information and skills when under specific environmental conditions. We hypothesize that individuals with the Valine/Valine (Val/Val) polymorphic genotype in COMT have a higher proclivity for absorption when under specific environmental situations. We conducted a pilot study on campus to test for an association between the Val/Val genotype and proclivity. 94 passive drool samples were collected from participants who also completed a survey containing measures to assess their proclivity to absorption. We will run Restriction Fragment Length Polymorphism (RFLP) tests to analyze the DNA for the presence of the Val/Val polymorphism. Once genetic analyses are complete, we will compare the results of the survey to the presence of the polymorphism using binomial correlation tests. If the correlation is significant suggesting that a connection exists between the polymorphism and an individual's proclivity to absorption, we will replicate our study at a local church in Tuscaloosa.

**Poster Number: 219**

**ALAYNA WATSON**

Department: Psychology

Faculty Mentor: Ansley Gilpin

Department: Psychology

*The developmental relationship of inhibitory control and emotion regulation in preschoolers: A longitudinal study*

Abstract: Extant literature has established a significant correlation between levels of inhibitory control (IC) and emotion regulation (ER) in preschoolers. These cognitive and socioemotional concepts, respectively, have implications for children's social and academic success into adolescence. Previous studies have failed to examine these skills' development longitudinally to determine if they develop concurrently or whether one serves as a mechanism of development for the other. The present study examined how developing levels of IC and ER affect each other longitudinally, using data from an existing longitudinal intervention-based study (Power PATH). Preschool children (N=540) enrolled in Head Start preschools across western Alabama participated in a dual generation intervention program (PowerPATH) with assessment at three time points across two years (beginning preschool, ending preschool, and kindergarten). Standardized assessments and teacher reports were used to test inhibitory control (BRIEF; Gioia et al., 2002) and emotion regulation skills (ERC; Shields & Cicchetti, 1997). We hypothesized that across three time points inhibitory control would be a significant predictor of emotion regulation. Using Structural Equation Modeling path analysis to examine the relationship between development of IC and ER in preschool children across three time points, we found that emotion regulation and inhibitory control were significantly correlated within each time point, as expected, with IC predicting some future ER time points, but not vice versa. Findings suggest that inhibitory control and emotion regulation seem to develop concurrently, with some evidence that inhibitory control precedes the development of emotion regulation, especially with regard to the regulation of negative emotions. This has important implications for the development of both preventative interventions and treatment focused on helping children at-risk for emotion regulation challenges.

**Poster Number: 220**

**BROOKE BOYLES**

**MOLLY BAILEE**

**SOPHIE NORGAARD**

**GRACE SHIRAH**

**JACKSON GIST**

Department: Communicative Disorders

Faculty Mentor: Memorie Gosa

Department: Communicative Disorders

*Reliability and Validity of the IDDSI Flow Test as a Measure of Liquid Consistency*

Abstract: Purpose: To establish the inter and intra rater reliability and concurrent validity of the novel syringe flow test proposed by the International Dysphagia Diet Standardization Initiative (IDDSI) for the categorization of thickened liquids for the management of dysphagia (difficulty swallowing).

Background: The simplicity of the syringe flow test proposed by the International Dysphagia Diet Standardization Initiative (IDDSI) for the categorization of thickened liquids is appealing to clinicians. The IDDSI flow test is simple and easy to use; however, there is not independent, published research to establish the reliability and validity of the IDDSI flow test.

Methods: Eleven commercially available liquids (three regular, two slightly thick, three mildly thick, and three moderately thick) were selected to help establish the inter and intra rater reliability as well as the concurrent validity of the IDDSI flow test. Each liquid consistency was measured 10 times with the IDDSI flow test by each of the five, independent raters on two separate occasions. Raters were blinded to the type of liquid being measured, to the results of the other raters, and to the results of the first measurement (on the second occasion). The IDDSI flow test was administered to the published protocol following training. Ten-milliliter slip-tip syringes with plungers removed were filled with the selected liquid. The stopper was removed from the tip of the syringe and the liquid was allowed to flow freely from the syringe for 10 seconds. The stopper was replaced after ten seconds, stopping bolus flow, and the amount of fluid remaining in the syringe was recorded. Statistical analysis was performed to establish inter and intra rater reliability as well as concurrent validity of the IDDSI flow test.

Results: Initial analysis reveal good inter and intra rater reliability with each rater achieving a correlation of 0.80 or higher for all analyses performed. Additionally, there appears to be good concurrent validity of the measure based on this initial trial.

Limitations: The study was limited by the use of novel, non-clinician raters. Additionally, the liquid samples were limited by the absence of a slightly thick liquid category.

Conclusion: The IDDSI syringe flow test appears to be a reliable and valid clinical tool for the categorization of fluids into therapeutically relevant categories for the management of dysphagia.

**Poster Number: 221**

**RACHEL LEE**

Department: Psychology

Faculty Mentor: Jessica Mendoza

Department: Psychology

*Sub-Criterion A PTSD*

Abstract: The goal of this literature review is to illuminate the shortcomings of the DSM-V's Post-Traumatic Stress Disorder (PTSD) criteria. Despite the many changes the DSM criteria have experienced in decades past, a definition has yet to be found that recognizes all divisions of trauma. Alternative diagnoses of Acute Stress Disorder (ASD) or Subthreshold PTSD fail to cover circumstances in which trauma fails to meet diagnostic criteria while still exhibiting significant symptoms. Unrecognized traumas include: home foreclosure, miscarriage (Lansing, Plante, & Beck, 2016), traumatic death of a public figure/celebrity (such as a presidential assassination), separation from caregivers by Child Protective Services or parental incarceration, cumulative traumas, etc. With such traumas disregarded, cases are ignored in studies that could yield significantly different results. Additionally, individuals who are unable to receive treatment for their trauma-related symptoms suffer, particularly during development. Paralleling concepts discussed in Doka's 1989 presentation on disenfranchised grief, the lack of diagnostic/evidence-based support for those involved causes unacknowledged loss, nonexistent social support, and an inability to participate in the grieving process (or in the case of trauma, inability to receive appropriate treatment). Maladaptive coping, impaired functioning, and other adverse symptoms of mental illness develop in response to cumulative, complex, and/or non-qualifying traumas that "are typically assessed in response to only one qualifying Criterion-A traumatic event," (Lansing, Plante, & Beck, 2016). Unless future DSM revisions include a trauma spectrum, research will repudiate statistically significant cases and individuals will remain shoehorned into ill-fitting diagnoses, if lucky enough to receive a diagnosis at all.

**Poster Number: 222**

**TANNER MULLENIX**

Department: Psychology

**ANTHONY FANT**

Department: Biological Sciences

Faculty Mentors: Beverly Roskos and Qichen Zhao

Department: Psychology

*Group Creativity and The Incubation Effect*

Abstract: Past research has been conducted on how having an "incubation period," increases measures of creativity compared to no rest. This study will test whether there is an incubation effect on groups of subjects rather than individual ones, and what effect(s) specific incubation tasks have on group creativity. Our study tested 3 hypotheses: (1) that having an incubation period causes increased measures of creativity compared to not having an incubation period, (2) that measures of creativity will be larger when a separate cognitive task is given during the incubation period rather than just resting, and (3), that cognitively higher-level incubation tasks will result in lower measures of creativity than lower-level tasks. Our subjects consisted of 50 University of Alabama student participants, ages 18-23, with 9 males and 41 females. Data from 5 of these subjects was discarded due to manipulation errors. To measure creativity, dyads worked on alternative uses tasks (AUT), where dyads work together to list alternative uses for everyday objects, for 3 minutes, underwent incubation for 2 minutes, and resumed working on the same item for 3 minutes. Four different incubation tasks were tested: (a) resting with no separate cognitive task, (b) a low-level cognitive task, (c) a high-level cognitive task, and (d) no incubation task (the control). Series of 2x4 and 2x2 repeated measures ANOVA were conducted to analyze the data. It was found that (1) incubation does increase group creativity compared to no incubation, (2) that measures of creativity are higher after some sort of cognitive task, and (3) that there was no significant difference in creativity measures between high and low-cognitive tasks during incubation, confirming our first 2 hypotheses and disproving our third. Thus, the results of this study show a relationship between cognitive breaks between sessions of creativity.

**Poster Number: 223**

**SALENA LEE**

Department: C&BA—Management

Faculty Mentor: Rachel Stephens

Department: Art and Art History

*Uncovering Slavery at The University of Alabama*

Abstract: Slavery at The University of Alabama remains a mystery. It is crucial to many that the University address its past, as it has in some forms, but many students are still unaware of the impact slavery had on the University's founding and operation. On campus there are historical locations that stand as a direct representation of the University's slaves' presence, but there is a lot of information that is still unknown about them, their daily lives, and treatment. The purpose of this study is to explore the unknown of a somewhat "hidden" subject. To conduct research, information will be drawn from University records and archives, local newspapers from the 1820's and 30's that feature articles concerning slave runaways, purchases, etc., and diaries and findings from the first leaders of the University. The sufficient findings will then be used to draw a picture of how slavery was like in Tuscaloosa around 1830. They will also be used to examine how slavery played a role in how the University functions today.

**Poster Number: 224**

**KIRA YANCEY**

Department: Anthropology

Faculty Mentor: Christopher Lynn

Department: Anthropology

*Stars, Bars, and Skin Marks: A Preliminary Study of Tattoos in the American Military*

Abstract: Tattooing has had many functional purposes throughout human history, such as to signal fertility or toughness. Previous research by Lynn et. al (2017) found that people who undergo many tattoo sessions build an immuno-tolerance to the stressor of tattooing. The "upping the ante" hypothesis suggests that tattoos in contemporary societies continue to signal fitness by introducing challenges through which healthy individuals can highlight their immunological health. This study surveys individuals who are currently or have served in the military. In the survey, the individuals are asked questions about their tattoos' placements, content, and any possible medical complications that they might have experienced. We predict that the rate of individuals with tattoos will be higher than that in the general public, and that the presence of tattoos will be inversely related to rank.

**Poster Number: 225**

**TAYLOR PUCKETT**

Department: Anthropology

Faculty Mentor: Christopher Lynn

Department: Anthropology

*Tattoos and Piercings Among Undergraduate Populations*

Abstract: For 4,000 years humans have been modifying their bodies through piercing and tattooing, and its prevalence in mainstream culture has only increased in recent decades. This is partly due to more hygienic practices that become more available recently. In this study, we looked at the prevalence of tattoos and piercings, as well as complications from these modifications, in a national and undergraduate sample. The survey was designed in Qualtrics and distributed online via email, Facebook, and Instagram. Over 6,700 responses were recorded, with 700 responding to the national survey and 6,00 responding to the undergraduate survey. Around half of the participants in both surveys reported having a tattoo, and while there weren't statistical differences in prevalence between the two samples, there was a significant correlation between undergraduate varsity athletes and low complication rates. These athletes had significantly lower complications in both piercings and tattoos while having the same prevalence compared to a general undergraduate population, which we believe is due to the extraordinary care their bodies have received before and after the modifications. Future studies will aim to examine possible causes for these disparities, such as the ways in which these athletes care for their bodies before and after receiving their piercings or tattoos.

**Poster Number: 226**

**TESSA HAWKINS**

Department: Psychology

Faculty Mentor: Alexa Tullett

Department: Psychology

*Cognitive Bias and Scientific Self-Correction in Psychologists*

Abstract: One of the most important premises of psychology as a science is the idea that psychologists will rationally update their beliefs when presented with new evidence. This is known as the process of scientific self-correction. One of psychology's most significant contributions to understanding human cognition is the idea of biases in reasoning that influence all people's cognitive processes. However, it is highly probable that these same biases also affect the process of scientific self-correction. A major issue currently facing the field of psychology is what has been called the "replication crisis"—the idea that many psychological findings are not able to be reproduced again. The present study investigates how age and familiarity with findings correlate with the degree to which psychologists update their beliefs when presented with hypothetical disconfirming evidence from a replication attempt about an original finding. Using results from the Center for Open Science replication efforts, psychologists will participate in a study that gauges how much they predict they will update their beliefs in a real-world setting. Psychologists will be presented with several real psychological findings that are currently undergoing replication and asked how likely they are to update their beliefs if the replications of these findings do not find a significant effect. It is predicted that age and familiarity with the original findings will moderate the degree to which psychologists predict they will update their beliefs, providing potential new ways of understanding the circumstances under which psychologists adequately self-correct.

**Poster Number: 227**

**ALICIA RAMBO**

Department: Communicative Disorders

Faculty Mentors: Angela Barber and Candace Cook

Department: Communicative Disorders

*The Effect of Manualized vs. Traditional Therapy Methods on the Preparation of Successful Speech-Language Pathologists Working with Children who are at Risk for an Autism Spectrum Disorder*

Abstract: Background Effective clinical education requires a shared philosophy between supervisors, students, and research mentors (Strohschein, Hagler, & May, 2002) which can be exemplified through peer learning opportunities (Lincoln & McAllister, 1993) and maximized by the integration of evidence-based practice (EBP; Dawker et al., 2012). While it is important to evaluate students' learning and application of EBP principles (Dakwar, Scott, Froud, 2012) and speech pathologists' positive attitudes toward EBPs are related to their exposure to EBPs during graduate training (Zipoli & Kennedy, 2005), the integration of EBP into graduate training programs poses a number of challenges. Determining solutions to these challenges is critical to promote successful preparation of SLPs who are skillful in their service provision with individuals who have communication disorders including Autism Spectrum Disorder (ASD). Purpose: The purpose of this study was to examine student attitudes following a 12 week clinical placement within an EBP designed for young children with ASD and their parents.

Method: Five graduate students learned and implemented the core strategies of Project ImPACT (Ingersoll & Dvortcsak, 2009), a parent mediated intervention for young children with ASD. Following the intervention cycle, they answered questions about their learning process.

Findings: Preliminary findings indicated an increase among all graduate students in overall confidence levels while working with children with ASD and their families. Furthermore, other findings displayed that the graduate students felt more at ease implementing newly learned therapy strategies using the Project ImPACT intervention model.

Conclusions: This study demonstrated the feasibility for implementing an evidence-based ASD-specific intervention within the SLP graduate student training structure. With minimal adaptations to the intervention model, students implemented Project ImPACT with young children who had an ASD. This finding has important implications for students, researchers, families, and graduate clinical supervisors and is a critical first step to bridging the gap between research and practice.

**Poster Number: 228**

**ROLANDA TURNER**

Department: Political Science

Faculty Mentor: Nicholas Kerr

Department: Political Science

*Exploring the Electoral Fraud During Kenya's 2013 Election*

Abstract: Participated in a faculty-led research project that explores the causes of electoral fraud during Kenya's 2013 election. In order to successfully complete my research duties, I had to become trained in CS Pro 7.0 in order to code corrects. I coded ballots on a weekly basis ranging from Changamwe, to Mt Elgon, to even Masinga. My reserach was supervised by Dr. Nicholas Kerr in the Political Science Department here at The University of Alabama during Fall 2017 through May 2018.

**Poster Number: 229**

**WADE TIDWELL**

Department: Anthropology

Faculty Mentor: Lisa LeCount

Department: Anthropology

*Artifact Ubiquity as Indices of Ancient Maya Socioeconomic Variability at Actuncan, Belize.*

Abstract: The Actuncan Archaeological Project has conducted ten field seasons of research at this ancient lowland Maya site in Belize, Central America and inventoried all artifact classes including ceramics, lithics, marine shell, jade, daub, etc. from excavation contexts. One of my research goals was to consolidate this information into a relational database so that project members could more easily analyze artifacts across contexts and time periods. The database allowed me to construct archaeological indices for documenting the ubiquity of artifact classes as a measure of socioeconomic variability across households or civic spaces. To achieve this goal, I explored which index is the most valid or useful, including the ratio of artifact classes potentially controlled by elites such as groundstone, jade and marine shell to the most commonly occurring ones (ceramics or lithics), eventually settling on ratio of artifacts to excavation volume.

**Poster Number: 230**

**LAUREN MCGUIRE**

Department: Psychology

Faculty Mentor: Ian McDonough

Department: Psychology

*Encoding Activity in Sedentary Versus Physically Active Jobs using fMRI*

Abstract: This study aims to find a link between occupational physical activity and memory encoding activity in the brain. Encoding is the first step in creating a memory and is associated with attention. If a person struggles with attention, then they never encode the information, even if they have been presented with it. Recently, the anterior cingulate cortex has been seen as an important part of the encoding process. Although, generally, the hippocampus is considered the main brain structure associated with memory, the anterior cingulate cortex could be an important pathway for encoding before stimuli are consolidated into memories. There is a gap in the literature surrounding occupational physical activity. Past research on physical activity has mainly focused on acute bouts, or short bursts, of physical activity, but occupational physical activity may be a good indicator of lifetime fitness. In this study, we collected self-report data on participants' physical activity at work from 49 participants, including young adults (ages 20-30), middle aged adults (ages 50-63), and older adults (ages 64-75). These results have been coded from low to high physical and will serve as the independent variable. Then, participants completed memory tasks while in an fMRI that measured for brain activity. The participants were shown several face-object and face-scene pairs. For the memory test, they were shown a face and asked to pick from 5 options: two previously seen scenes and objects and a "never before seen" option in case that face was not one of the ones previously shown. I predicted that people who are more physically active in their occupation show higher levels of activity in the anterior cingulate cortex. By understanding how occupation physical activity relates to encoding, we may have a better understanding of how lifetime fitness could impact attention, cognition, and brain health.

**Poster Number: 231**

**PHILIP PITTS**

Department: Geography

**ZOE BERNDT**

Department: Biological Sciences

**PEYTON BADURA**

Department: C&BA—Information Systems, Statistics, and Management Science

Faculty Mentor: David Bolus

Department: Theatre and Dance

*The Beautification and Revitalization of Marion, Alabama*

Abstract: Nestled in the heart of the Black Belt, Marion, Alabama is one of the most underserved communities in the nation. Plagued by systemic racism and multi-generational poverty, Marion's residents struggle to maintain a sense of communal pride. After speaking with representatives from Main Street Marion, a non-profit designed to revitalize the local economy, the conversations with local community members serves as evidence to suggest there is a need for spaces celebrating Marion's diverse culture and history. Such spaces will be created at three main sites. The first will be an outdoor classroom at Francis Marion High School. The tables will be replaced, the flower beds will be replanted, and the existing school art project will be more centrally incorporated into the classroom's dynamic focus on learning. This space will increase school pride and serve as a fun educational tool to help encourage the obtainment of a high school diploma. The second will be a pocket park directly adjacent to the town square, which will improve the city's aesthetic and serve as a meeting place for both tourists and residents. Features will include a swing set, sidewalk, sculpture, water feature, and string solar lights. The third site will be located in a vacant alley off of one of Marion's main roads. New picnic benches, umbrellas, and planters with trees will complement the existing mural while serving as an extension of the pocket park as a facilitator of community conversation. These spaces will be completed through close collaboration with Main Street Marion who will help coordinate funding, material acquisition, and manual labor. The hope is that these spaces will be a foundation for the Marion community to enter a new era of sustained dialogue about the chronic issues inherent to their current way of life.

**Poster Number: 232**

**VALERIE MOORE**

Department: Communicative Disorders

Faculty Mentor: Angela Barber

Department: Communicative Disorders

*Examining Vocabulary and Social Communication in Young Children with ASD*

Abstract: Language develops in the context of social interaction and joint engagement (Adamson et al., 2009, Dawson, 2008, & Kuhl, 2010). Therefore, interventions focused on social engagement and play should facilitate language outcomes (Kasari et al., 2012; Rogers et al., 2012). While some children with ASD use social information to support language learning (Luyster & Lord, 2009), social impairments often limit their opportunities for language development (Landa et al., 2011). Less attention has been paid to specifically to semantic development even though this language domain has an important influence on academic outcomes and literacy development (Hay et al., 2009). As such, further research is needed to determine the impact of NDBIs (Schreibman et al., 2015) on more distal intervention targets (Wetherby et al., 2014) such as vocabulary development in young children.

Objectives: The purpose of this study is to examine expressive vocabulary growth measured by the MacArthur Bates Communication Development Inventories (MB-CDI; Fenson et al., 2007) following a twelve-week Project ImPACT intervention (Ingersoll & Dvortcsak, 2010). A second objective is to examine the relationship between vocabulary development on the MB-CDI and social communication measured by the Social Communication Checklist (SCC; Ingersoll & Dvortcsak, 2010).

Method: These data were collected as part of a larger ongoing study of the Project ImPACT intervention. Caregiver and child outcomes are measured following twelve-week groups delivered in a university clinic setting. Interventionists coach caregivers on strategies to support their children in the areas of social engagement, language, social imitation, and play. Goals within each of these areas are targeted over the course of the twelve weeks. The study includes 14 children and their caregivers per group. Among other measures, caregivers complete the MB-CDI and parents and interventionists complete the SCC prior to and following participation in the twelve-week program.

Results: Preliminary findings demonstrate expressive vocabulary growth following twelve-week Project ImPACT intervention with large variability. Spoken language was correlated with play skills, as suggested by previous research (Kasari et al., 2012). This study contributes to understanding of early autism intervention on more distal intervention targets (vocabulary).