


4-10-2012

2012 - The Seventeenth Annual Symposium of Student Scholars

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17TH ANNUAL

**SYMPOSIUM OF
STUDENT SCHOLARS**

*AND Undergraduate Research
Reception*



*17th Annual
Symposium of Student Scholars
&
Undergraduate Research/Creative Activity
Reception*

April 10, 2012

Program

4:00pm – 4:15pm
Convocation Center

Welcome:
Dr. Daniel S. Papp, President
Dr. Teresa Joyce, Associate Provost

4:15pm – 4:50pm
Convocation Center

Undergraduate Research Reception

4:50pm – 5:00pm
Convocation Center

*Horn Duo (2012) – Chloe Lincoln
(b. 1991)

David Anders, horn
Megan Gribble, horn

*World premiere

5:00pm – 6:00pm
Convocation Center

Poster Session

6:15pm – 8:15pm
*Convocation Center
Classrooms*

Concurrent Oral Presentation Sessions

Oral Presentation Sessions: 6:15pm - 8:00pm

Session 1: Humanities and Social Sciences (Convocation Center, Room 1032). Moderator: Amy Buddie

6:15pm – 6:30pm: *Perceptions of Graduate Teaching Assistants and New Faculty Members*. Oral Presentation by Ya Xiang Zhang. (Faculty Mentor: Amy Buddie)

6:30pm – 6:45pm: *Sexual Experiences and Attitudes Among College Students*. Oral Presentation by Ya Xiang Zhang and Jennifer Brooks. (Faculty Mentor: Corinna McNamara)

6:45pm – 7:00pm: *Cave Diving in Mexican Cenotes*. Oral Presentation by Jared Lafferty. (Faculty Mentor: Jennifer Weber)

7:00pm – 7:15pm: *Communication Audit of Real Estate Mortgage Network*. Oral Presentation by Sheryl Cone and Nigel Brett. (Faculty Mentor: Philip Aust and Deanna Womack)

7:15pm – 7:30pm: *A Model of Intercultural Conflict Communication*. Oral Presentation by Nigel Brett. (Faculty Mentor: Deanna F. Womack)

7:30pm – 7:45pm: *Linguistic Constructions of Gamer Identity*. Oral Presentation by Megan Golinski. (Faculty Mentor: Chris Palmer)

Session 2: Humanities and Social Sciences (Convocation Center, Room 2008). Moderator: Courtney Collins

6:15pm – 6:30pm: *Lobbying: A Brief Overview Into the Industry of Influence*. Oral Presentation by Shane Wright. (Faculty Mentor: Tara Stricko)

6:30pm – 6:45pm: *The American Concept of Union*. Oral Presentation by Angela Tooley. (Faculty Mentor: Jim Piecuch)

6:45pm – 7:00pm: *John Trumbull: Art and Politics in the American Revolution*. Oral Presentation by Morgan Sumrell. (Faculty Mentor: Jim Piecuch)

7:15pm – 7:30pm: *German Studies Senior Seminar Research Projects: Exploring Realms of Literary Heimat in German Short Fiction*. Oral Presentation by Lenka Senkyrova, Whitney Arrowood, Kayla Weiglein and Karen Rooker. (Faculty Mentor: Sabine Smith)

7:30pm – 7:45pm: *Paradise Promised in La nada cotidiana (Yocandra in the Paradise of Nada) - El paraíso prometido en La nada cotidiana*. Oral Presentation by Michelle Choung. (Faculty Mentor: June Laval)

7:45pm – 8:00pm: *Reinterpreting the Outsiders Society: Boundary Living and Romani Women's Poetry*. Oral Presentation by Amanda Kruger. (Faculty Mentor: Federica Santini)

Session 3: Economics and Mathematics (Convocation Center, Room 2015). Moderator: Kimberly Wallace Stewart

6:15pm – 6:30pm: *A Measure of the Progressivity of Charitable Contributions*. Oral Presentation by Christopher Blackburn. (Faculty Mentor: Jesse Schwartz)

6:30pm – 6:45pm: *Combinatorial Proofs of Fibonacci Identities by Means of the Path Graph*. Oral Presentation by John Jacobson. (Faculty Mentor: Joe DeMaio)

6:45pm – 7:00pm: *Intermediate Value Theorem and its Applications*. Oral Presentation by Stefanie Erdman. (Faculty Mentor: Yuliya Babenko)

7:00pm – 7:15pm: *Applying Hysteresis Phenomena in Economics*. Oral Presentation by Anna Reyes and Nicole Dowling. (Faculty Mentor: Tatiana Rudchenko)

7:15pm – 7:30pm: *Hysteresis Phenomena in Economics*. Oral Presentation by Nicole Dowling. (Faculty Mentor: Tatiana Rudchenko)

7:30pm – 7:45pm: *iPad Student Cost-Benefit Analysis*. Oral Presentation by Nikola Kolev, Travis Allen, Jason Soni, Kirtan Patel and Anderson Nelson. (Faculty Mentors: Louise Lawson and Gary Roberts)

7:45pm – 8:00pm: *Applications of Lagrange Multipliers in Economics*. Oral Presentation by John Hunt. (Faculty Mentor: Tatiana Rudchenko)

Session 4: Mathematics and Science (Convocation Center, Room 1055). Moderator: Max Harris

6:15pm – 6:30pm: *Access Control Logic*. Oral Presentation by Kayla Von Hagel. (Faculty Mentor: Ana-Maria Croicu)

6:30pm – 6:45pm: *Total Efficient Domination in Cayley Graphs*. Oral Presentation by Keegan Gary. (Faculty Mentors: Joe DeMaio and Mari Castle)

6:45pm – 7:00pm: *The Card Collector Problem*. Oral Presentation by Michael Thomas. (Faculty Mentor: Anda Gadidov)

7:00pm – 7:15pm: *Computing the Minimum-Norm Least-Squares Solution of $Ax = b$ with Gauss-Jordan Elimination*. Oral Presentation by Ryan Anderson. (Faculty Mentor: Jun Ji)

7:15pm – 7:30pm: *Identifying the Best Method of Modeling Weight for Height Among Pre-Term Infants*. Oral Presentation by Rebecca Cantrell. (Faculty Mentor: Louise Lawson)

7:30pm – 7:45pm: *Evaluating the Impact of Peer-Led Team Learning on Student Progression in General Chemistry*. Oral Presentation by Yancey Mitchell and **Jessica Ippolito. (Faculty Mentor: Scott Lewis)

7:45pm – 8:00pm: *A Survey of Mycorrhizal Infestation in Three Drought Tolerant Species and Different Aged Tropical Dry Forests in Yucatan, Mexico*. Oral Presentation by Karen Garcia and Devika Jaikaran. (Faculty Mentors: Thomas McElroy, Paula Jackson, and Troy Mutchler)

Session 5: Theatre and Performance Studies (WB Rooms 103 and 221). Moderator: Jane Barnette

6:00pm – 6:30pm: *The Frederick Douglass/Huck Finn Arts Education Initiative*. Oral Presentation by Josh Brook and Melissa Harvey. (Faculty Mentors: Harrison Long and Jane Barnette) WB Room 103

6:00pm - 6:15pm: *All is Not Forgiven: A Production Analysis of Spring Awakening at Actor's Express*. Oral Presentation by Hannah Gale. (Faculty Mentor: Jane Barnette) WB Room 221

6:30pm – 6:45pm: *Negotiating the N-Word Through Dramaturgy for Splittin' the Raft by Scott Kaiser*. Oral Presentation by Melissa Harvey. (Faculty Mentors: Jane Barnette and Harrison Long)

6:45pm – 7:00pm: *A Woman's Place (In Ancient Greek Theatre)*. Oral Presentation by Marlissa Doss. (Faculty Mentor: Jane Barnette)

7:00pm – 7:15pm: *Cross-Dressing in Renaissance England Theatre: Festive Tolerance or Social Unrest?* Oral Presentation by Jaime Melvin. (Faculty Mentor: Jane Barnette)

7:15pm – 7:30pm: *Sycophant or Seducer? The Dedications of Shakespeare to the Earl of Southampton*. Oral Presentation by Sara Gosier. (Faculty Mentor: Jane Barnette)

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A Measure of the Progressivity of Charitable Contributions

Christopher Blackburn

Jesse Schwartz

Coles College of Business

Economics

Americans give approximately 2% of GDP to charities annually. One anomaly noted in the literature is that this giving is not monotonic in income, but rather U-shaped, with low-income Americans giving a higher percentage of their income to charities than those with middle incomes, and then the giving-percentage increasing again with higher incomes. Prior studies have observed this phenomenon in various data sets to various degrees, but they used different methodologies and lacked a measure that could be universally applied across time and geography. In this paper, we propose adapting Kakwani's (1977a) measure that uses a single statistic to give the degree to which taxes are unequally distributed across incomes. With this Kakwani-charity statistic, we can put into context how much the nonmonotonicity matters, indicating whether the U-shaped giving profile is economically significant. We apply this Kakwani-charity statistic to examine charitable giving using data from the 2007-2009 Consumer Expenditure Surveys. For each year, charitable giving is overall regressive. That is, the average ratio of giving to income decreases as income increases. We show that this regressivity is exaggerated by including retirees (with generally lower incomes but higher rates of giving) in the data set. Separating out retirees and non-retirees leads to a less regressive Kakwani-charity statistic for both groups compared to the statistic computed for the merged group.

Why is There Always Some Price?

Maged Roushdi

Jane Barnette

College of the Arts

Theatre and Performance Studies

After taking into consideration how much racism and discrimination have shaped America, and how prevalent racism and discrimination is in all areas of America now, I have come to the conclusion that although there may not be one specific answer to this question, we can at least acknowledge that racism and discrimination is a part of America's past and present. The real question here is whether or not it has to be a part of our future. There is no answer to that. There is no solitary bulleted list that will solve racism. For some Americans, even learned, well-educated Americans, the answer is to move to Vermont, "Because there aren't any black people [there]."

A Woman's Place (In Ancient Greek Theatre)

Marlissa Doss

Jane Barnette

College of the Arts

Theatre and Performance Studies

For as long as there have been women, there have been opinions about where a woman's place should be. Oftentimes these opinions are voiced through popular entertainment. Because of this different persons, especially in hindsight, can often interpret it in many different ways. Such is the case for the debate between whether theatre was used to uplift and uphold the true character of women in Ancient Greece or to merely play as a foil for what women should and should not be within Ancient Grecian society. We can start the analysis of this debate by establishing the things that are commonly agreed on by both sides. In Ancient Greece theatre was written for and performed at the City Dionysia, festivals held in honor of the god of theatre, Dionysus. There were separate festivals for comedy and tragedy, but both festivals consisted predominantly of men. The playwrights were men. The actors of both male and female characters were men. The audience members were men. The judges of the contests were men. All in all, these were male-dominated events. So how then, one might wonder, could women be portrayed in any sense?

Cross-Dressing in Renaissance England Theatre: Festive Tolerance or Social Unrest?

Jaime Melvin
Jane Barnette

College of the Arts
Theatre and Performance Studies

In Renaissance England, many ideas and social standards were in transition from a Medieval school of thought. Among those was the traditional sex-gender hierarchy. In Renaissance England it was common practice for men to portray women on stage and, in doing so, don women's clothing. Some scholars argue that cross-dressing in general was a form of subordination towards the traditional sex-gender hierarchy and that theater in particular was a forum in which this subordination could be displayed. However, other scholars disagree and believe that cross-dressing in the theater was neither subordination nor as controversial as many believe it to have been. My question today is whether or not cross-dressing in Renaissance theater disputed the subordinate role of women in the sex-gender system of Early Modern England or did it support the cultural sex-gender hierarchy?

All is Not Forgiven: A Production Analysis of Spring Awakening at Actor's Express

**Hannah Gale
Jane Barnette**

College of the Arts
Theatre and Performance Studies

Frank Wedekind's controversial play *Spring Awakening* contradicts the religious perception of God during his time; whereas during the 1890s God was typically portrayed as vengeful and angry, Wedekind chose instead to highlight the power of forgiveness, from young adults' points of view. The production choices made during the fall 2011 run of the musical *Spring Awakening* at Actor's Express surprisingly show the dangers of an atheist's view of the world, and how without a higher power "all is not forgiven."

Sycophant or Seducer? The Dedications of Shakespeare to the Earl of Southampton

Sara Gosier
Jane Barnette

College of the Arts
Theatre and Performance Studies

Could William Shakespeare and the Earl of Southampton have been lovers? Gosier considers this provocative query through the scholarship surrounding the bard's dedications to Southampton as well as the references he presumably made to the nobleman through several of his sonnets. In a paper that includes several short performances of literature, this student scholar-artist reveals the erotic and/or intimate interpretations of these two men, arriving at her own conclusion.

Negotiating the N-Word Through Dramaturgy for Splittin' the Raft by Scott Kaiser

Melissa Harvey
Jane Barnette

College of the Arts
Theatre and Performance Studies

Splittin' the Raft by Scott Kaiser pits one of the best-known (and most controversial) American novels, Adventures of Huckleberry Finn by Mark Twain, against the stark eloquence of abolitionist Frederick Douglass' descriptions of his true life experience with slavery. At once a rip-roarin' adventure story and an unsettling peek into the "American Myth" that all men are created equal, this play uses Twain's humor and satire to drive home Douglass' message that even though slavery has been abolished, we still have a long road ahead of us to reach true equality. Kennesaw State University Department of Theatre and Performance Studies was awarded an NEA grant to produce this play as part of an educational tour to surrounding schools. Part of our process dealing with a play of this nature is the controversial language and material; Kaiser incorporates Twain's original language from his novel (n-word and all). This presented a unique challenge for us - to convince educators who are (understandably) nervous about this issue that putting on this play for their students will not call forth the End of Days. One of our resources created to assuage fears over the controversial subject matter was through a production website bursting with material pertinent to an informed dialogue between teachers and students. We also included on this website, in full, a speech given by Pearl Cleage at the Southeastern Theatre Conference in 2011 which discusses the use of the n-word in Adventures of Huckleberry Finn. We, in essence, "passed the buck" along to secondary sources and other scholars who have previously published work that deals with these issues. We also compiled a content rich study guide that is meant to help students prepare to see the show. Since the study guide was made available for download on the production website, we took care to discuss the play without using the controversial language. Material discussing the play's language was also made available for teachers to read (and students if they were so inclined) in preparation for in-class activities and talk backs with the cast after each performance. The goal with all of these materials was to make educators less nervous about the surface of the play, so they might make it further into the substance of the material. All of this material is still available online at <http://www.kennesaw.edu/theatre/SplittinTheRaft/>.

The Frederick Douglass/Huck Finn Arts Education Initiative

**Josh Brook and Melissa Harvey
Harrison Long and Jane Barnette**

College of the Arts
Theater and Performance Studies

The Frederick Douglass/Huck Finn Arts Education Initiative Splittin' the Raft is a dramatic adaptation of Twain's *Adventures of Huckleberry Finn* as interpreted by ex-slave and abolitionist Frederick Douglass. Kennesaw State University's production reveals the novel's larger historical and literary contexts by using "epic theatre" strategies, arousing new insights about the present time through an examination of the past. The production, which is entirely designed and performed by KSU students, features African-American spirituals, songs by Stephen Foster and original compositions. Thanks to a grant by the National Endowment for the Arts, the production toured seven north Georgia communities after playing on campus. Audiences have included high school students, educators and community members of all ages. Students and educators prepared for the performance by accessing an electronic curriculum guide on our website, which includes a variety of valuable activities and source materials gathered by our student dramaturge. Online you can also access segments of a student-directed film documentary about the creative process. After every tour performance the ensemble lead a post-show discussion highlighting relevant social issues and the dramatic techniques used to create social awareness. At every tour stop the project leader offered a free performance workshop where local students were able to explore the performance strategies featured in the production. These presentations will feature a student film documentary about the creative process and tour as well as a website showcasing student research on the historical, literary and artistic contexts of the performance.

Horn Duo

Chloe Lincoln
Laurence Sherr

College of the Arts
School of Music

As a student pursuing the Bachelor of Arts in Composition, my creative activity for was the creation of a new composition. It is titled Horn Duo, and is written for two French Horns. The project was completed during Spring Semester 2012 in the Composition Studio of Dr. Laurence Sherr. Before I began writing my piece I studied previous literature for horns and specifically horn duets and duos. I studied Richard Strauss, with Till Eulenspiegel and pieces by Mozart and Gustav Holst. During Spring Semester 2012, we had two Master classes where I presented my piece in progress. The first Master class was held by Joel Puckett, professor of music at the Peabody Conservatory of Music at Johns Hopkins University in Baltimore. He reviewed and listened to a first draft of my piece and gave constructive criticism and consultation to help improve it. The second Master class was held by composers from Kocaeli University in Turkey, and included information on music in Turkey. Afterwards I had a private lesson with Özgür Ulusoy, one of the Turkish composers. He gave me some insight and different choices to better my piece, helping me consider the performance needs of my players more closely. Both Master Classes were very helpful in my completion of my work. Atlanta Symphony Orchestra performer and Kennesaw State University's horn instructor Tom Witte gave me tips on how to improve my piece while the players rehearsed the it, improving the practicality and quality of the piece, and making it more pleasant to the ears. Dr. Laurence Sherr has instructed me all semester, helping and consulting me the most while I worked on the Horn Duo, and allowed me to have the opportunity to present at the Master Classes as well as to schedule the piece for the Student Composition Recital on April 12, 2012. He also helped me to utilize Finale 2012 software for my project, and I developed better computer skills while using this program to compose the work and to prepare the final score. The 17th Annual Symposium of Student Scholars will be the world premiere of Horn Duo.

Spirituality and Self-Esteem

Elizabeth Snelling

Gail Scott

College of Humanities and Social Sciences
Psychology

The relationship between spirituality and self-concept is becoming increasingly acknowledged in the psychological field; however, the research is limited in its generalizability regarding race and ethnicity. Previous research indicates that spiritual relationships are positively correlated with self-esteem levels and can serve as a buffer for stress (Haymen et al., 2007). Research is currently in progress to examine two hypotheses: 1) religious connection is positively correlated with self-esteem in minority students and 2) inflation in self-esteem will be positively correlated to academic achievement. In this study, students at a large predominately white state university are being issued the Rosenberg Self-Esteem Scale (RSES; Rosenberg 1965) and the Duke University Religion Index (DUREL; Koenig 1997). Evidence is expected to support the notion that increased spiritual connection is correlated with high self-esteem, which ultimately will translate into academic achievement.

Can Goal-Setting Improve Research Methods Students' Grades?

**Amanda Daniel and Brittney Bledsoe
Jennifer Willard**

College of Humanities and Social Sciences
Psychology

To investigate the effect of goal-setting on grades, data were collected from 60 students in two research methods classes (28 in the goal-setting class, 32 in the control class). Participants in the goal-setting class posted on a discussion board with their goals for their proposals. Group members were instructed to comment and support each other. Participants completed several measures throughout the semester: an introversion/extroversion scale (Costa & McCrae, 1992), a Big Five inventory (John, 1991), a procrastination scale (Tuckman, 1991), an overall perceived stress scale (Cohen & Williamson, 1988), a perceived stress scale assessing class-related stress, and a variety of questions assessing demographics. Discussion board posts were coded for both frequency and quality. Outcome variables included proposal grades, final grades, and a post-course test. There was not a significant difference in proposal grades between the two classes, nor were the frequency or quality of posts related to proposal grades. Although quality of posts were positively correlated with conscientiousness and neuroticism, none of the personality measures were related to proposal or final grades. However, days absent from class was negatively correlated with grades. In addition, average hours worked by students was positively correlated with proposal grades, but not final grades.

Voluntary False Confessions: How Type of Offense, Consequences of Offense, and Personality Interact with Willingness.

**Alex Baxter, Lily Wilkerson, and Tamalyn Placencia
Jennifer Willard**

College of Humanities and Social Sciences
Psychology

Researchers examined people's willingness to voluntarily make a false confession. In a 2 (scenario: plagiarizing a paper or hitting another vehicle) x 4 (consequences for self and perpetrator) factorial design, participants ($N = 319$) read about a hypothetical "friend" who commits an antisocial behavior. We predicted that participants would be most willing to take the blame when the consequences of the antisocial behavior were less for participants compared to the perpetrator. Willingness was higher in the traffic incident scenario than the plagiarism scenario, $F(1,315) = 3.77, p = .053$. Contrary to the hypothesis, participants' willingness did not differ as a function of consequence, $F(3,310) = 1.36, p = .256$. Participants rated any consequence for self as high, regardless of consequence for perpetrator, $F(3,309) = 4.23, p = .015$. This may explain why participants' willingness did not differ as predicted. Additionally, willingness was positively correlated with codependency, $r = .14$, and negatively correlated with self-esteem, $r = -.20$. In general, willingness to take the blame was low. There may be a discrepancy between what people think they would do in a situation and what they would actually do. Thus, future research using behavioral measures may be necessary.

Psychology Students' Experiences with Undergraduate Research: A Comparison Across Two Years

Courtney Collins
Amy Buddie

College of Humanities and Social Sciences
Psychology

Undergraduate research has numerous benefits for students, including improvements in writing, problem-solving, and critical thinking (e.g., Thiry & Laursen, 2009). At Kennesaw State University (KSU), undergraduate research in psychology has grown significantly in the last several years. The purpose of our study was to examine undergraduate psychology students' perceptions about and experiences in undergraduate research over a two-year period. Psychology undergraduates who had been identified by their project mentors as having conducted research were asked to complete an online survey about their experiences, including questions about outcomes and products that emerged, the extent of their involvement in various stages of the research process, and experiences with and perceptions of their mentor. The data analyzed were part of a larger data set involving all students at KSU who had completed research in the given time period. In both 2010 ($n = 20$) and 2011 ($n = 21$), the majority of participants indicated that they were female, White/Caucasian, and seniors. The mean GPA was 3.53 ($SD = 0.40$) for 2010 and 3.56 ($SD = 0.42$) for 2011. The results revealed several significant differences across years. For example, in 2010, 40% presented at a local conference for undergraduate research, whereas in 2011 that number had risen to 76.2%. A number of similarities emerged as well. For example, satisfaction with the research process was high across both years. The least common outcome in both 2010 and 2011 was publication in a professional journal, although many students indicated that they planned to publish in the coming year. Because data collection will continue in future years, we will be able to identify ongoing strengths and weaknesses of undergraduate research at KSU. This will allow us to make more informed decisions about undergraduate research, such as what types of programs to implement, how to allocate funding, and how faculty can help students' undergraduate research experiences be the most productive.

Refinement of a Technique for Measuring Splitting via Concept Appraisals

**Tsvetlana Atanasova, Courtney Collins, Kimberly Wallace-Stewart, Gina Colaianni, Tony Dellinger, and Peter Bougas
Daniel Rogers**

College of Humanities and Social Sciences
Psychology

As a psychological defense, splitting involves dividing representations that generate contradictory thoughts and feelings. It is largely an implicit reaction to internal anxiety caused by simultaneous, conflicting percepts of self and other as good and bad. Thus, efforts to assess splitting via self-report face a difficult task. Existing self-report measures have largely focused on the respondent's observations of instability in their manifest thoughts and emotions. This presentation summarizes part of a series of experiments in which we are attempting to develop an implicit measure of splitting that captures a broad range of the phenomenon. The measure under study is a concept appraisal task (CAT) that involves reflexively appraising familiar concepts along a 7-point, bipolar scale ranging from "completely bad" to "completely good," with a "blend" midpoint. Splitting is operationally defined as reaction time to and deviation from balanced valuations, controlling for baseline reaction time and appraisal variability. To assess the CAT's validity, we examined the relationship between these markers of splitting and participants' scores on self-report measures of splitting and splitting-related constructs. In the presentation, we first summarize our efforts to refine the CAT stimuli to eliminate a problem of polarized ratings observed in a pilot study. We then examine the results of a new phase of data collection based on these CAT revisions. The test-retest reliability of the CAT is examined along with correlations between the CAT markers of splitting and self-reported splitting, borderline symptoms, dissociation, depression, and narcissism. Hierarchical regressions are utilized to examine whether reaction time and deviation scores from the CAT predict splitting-related constructs above-and-beyond self-reported splitting. The results indicate that the CAT utilizing the refined stimuli did not report the same effects observed in the pilot study and that a replication of the original findings is warranted. Limitations to and potential implications for an implicit measure of splitting are discussed.

Translating Parenting Styles to the Classroom: Assessing Teaching Styles and Their Personality Correlates

Courtney Collins

Daniel Rogers

College of Humanities and Social Sciences

Psychology

Baumrind (1971) investigated three main parenting styles: authoritarian, authoritative, and permissive. Our goal in the current study was to evaluate to what extent the three parenting styles, as assessed via self-report, could be used to explain differences in teaching styles. In addition, we examined the relationship between Big-Five personality factors and students' perceptions of their professor's teaching style. The participants were undergraduate students ($N = 687$), 81% of whom were female. Participants were predominantly White (62%) or Black or African-American (22%). The mean age was 22.0 ($SD = 6.7$). Participants completed the Instructor Authority Questionnaire (IAQ; Synder & Bassett, 2011), which examined their perceptions of their instructors' teaching styles. The IAQ is a modified version of the Parental Authority Questionnaire (PAQ; Buri, 1991), which focuses on parent behavior. Additional questionnaires inquired about participants' overall impressions of the course and instructor, including which teaching style they observed and preferred. Participants also completed the IPIP Big-Five Factor Markers (Goldberg, 1992). A factor analysis conducted on the IAQ items indicated that the scale structure approximated the original PAQ scale. Correlational analyses indicated significant relationships between teaching styles and agreeableness, conscientiousness, and emotional stability. Participants' perceptions of their instructor's teaching style corresponded well with their ratings on the IAQ. Participants' agreeableness and intellect/imagination differed as a function of preferred teaching style. The more conscientious the participants were the more teaching style mattered in their selecting courses. In addition, the more emotionally stable the participants were the less teaching style mattered. The utility of the modified IAQ in assessing student perceptions of instructor teaching styles, as well as the role of students' personality in this relationship, is addressed.

Utilization and Impact of Conservation Education Displays at the Living Treehouse, Zoo Atlanta

**Samantha Lindsey, Amy Brockman, Leigh Anna Young, Katherine Gabriel, Christina Tzortzinakis and Cameron Warner
Lauren Tagliatela**

College of Humanities and Social Sciences
Psychology

The goal of this proposal is to meaningfully engage a team of undergraduates in all steps of a research project designed to determine if and to what extent conservation education installations at Zoo Atlanta impact the knowledge, attitude, and behavior of zoo visitors. We measured frequency and duration of interactions with any of the nine target educational displays inside the Living Treehouse exhibit. Zoo visitors ($n = 136$) spent an average of 2 minutes 40 seconds ($SD = 1 \text{ min } 32 \text{ s}$) inside the exhibit after completing the pre-exhibit survey. Of their time in the exhibit, an average of 10.11 seconds ($SD = 19.20 \text{ s}$) were spent interacting with educational displays. It is noteworthy to indicate the vast individual differences on this factor, as the distribution was positively skewed with most visitors spending no time interacting with displays and a small percentage of visitors spending up to 4 minutes interacting with the displays. Of the nine target displays, zoo patrons, on average, interact with 1 educational display. Using a pre- and post-exhibit survey, we measured knowledge, attitudes, and behaviors related to conservation. We were interested in evaluating whether or not any of these factors change [from pre-exhibit levels] after a zoo patrons experiences the Living Treehouse and its educational displays geared toward conservation. Briefly, we found a significant increase in knowledge from pre- to post-exhibit, $t(101) = 9.89, p < .001$. Overall, the data do not indicate that time spent interacting with the educational displays is related to an increase in post-test knowledge of conservation issues. As aforementioned, most zoo patrons did not interact with any of the displays; however, a small minority of this group did show increased knowledge at post-exhibit. When controlling for those patrons who did not interact with any educational displays, the data then indicate a positive relation between interaction and gain in knowledge. There was not a significant change in conservation attitudes from pre- to post-exhibit, $p = .345$. There was a significant disparity in pre-exhibit, self-reported 'green behaviors' and post-exhibit 'intentions to engage in green behaviors', $t(98) = 7.44, p < .001$. Stated differently, after experiencing the exhibit, participants indicated that they intended to do significantly more 'green' behaviors than they reported actually doing at pre-exhibit. We are currently evaluating the data from the four-week follow-up survey to discover whether or not 'green' behaviors actually did increase.

Evaluation of a Circus Arts Therapy Program

**Whitney Warren, Tommy Gonter, Kristapher Gamble, Annabeth Peace, Bria Cantrell and William Stanley
Lauren Taglialatela and Carrie Heller**

College of Humanities and Social Sciences
Psychology

Circus Arts Therapy (CAT) is an alternative to Traditional Play Therapies that is based on a holistic philosophy, and is designed to foster mental and physical development. The CAT program is founded on fitness and nutrition instruction, contemporary Chi Kung, brain and body balancing, and the circus arts. Children with mild to moderate emotional, social, and/or physical challenges participate in weekly classes with peers, parents, and/or siblings. During these sessions, group members discuss nutrition, healthy activity, teamwork, and problem solving. All group members participate in circus-based activities including low trapeze, triple trapeze, juggling, tight-wire walking, aerobic warm-ups, and stretching cool-downs. We evaluated the potential benefits of participating in this 8-week therapy program using a pre-/posttest design. Parents completed a paper and pencil self-report survey at the beginning and end of each 8-week session. The survey was designed to measure physical ability, emotional stability, health, mental focus, and social skills. We collected data about 12 children (6 boys, 6 girls) ranging in age from 4 to 8 years ($M = 6$, $SD = 1.13$). In order to determine whether or not there were changes between pre and posttests, we ran a series of one-way ANOVA's for dependent groups. Although statistical significance was not found for differences among these factors, the means for 8 out of 10 factors moved in the right direction, while one factor did not improve and one remained the same. Potential reasons for non-significant differences between pre and posttest scores could be related to sample size/power, heterogeneity of sample, or lack of benefit. It is possible that there will be no benefit from this program. However, given that the statistical power was below .7 for most analyses potentially due to a small sample size, there is a higher possibility of Type II error. One potential explanation is the heterogeneity of the sample. Participants varied widely in areas of strengths and weaknesses. Finally, the lack of statistical significance does not necessarily point to a lack of efficacy in the CAT program, and we will be evaluating the data from a case study approach in a subsequent presentation.

Perceptions of Graduate Teaching Assistants and New Faculty Members

Ya Xiang Zhang

Amy Buddie

College of Humanities and Social Sciences
Psychology

Due to increased enrollment, more colleges and universities are utilizing Graduate Teaching Assistants (GTAs) as classroom instructors, who often have limited knowledge and experience regarding teaching (Muzuka, 2009) and thus lack teaching confidence (Young & Bippus, 2008). Past research indicates that GTAs receive little to no training to prepare them for teaching (Muzuka, 2009). Previous research also indicates that GTAs who receive training feel more confidence and have higher self-efficacy than GTAs who do not receive training (Prieto & Myers, 1999). In our pilot study, we examined differences in competence, expectations, and topics of interest between 6 GTAs and 28 new faculty members at Kennesaw State University through a self-report survey administered at the beginning of the fall 2011 semester. We hypothesized that GTAs would be less confident than new faculty members and would have different expectations. Our results supported the hypotheses. Results indicated that overall, GTAs were less confident and had lower expectations of student behaviors than new faculty members. In addition, GTAs mentioned that certain topics should be emphasized more in training workshops than other topics. Future longitudinal studies are necessary to determine if these changes persist after GTAs receive training on teaching.

Sexual Experiences and Attitudes Among College Students

**Ya Xiang Zhang and Jennifer Brooks
Corinne McNamara**

College of Humanities and Social Sciences
Psychology

Perpetration of sexual assault is a large concern among college students due to the vast consequences that can befall an individual who becomes a victim. Victims of sexual assault suffer from consequences that can inflict long-term damage and negative effects. Past research indicates rape empathy can be an indicator of perpetration. Preliminary results of our study suggest perpetration exists in our sample. Future analyses will be directed at determining whether a difference between rape empathy of perpetrators and non-perpetrators. In addition, analyses seek to determine if rape empathy is different between female and male non-perpetrators. We hypothesize that male non-perpetrators will have higher rape empathy scores than female non-perpetrators. In addition, we hypothesize that non-perpetrators will exhibit lower rape empathy compared to perpetrators of sexual assault. Future studies will focus on rape empathy of perpetrators.

Consenting to Unwanted Sex: Attachment Style and Locus of Control

**Amber Fulmer, Brittany Sharp, and Erica Miciek
Amy Buddie**

College of Humanities and Social Sciences
Psychology

Consenting to unwanted sex refers to participating in sexual activities without wanting to (Impett & Peplau, 2002). Previous research has shown this phenomenon to be relatively common (Impett & Peplau, 2003); however little research exists on consenting to unwanted sex as it relates to personality. One theoretical construct that may relate to consenting to unwanted sex is attachment style, which measures levels of security within a relationship (Collins & Read, 1990). Another theoretical construct that may relate to consenting to unwanted sex is locus of control, or the belief that one's life is controlled by either oneself or the external environment (Catania, McDermott, & Wood, 1984). Because so little research exists on these topics, the purpose of this study was to further examine the relationships among consenting to unwanted sex, locus of control, and attachment style. College students ($N = 405$, 29% male, 71% White) completed this survey online in partial fulfillment of the research requirement in introductory psychology. Participants rated 27 items regarding reasons for consenting to unwanted sex (e.g., "You didn't want your partner to feel rejected") on a scale from never (1) to very often (5). Participants also completed Collins and Read's (1990) 18-item attachment style questionnaire, which consists of three subscales: avoidant (e.g., difficulty trusting others), secure (e.g., comfortable depending on others), and anxious (e.g., worry about partner leaving). Finally, participants completed Nowicki and Duke's (1974) 40-item locus of control scale. The results showed that in general, external locus of control and anxious attachment were associated with consenting to unwanted sex. These results are consistent with previous research; anxiously attached individuals would worry about their relationship (Impett & Peplau, 2002), which could then lead to consenting to unwanted sex. Similarly, individuals with an external locus of control may not feel in control of their life (McEwan, De Man & Simpson-Housley, 2005), which could lead to not feeling in control of their sexuality, thus leading to consenting to unwanted sex. Limitations of our study include having a relatively small proportion of men and surveying only college students, who tend to have an internal locus of control. Future research could focus on a more diverse population involving a variety of relationship statuses. In addition, because our research suggests that certain personality traits (locus of control and attachment style) are predictors of consenting to unwanted sex, future researchers should examine other personality traits that may be important (e.g., sensation-seeking).

Self Concept Among Children in a Reading Mentor Group

Rebecca Olson
Gail Scott

College of Humanities and Social Sciences
Psychology

In many school districts, children with lower reading skills are given specialized attention outside of their classroom; this attention may include one-on-one tutoring or working with a reading specialist. For some of these students, though, it may be possible that their annexation from the classroom negatively affects their self-concept, or how one views oneself. Students with low academic self concept (ASC) were found to not perform as well on reading comprehension, word recognition, and reading grade-level books than those with high ASC (Chapman, Turner, & Prochnow, 2000). Stanovich (1986) notes that understanding the environmental implications on self-concept is crucial because current achievement will effect later achievement. Also, Stanovich (1986) comments that if a child has a negative perception of reading, then the child will generalize this perception to other subjects. Spear-Swerling and Sternberg (1994) found that once students have reached a low academic self-concept, it is hard for them to recover and be on grade-level reading ability. We researched whether participation in a reading mentor group improved self-concept among elementary school aged children. Children were given a pretest that the researchers composed. Participants also completed the Joseph Picture Self Concept Test (2004), which consisted of the child picking which pictures he/she most identified with in order to better understand the child's self perception. During the post-testing period, children took the created post-test (that featured the same questions as the pre-test) and took the Joseph Picture Self Concept Test (2004). Researchers found that more participants knew who a mentor was after the Reading Mentor program, but a large number of participants still did not know who a mentor was at all. The average raw total score for the Joseph Picture Self Concept Test (2004) increased after the Reading Mentor program.

AID Atlanta: A longitudinal analysis of program effectiveness

**Carter Schock, Kenneth Trickey, and Ashely Sellers
Christine Ziegler**

College of Humanities and Social Sciences
Psychology

AID Atlanta, with the many educational programs and resources they provide to the Metro Atlanta community, is a major force in the effort to provide HIV/AIDS prevention information and care to the public. Before and after the delivery of each educational program, participants fill out an HIV/AIDS knowledge questionnaire. These pre-test and post-test measures were analyzed for all educational programs offered by AID Atlanta from 2000 to 2011. Although the data indicated significant improvement in post-test knowledge scores, there was also an alarming decline over time in level of pre-program knowledge about HIV/AIDS transmission. In addition, the pre and post scores revealed a similar pattern of decline over time that suggested external factors may account for this decline in pre-program knowledge. The researchers speculated that these external factors could be due to media influence, for example, television programs that portray sex as a risk-free behavior. It was also suggested that these findings might be due to the failure of local school districts to incorporate relevant HIV/AIDS prevention information in sex education classes. These results strongly suggest there is an ongoing critical need for these educational programs.

Encouraging Changes in Behavior and Attitudes Toward Stair Use

**Sarah Holland, Ashley Jones, Ken Trickey and Sandi Masci
Adrienne Williamson**

College of Humanities and Social Sciences
Psychology

Young adulthood is a crucial time to promote physical activity (Anderson, Shapiro, & Lundgren, 2003) as people struggle with obesity at younger ages (Ford & Torok, 2008). Motivational signs placed around stairs and elevators have been found effective in encouraging individuals to take the stairs and increase their daily activity (Anderson et al., 2003; Auweele, Boen, Schapendonk, & Dornez, 2005; Boen, Maurissen, & Opdenacker, 2010). To promote physical activity among students, we placed motivational signs in a classroom building on a college campus. We expanded on previous research by increasing the number of locations of the posted signs, increasing the duration of time the signs were displayed, increasing the length of our observation times, and using a questionnaire to correlate self-reported behaviors and attitudes. We counted the number of people taking the elevators during 3 time periods: a) baseline, b) during exposure to the signs, and c) after the signs had been removed for 1 week. There was a trend toward a significant decrease in the number of students using the stairs, $F(2,9) = 2.603, p = .06$. Correlations between the self-reported data and the observed elevator usage will be discussed. Simple environmental cues may encourage healthier lifestyle choices.

Street Fight with a Pig

Jessica Duckworth

Susan Kirkpatrick Smith

College of Humanities and Social Sciences
Anthropology

This research simulated a street fight using ballistics, specifically a .22 caliber handgun. The purpose was to determine whether the same bullet from the same gun would have different effects on the skull, depending on how far away the killer was from the victim. Varying effects include: wound shape, wound beveling, wound size, and fracture lines. I hypothesized that wounds received at a closer range would cause greater damage, with larger wound size and beveling, and more fracture lines close to the wound. The research was carried out using a young pig skull, due to the anatomical similarities between pigs and humans. The set distances away from the “victim,” PDP1, were 20 feet, 10 feet, and point-blank. Since street fights and other gang-related activities often result in gun-shot victims and unidentified shooters, this research could help determine where exactly a victim was shot, and from what range, which could also lead to solving murderous crimes.

Summer 2011 Report: Bone Recovery by Water-Sieving on Chryssi Island, Crete, Greece

**Camille Kittrell
Susan Kirkpatrick Smith**

College of Humanities and Social Sciences
Anthropology

Archaeological water-sieving is often used when processing a site for the recovery of minute artifactual material. This is an expensive technique and relies upon a nearby water source. This study is an analysis of the value of using this expensive technique to recover such materials and determine the impact of recovered bone on a previously examined collection. Following the excavation of the Chryssi Tomb A607 in October 2008, bags of excavated soil were taken to INSTAP Study Center for East Crete for intensive water-sieving. A significant amount of human remains were recovered with this process and included adult, adolescent, and juvenile bone. The purpose of examining these recovered bones and fragments is to determine if it changes or contributes to information from earlier analyses of the collection. Tomb A607 contained a minimum of thirteen individuals, aged from fifty to as young as a neonate. While the recovered remains do not add to the number of individuals previously discovered, they do confirm the age range of the individuals buried in the tomb and provide more evidence of a systemic infection that plagued several of the dead.

Behind the Scenes: The Social and Professional Relationships between the Medical Staff and the IOM Technician

Chelsea Johnson
Brandon Lundy

College of Humanities and Social Sciences
Anthropology

Intraoperative Neurophysiological Monitoring (IOM) is well known in the medical field, but this business is easily overlooked by the public. When a patient needs a hip or knee replacement, IOM technicians have all the necessary equipment to provide to the hospital for the procedures. This study asks, what kind of relationship do the technicians have with surgeons that they work with to expand their business? The study was conducted through direct observation, performing semi-structured interviews, and interacting with the technicians and medical staff on an informal level. I purposefully selected professionals in this field to interview. The research was conducted at PhysIOM, a medical instrument supplier. PhysIOM provides critical, real-time data for a patient's neurophysiological status during surgery; the technicians help the physicians, hospitals, and surgical facilities optimize outcomes and minimize risks. The hospital staff and the patients depend heavily on the technician and their company to provide them with the appropriate tools for surgery. The relationships between the technicians and the staff are crucial to the process of getting the correct equipment to the patient. The hypothesis was that the relationship between the technicians and hospital staff would be minimal. The study found that the staff and the techs have a dependent relationship. The staff depends on the tech to bring the equipment and the tools needed to insert the equipment into the patient. The social relationships between the techs and the staff are overall positive. This study is relevant because it shows an essential step in the surgical process. More information about surgical support is beneficial to the patients who are often unaware of the role outside companies such as PhysIOM play in their health outcomes.

You've Got the Look: Hair Identity and the Importance of Female Appearance in Professional Business Microculture

Camille Kittrell
Brandon Lundy

College of Humanities and Social Sciences
Anthropology

Hair is a symbol of many things, such as status, gender, ethnicity, and religion. This research focuses on how women negotiate belonging to the microculture of professional business using hair as one symbol of membership. Is there a certain "hair identity" that professional women in the north and northwest suburbs of metro Atlanta create and maintain for success in business? The research hypothesis is that there is an unspoken expectation of how a "professional woman" looks regarding her hair within a professional work environment. While there is no single cut, color, or style that defines "the look", there is an identity that professional women must cultivate that signals, "I am capable, I am ready to work", and hair is the first point of contact that conveys this message to her business community. Further, the use of hair color can act as a tool to craft this identity. For example, gray hair may certainly be a negative subliminal trigger that casts doubt on one's readiness and capacity for work (i.e., Ageism). This study was conducted using a non-probability, purposive sample of women who are active business professionals, (defined as females who hold career-level vocations and who are either highly-trained or degreed), who work in the Roswell-Alpharetta or Kennesaw-Marietta areas. This method and sampling is appropriate for an in-depth study of a few cases. Research relied primarily on face-to-face interviews with selected professional career women and consultants (i.e., hair stylists and career counselors). Observations were also carried out at the women's place of business and in hair salons. This study found a notion of a "hair code" that business women are held to, embrace, and employ for success as professionals. This study examines how professional women craft the right hair identity within their microculture and contributes to the discussion of how that identity can either help or hinder progress up the corporate ladder. More broadly, this study adds a new thread to the ongoing discussion of gender equality or inequality in the professional workforce.

A Thirst for the Local: Finding Identity at the Neighborhood Craft Brewery

Maureen Stallworth
Brandon Lundy

College of Humanities and Social Sciences
Anthropology

Beer has a long and colorful history imbedded deep within many cultures. In the past two decades, there has been a proliferation of locally owned and operated small breweries within the southeastern United States adding a new chapter to beer's story. The purpose of this research is to examine how the popularity of a local craft brewery helps fashion cultural identity for some. The scope of the research of this unique consumer niche encompasses the brewers, tour guides and visitors that interact in this environment. Both conceptual and physical consumption are investigated within the context of the local brewery to better understand the strong links between specific commodities and personhood. The study's participants were selected through non-probability, purposive sampling. Qualitative research, incorporating both participant observation and semi-structured interviews, was conducted over three months. This approach is the most relevant measurement for an in-depth study of small cultural samples. The research findings suggest that perceptions of cultural identities influence consumption decisions about supporting quality, locally made products at the point of manufacture. The brewers seem to be actively participating in creating this identity in numerous ways such as through tours, festivals, and social media. The implications of these findings indicate that people are seeking out and identifying with "homegrown" products to accentuate their "locality" as they become further and further removed from the direct production of most goods and services within a largely outsourced economy.

A Directed Study in Physical Anthropology: The Process of Determining the Taxonomy of Two Old World Monkey Skulls

Ashley Moss

Susan Kirkpatrick Smith

College of Humanities and Social Sciences
Anthropology

Taking the opportunity to participate in a directed study is a much more independent way to earn course credit at Kennesaw State University, but also an invigorating process with the guidance of a master in the field. A directed study requires motivation by the student to take responsibility for their learning. This skill is not always learned in traditional courses due to the fact literature is usually provided and class lectures coincide. However, a student taking a directed study must go through a literature review process finding their own materials and figure out what the most important questions are as well as the answers to them. This project consisted of examining two Old World monkey skulls by taking photographs, measurement, and making comparisons of images on databases. In addition, literature was used to determine the main distinctions between different genera. Through this investigation, I have discovered that both skulls are baboons from the *Papio* genera, one being male and the other female.

Pros and Cons of Leaving Skeletal Remains Encased in Soil After Excavation

Courtney Hamilton
Susan Kirkpatrick Smith

College of Humanities and Social Sciences
Anthropology

Archaeological excavations in Greece are often conducted by professional archaeologists employed by the Greek Archaeological Service. This governmental agency does not have physical anthropologists on their staff, so human remains are boxed and stored for later analysis. Sometimes the remains, particularly the skulls, are left encased in soil and put in plastic bags. This practice creates some benefits for physical anthropologists, but also causes some problems. We will use an example from Crete, Greece to show how different kinds of data are lost and others are retained when bone remains unexcavated for a long period of time.

The Influence of Stressors on Retail Team Dynamics

Erika Di Sciascio

Brandon Lundy

College of Humanities and Social Sciences
Anthropology

Retail chains are a common aspect of today's economy in the United States, and the people who drive sales at the store level warrant study as much as a company's financial impact. By conducting semi-structured interviews and participant observation with employees of a chain retail store, this study seeks to identify the common stressors encountered in a retail environment, and how those stressors affect the interpersonal relationships between employees and the efficacy of the sales team. Data was collected from seven of the ten members of a store's sales staff. The purpose of this research is to build upon and expand existing knowledge on the subject of small group dynamics as they apply specifically to the retail environment. The results indicate that the two main sources of stressors are customers and corporate management. While there are select instances where direct personal gain inspires competition between employees, they seem most efficient and satisfied with their jobs and job performance when they utilize teamwork to reach common goals. The employees interviewed believe that working together as a group and supporting and assisting one another allows them to perform at their best. The results support the findings of other studies conducted on the positive correlation between team cohesion and job satisfaction. These retail employees are integral to the success of their store, and understanding how they work to achieve this success provides insight into the workings of retail commercialism.

Cravin' the Ravin': The Reasons behind Participation in Dubstep Raves in Atlanta

Annie Goodman
Brandon Lundy

College of Humanities and Social Sciences
Anthropology

This research project focuses on the motivation behind participating in dubstep raves in Atlanta. What factors lure and determine continued participation in dubstep rave shows? Rave culture is a constantly evolving social phenomenon, developing around the world since the late nineteen eighties. This study provides insider knowledge about what draws individuals to raves. Several sessions of participant observation were carried out at a popular rave venue in the Atlanta area. In addition, purposive non-probability sampling was used to select appropriate interviewees who attend raves and therefore have expert knowledge on what motivates them to participate. The results suggest that participants are involved in Dubstep in order to gain a particular “sense of belonging” characterized by a love of dubstep music and the creation of a community with other shared common interests such as the use of mind altering substances. Escapism is also rooted in their motivation as an emergent common theme. Participants sometimes want to escape their homes, problems, and work. The results may benefit promoters of these and similar events to better suit their clientele. This research also provides data on rave culture and its negative aspects, such as substance abuse, that affect youth participants.

A Glimpse into the World of Southern Chefs

Stephanie Henry

Brandon Lundy

College of Humanities and Social Sciences
Anthropology

Everyone eats. Many people choose to eat out at restaurants instead of cooking at home. Behind every delicious plate of food is a great chef, sous chef, or pastry chef, all of whom serve distinct roles in a functioning kitchen. Chefs draw inspiration from a variety of sources for their dishes. These factors lead to either innovation or stagnation in the kitchen. What culinary expectations are put on these chefs by working and living in the Atlanta area? How does this lead to innovation or stagnation? In order to answer the research question, semi-structured interviews were conducted with chefs at local restaurants in the greater northern metro Atlanta area and continuous monitoring direct observations were also carried out at these same restaurants. Findings show that southern chefs have pushed the limits of “southern cooking” by experimenting with new ingredients while also expressing the constraints of working within the “southern” genre with the accompanying expectations on the part of the customers. This paper is important because it helps to provide a look at southern chefs and expands our understanding of the important links between regionalism, food and food preparation, and cultural identity.

An Analysis of Projectile Trauma Resulting from Steel-Tipped Broadheads

Rosemary Warner
Susan Kirkpatrick Smith

College of Humanities and Social Sciences
Anthropology

The purpose of this experiment was to examine the results of modern (steel-tipped) broadheads on bone. Comparisons will be made between the results of the experiment and existing literature on non-modern broadheads, which are made of materials such as bone, glass, and stone. A set of pig ribs was fixed on a foam deer target and shot from a distance of 8m. Three modern broadheads were selected and each was fired five times, resulting in a total of fifteen wounds. The ribs were separated into sections of varying sizes dependent upon local trauma. The respective sections were defleshed according to standard forensic procedure. The bones were then arranged in anatomical position and examined for trauma. Due to advances in technology and the refinement of materials, I anticipate that the modern broadheads will do greater injury to bone than non-modern broadheads. This experiment is significant to forensic anthropology because it will aid officials in distinguishing modern arrow wounds on bone from non-modern ones.

The Analysis of Charred Bone: Identifying Human Remains

Stephanie Henry

Susan Kirkpatrick Smith

College of Humanities and Social Sciences
Anthropology

When investigating a fire, forensic anthropologists need to be able to identify burned bone among other burned objects. For this project, I will be burning different types of pig bone in a fire pit with large sticks and branches as fuel. I hope to be able to still recognize the different bones after the burning process has ended. This project may help forensic anthropologists identify different types of charred human bones.

Reciprocity in a Modern Day Re-Sale Shop

Brandi Wilkie

Brandon Lundy

College of Humanities and Social Sciences
Anthropology

The purpose of this research is to look into the complex social relationships that are formed during the trading process in a modern day re-sale shop (Trendy's Re-sale). Non-probability purposive sampling was chosen in order to gain complex knowledge from a few selected individuals. Qualitative data was collected using semi-structured interviews and participant observation to better understand the complex socio-economic relationships between re-sale shop workers and customers over a three-month period. The research has yielded numerous factors that contribute to complex socio-economic relationships such as variance in income, gender roles, and the level of experience in the trading process at Trendy's Re-sale Shop. This study's findings are important to understand the thriving and newly emergent re-sale economy in the southeastern United States. It reveals the constant social and economic interactions that take place between clients, who act as both the customer and the supplier, and shop employees, who act as the trusted intermediary between shop owners and clients. Through this research, new characteristics of reciprocity, or the informal exchange of goods and services, are shown to be linked to the formal market economy.

It's Time for a Cookin': A Glimpse into the Modern Social Symbolism of Sorghum Syrup in Northeastern Georgia

Greg Mavity
Brandon Lundy

College of Humanities and Social Sciences
Anthropology

The purpose of this research is to examine the social ideas that surround sorghum syrup in far North-East Georgia, from the cultivation of cane to its processing and distribution as refined syrup. Sorghum syrup represented a strong economic factor for a majority of the history of Georgia, as first a colony and later a state. By establishing a historical backdrop, modern interpretations of sorghum syrup and its production can be understood and analyzed as a symbol of a cultural identity. Participants were selected through non-probability purposive sampling in order to gain the most information from a few individuals. These individuals have a family history that incorporates sorghum syrup or have recently gained interest in sorghum syrup. Data was collected through face-to-face semi-structured interviews. Through analysis of these interviews, sorghum syrup, in the opinions of the individuals interviewed, is a symbol of community and a reminder of an idyllic past coveted by many Southerners. Individuals with a family connection to sorghum syrup not only see it as a symbol of community, but also a symbol of social capital and prestige. Sorghum syrup is one of many symbols of a "lost" Southern past. By exploring the importance of sorghum syrup, larger ideas about this Southern history and ideology can help develop a better understanding the modern Southern identity.

To Drill or Not to Drill: Analysis of Early Maya Lithic Drills at Pacbitun, Belize

Tammy Davis and Kaitlin Crow
Terry Powis

College of Humanities and Social Sciences
Anthropology

Measurements were taken of 178 chert drills from the Pacbitun excavations in 2008 and 2009. The primary goals of analysis were to determine why and when changes occurred in drill technology, as well as to give indication of craft specialization. Although the sample was small, evidence showed a technology transition between the Early Middle Preclassic (800-600 BC) and the Late Middle Preclassic (600-300 BC). However, there were trends that remained throughout both time periods. In addition to technological trends, analysis of the lithic drills provided evidence for the use of burin spalls. Known also as preforms, or blanks, burin spalls have been considered in past research to be the initial stage of a drill. However, through our research, we present evidence that may redefine a spall's function in the use of shell bead production. Our analysis suggests that the manufacture of spalls and drills during the same time as shell distribution helped to sustain the economy of Pacbitun. From initial production to the disposal of the spall and drill, evidence shows how the Maya might have devised technology to keep up with a rapidly growing economy.

Tybee Light Station: A History in Archaeology

Jessie Duckworth

Terry Powis

College of Humanities and Social Sciences
Anthropology

Tybee Island Light Station, located off the east coast of Georgia near Savannah, is not only a popular tourist attraction today, but it is also a historic site that dates back to the early 18th century. This research delved into the historical archaeology of the site to discover what the light station was used for during different points in history. I hypothesized that the Tybee Island Light Station changed ownership and purposes throughout history, which turned out to be true, but there was so much more to be learned. Most archaeological sites are found and dug once for a period of time and recorded in the archaeological record, but one thing that makes this site unique is that it has undergone multiple renovations and reconstructions so that it is now one of the most complete and well-maintained light stations in the United States.

Preserving the Battlefield

Brandi Wilkie and Ann Goodman

Terry Powis

College of Humanities and Social Sciences
Anthropology

Curation is the process in which artifacts are cataloged, preserved, and organized according to a set of State guidelines. "Preserving the Battlefield" is a research project focused on the curation of Civil War artifacts from Pickett's Mill State Historic Site, located in Paulding County. The site dates back to May 27, 1864, when a bloody battle took place in a deep ravine, killing more than 2100 soldiers. The battle of Pickett's Mill was one of the few Confederate victories during the war. Today, this historic site is widely regarded as one of the best preserved battlefields in the nation. The curation of the artifacts from archaeological investigations conducted in 2006 and 2007 is not only important to the history of Georgia, but to the United States as well. The process of curating is not without its problems and learning curve. The procedure of curating the Pickett's Mill Collection was made possible through in-depth study of curation standards and consultation with professionals in the field. Our research included properly labeling artifacts, developing a complete artifact catalog, performing electrolysis, as well as developing a microclimate for certain diagnostic artifacts. This project is the first of its kind in the Department of Geography and Anthropology, and the results will hopefully be used as a yardstick for future curatorial work.

The Order of the Flaming Sugarbakers: Effects of Community Activism in Atlanta

Julio Leyva
Brandon Lundy

College of Humanities and Social Sciences
Anthropology

Changes in the medical field and new treatments for HIV/AIDS have altered the way that the youth of the 21st century think about the severity of the disease. Therefore, a group of “queer nun” activists known as the Sisters of Perpetual Indulgence makes it their mission to tend to the needs of the LGBT community through creating awareness of safe sex practices and raising funds for local charities. This ethnographic research project focuses specifically on the Atlanta chapter of the Sisters of Perpetual Indulgence known as the Order of the Flaming Sugarbakers. The purpose for the research is to gain a better understanding of the reasons why the Order of the Flaming Sugarbakers, through their elaborate facial makeup and religious imagery, exists and how their techniques in activism have helped the LGBT community. This project might also help broaden people’s perspectives on a cultural group that is not part of “mainstream” society. In order to better understand the group’s activism techniques, participant observation took place at various charity events. Semi-structured interviews were also conducted with the Fully Professed members of the group, being that they are at the highest level of membership and therefore would be able to provide the most vital information for this project. The results show that the Order of the Flaming Sugarbakers applies different techniques such as humor to reach a larger audience and raise funds more effectively. The order also uses a dramatic appearance to gain attention in the community as “modern day nuns.” The style of habit and face paint manifest both religious symbols of outreach while also setting themselves apart within the community at large. The Order of the Flaming Sugarbakers has over time filled the needs of the LGBT community by being the driving force in promoting the progressive advancement of knowledge on topics important to the LGBT community, while providing the acceptance of a religious sect that has been denied to them.

Expressing Oneself Through the Art of Tattoo

Lul A. Saleh

Brandon Lundy

College of Humanities and Social Sciences
Anthropology

Tattooing seems to be a common form of body modification in the United States. Each tattoo design is unique with many different styles and meanings. What are the reasons people get tattooed, and why is the number of people getting "inked" in the United States seemingly on the rise? During this research, semi-structured interviews were conducted with tattoo artists to collect specific data from knowledgeable individuals. The results demonstrate that people get tattooed for many reasons; some believe it enhances their beauty, while others do it to cover their scars or birthmarks. My findings also show that some women choose to have micro pigmentation done on the face as a way to enhance their beauty (i.e., permanent make-up), which, they suggest, makes them feel better both physically and psychologically. People are getting tattoos to reflect their own personality and personal style, some to challenge social norms and values, or to advocate different ways of experiencing, feeling, and displaying one's body. This becomes a new marker in our society for both beauty and cultural identity.

Investigation and Identification of Two New World Monkey Skulls Curated at Kennesaw State University

Sean Seiler

Susan Kirkpatrick Smith

College of Humanities and Social Sciences
Anthropology

Kennesaw State University's Department of Geography and Anthropology has a teaching collection that includes two unidentified New World Monkey skulls. The purpose my research was to identify the taxonomic classification to which the skulls belong. To allow for the proper identification of the two skulls cranial and dental characteristics of New World monkeys were researched and measurements were taken. In addition comparative collections of skulls, studies and text were utilized. Preliminary results reveal that each skull is from a different subfamily. The two specimens demonstrate dental and cranial morphological characteristics that would exclude them from three subfamilies of the New World Monkey including the Callitichidae, Aotidae, and Cebines. My research suggests that one of the two crania specimens is possibly from the Platyrrhini subfamily Pitheciinae and is the genus Pithecia. The second New World Monkey skull is potentially from the subfamily Atelinae and is the genus Brachyteles or Lagothrix.

Identification of Shot-Gun Shot through Skeletal Analysis

Kate Sherman

Susan Kirkpatrick Smith

College of Humanities and Social Sciences
Anthropology

I conducted a forensic experiment on the damage inflicted by a shotgun and different types of shot. Using methods of forensic analysis, I analyzed skeletal remains that have been shot in order to further the existing research on shotgun wounds and trauma. In my research, I examine the effects of three different types of shot fired from a pump-action, 12 gauge Mossberg 500 shotgun. The shot used was buck shot, bird shot, and a slug. This research is directed at analyzing dispersal patterns and the effects on bone. By using three fleshed pig heads to closely represent human skulls, I will fire the three shots into the pigs; each pig will receive a different type of shot. Afterward, I will clean the bones to better view the damage the bone received. Through this experiment, I expect to be able to find the dispersal patterns of the different shot as well as discover than I can identify the type of shot by the damage caused on the bone. This research will improve the ability of forensic investigators and scientists to determine the type of shot loaded when examining human remains.

Initial Investigation into Early Land Settlement and Subsistence at the Monastery of the Holy Spirit in Conyers, Georgia

Sean Seiler

Terry Powis and Garrett Smith

College of Humanities and Social Sciences
Anthropology

My research is directed towards the initial identification and establishment of early land ownership prior to The Monastery of the Holy Spirit in Conyers, Georgia. Trappist Monks acquired the land in 1944. The parcel of land is comprised of over 2,000 acres. For almost 70 years the monks have lived on the property. Before the monks acquired the land it was utilized in different ways by Native Americans, colonial Georgians, and eventually the monks. Various avenues of archival research were utilized including deed records in Henry County and Rockdale County, scholarly publications, and databases of historic and prehistoric peoples. The results would produce a chain of ownership and land utilization through time. First individual names must be identified to facilitate future research directed towards interpreting the usage of the land. The final intended results would identify who the individuals were living on the land and when, what they were doing on the land, and why.

I'm With the Band: Factors Influencing Participation in Collegiate Wind Ensembles

Courtney Hamilton
Brandon Lundy

College of Humanities and Social Sciences
Anthropology

There have been numerous studies indicating benefits to students involved in musical ensembles. Through high school, music students are likely to have better social skills and academic performances than their non-musical counterparts. In the time between graduating high school and entering university, many students with musical backgrounds choose not to participate in the university's music programs. The purpose of this study is to identify the factors influencing participation and nonparticipation in music programs so that the music department can better address the needs of incoming students in order to increase enrollment in music courses. To discover trends in attrition rates among collegiate wind ensembles, music educators and students with musical backgrounds from metro-Atlanta universities were interviewed using a semi-structured format. For the purposes of this study, wind ensembles were the only ensembles taken into consideration. The research indicates the following factors in participation: social bonds, audition pressures, knowledge of ensembles, ease of instrument access, and self-perception of talent. Knowing these factors will allow music educators at the high school and collegiate levels to address issues that negatively impact enrollment in university music classes. It is the aim of this study to increase participation in collegiate wind ensembles to ensure full benefits to both the students and the music departments.

Behind the Letters: A Look at the Positive and Negative Aspects of Sorority Life on an American College Campus

Lauren Parker
Brandon Lundy

College of Humanities and Social Sciences
Anthropology

Everyone has seen them on nearly every campus across the nation, sorority women parading around with their Greek letters emblazoned upon nearly everything they own. Sorority life is something that is an integral part of the lives of many college students. Female Greek letter associations however, generally have a negative stigma surrounding them. What are these stigmas? Are they true or just stereotypes that have been furthered by mass media? This research focuses on the negative and positive aspects that surround sorority life at S College including academics, self-image, and alcohol use. Semi-structured interviews were conducted with five of the women who are involved with Greek life at S College and five additional women are currently unaffiliated with an organization. These women were chosen at random from all of the sororities currently active on campus. The research has shown that the women's Greek GPA is higher than the non-Greek women's GPA at S College. Alcohol use and negative body image are issues that face almost all college age women regardless of their affiliation. With college becoming a necessity in the world that we live in, Greek life is growing faster than ever. It is an entity that needs to be understood for what is truly behind the letters.

Medical Changes in the Birth Experience

Laura Emily Parker

Brandon Lundy

College of Humanities and Social Sciences
Anthropology

Women's healthcare is a widely debated topic in our political climate today. With the surrounding political climate and with advancing medicine, birthing rituals and emotions surrounding childbirth have changed. This research asks, have medical advances led to better birth and emotional experiences for women? These medical advances such as ultrasounds, heart monitors, and drugs to speed the labor process along should be helping women to give birth more safely, but are they? This research is limited to women (ages 20-71) who have already given birth. To gain insight into the birthing ritual, semi-structured interviews were conducted with various women of different social statuses and generations to gain an extensive view of how the birth experience may or may not be changing. Results show that delivery experiences have room for improvement. Although women are not as afraid of dying as they once were, and there are more advances in determining and correcting wrong placement of the fetus and fetal diseases, the birth experience itself seems to be focused more on technology than women. Rushing women through labor can often lead to complications that would not have happened in natural childbirth. The medical advances in the delivery room are important, but this research suggests that the focus needs to be put back on the women.

Cave Diving in Mexican Cenotes

Jared Lafferty
Jennifer Weber

College of Humanities and Social Sciences
Anthropology

In the middle of the Mexican jungle of the Yucatan peninsula is probably one of the last places that one would expect to go cave diving. In fact there are a dedicated few who brave the Cenotes dangerous elements in an effort to explore a part of the world that no human has ever been in before. Cenote diving in Mexico holds the reputation of the best cave diving in the world. Many divers have described the experience of diving in the Cenotes of the Yucatan as nothing short of a religious experience. Cenotes are flooded sink holes in the Yucatan that could hold answers to some of scientist's oldest questions about Earth's formation. These underwater caves are worshiped by the Mayan people to present day as a place where their gods live, as well as being their primary source of water. Within the depths of these sacred Cenotes evidence can be found of the early man using these underwater caves as dry shelters. Amongst the labyrinth of unmapped passages and caverns is an atmosphere that is alien and hostile. The only thing that is suitable for comparison is a mission into space. By knowing how these beautiful and sometimes deadly places form, one may be able answer the questions about the early stages of Earth's formation.

The American Concept of Union

Angela Tooley

Jim Piecuch

College of Humanities and Social Sciences
History

This paper examines the American concept of political union among the states from the time independence from Great Britain was declared in 1776 into the Jacksonian era. Various influences upon the American understanding of the federal union, including classical thought and Enlightenment political philosophy, as well as the views of American political leaders, are discussed. The paper traces the transformation of the concept of union from a pragmatic political alignment to serve common ends into an end in itself that linked national political existence with belief in the perpetual union of states.

John Trumbull: Art and Politics in the American Revolution

Morgan Sumrell

Jim Piccuch

College of Humanities and Social Sciences
History

"John Trumbull: Art and Politics in the American Revolution" examines the relationship between art and political ideology during the American Revolution. Trumbull, a renowned American artist, was also a fervent supporter of the Revolution. He was imprisoned in England during the war because of his political opinions despite the apolitical nature of his presence in England, that is, to further his study of art and refine his skills. After the Revolution, he returned to the United States and earned a reputation as one of the foremost painters of Revolutionary images, including his famous painting of the signing of the Declaration of Independence.

Georgia Local Economic Development Agencies and Green Industry

Kelly Gantek
Lynn Patterson

College of Humanities and Social Sciences
Geography

As the many industrialized nations have moved forward with green energy products and practices, the United States has lagged behind, despite efforts by the Obama Administration through the American Recovery and Reinvestment Act, which set aside funds for green business. Green industry in Georgia is historically thought of as relating to agriculture; however as more and more emphasis is put on renewable energy and sustainable practices in general, the term green in Georgia has become more associated with these latter practices. To see if Georgia local economic agencies were trying to attract green industry (including those practices encompassing: solar, wind, biofuel, biomass, sustainability and green jobs), a review of 165 local economic development agency websites was conducted. Results showed that few agencies detailed green business as a targeted industry on their websites and those that did mostly referred to LEED building standards in efforts to create sustainable communities. Furthermore, agencies characterized as representing large urban areas emerged as actively pursuing green industry versus more rural locations. Georgia counties must not only compete with other states in the nation for businesses, but against other countries, such as China and Germany as well. So, while Georgia may be competitive given its local economic characteristics to attract green industry, there is little published evidence that local economic development agencies are actively pursuing this industry.

Romani (Roma) Discrimination as Reflected in European Census Data

Samantha McAvoy

Vanessa Slinger-Friedman

College of Humanities and Social Sciences
Geography

The Romani (Roma) people have experienced centuries of persecution, discrimination, and oppression. These effects have not waned with time and remain a prevalent issue throughout Europe and other parts of the world. In modern times we see how rampant these issues are in the census data for the Romani. There are many large gaps between misreported and unreported census numbers and the estimated population numbers. This presentation will explore why these discrepancies exist in the census data by analyzing historic conditions, cultural characteristics, spatial distribution, and current issues facing the Romani. From their initial diaspora from India in the 11th century to their consistent migrations around Europe during the 14th century the Romani (Roma) remained mobile throughout most of history. Their solid presence in many European nations is evidence of their migratory nature. They endured over six hundred years of slavery in Eastern Europe, were victimized during the Holocaust (losing over half of their population) and still, to this day, face extreme racism and intolerance at a level that few other cultures have suffered. As a result, the Romani remain an uncalculated population throughout Europe because they live as a scattered nation of people without a homeland. Less than half of the European states report Romani (Roma) figures in their respective censuses. Regardless of whether these non-reporting states are unable to collect data, prefer not to collect data, or just simply refuse to report the data collected there are a large number unreported Romani living within the European states. Even those states that allow for Romani (Roma) classification are suspected of having grossly inaccurate results because, in many circumstances, Romani (Roma) will not identify themselves in the census. This behavior is largely attributed to these individuals wanting to avoid being subjected to discrimination. The long troubled history of the Romani (Roma) coupled with the problematic census figures lead to the inference that they are still suffering from more modern forms of prejudice and discrimination. While the discrimination may not be as flagrant as it was in the past, the Romani are underserved and underrepresented at a government level throughout the European Union. Beyond lacking any political voice they are also face social intolerance to such a degree that many will avoid identifying as Romani (Roma). This research concludes that discrimination of the Romani (Roma) is reflected in the census data of parts of Europe.

Forest Cover Change from 1992 to 2007 for the Southwestern Etowah River

**Patric Belou and Jessica Hootselle
Mario Giraldo**

College of Humanities and Social Sciences
Geography

Process of colonization of North Georgia transformed the landscape and its forest cover into agriculture and livestock areas. People established primary residences and productive agriculture and livestock systems using existing forest as a source of timber, lumber and firewood. After agriculture and extensive cattle ranching moves to the west a process of forest regeneration occurs during the 20th century however, interrupted by the growth of the Atlanta metropolitan area. The purpose of this research is to quantify land use land cover change from 1994 to 2007 for the southern section of the Etowah watershed, estimating changes in deciduous and evergreen forest. The analysis includes image analysis of Landsat satellite data, creation of a change matrix and the production of summary statistics. Our most significant result shows decrease in forest area of at least 20% in all the five counties of the Etowah watershed and the presence of forest areas fragmented by the urban infrastructure, road and railroad networks and suburban residential areas of Atlanta. These patches of forest in north western Atlanta, are expected to be today refugees of native animal and plant species and to regulate different elements of the water cycle.

Forest Water Consumption for the Southwestern Etowah River

Jessica Hootselle and James Van Horne
Mario Giraldo

College of Humanities and Social Sciences
Geography

Atlanta's ever-expanding suburbia threatens local vegetation in the headwaters of local streams and rivers. These streams are critical surface water resources for the city's long term sustainability. It is assumed that remaining forest patches are important for the hydrologic processes and in the preservation of unique native vegetation. However, little research has been done in studying the botanical composition of these vegetation patches and in their contributions to the local water cycle. This experiment was located in the property "In The Valley" under administration of Kennesaw State University. Within its 56 acres, there are patches of forest believed to be undisturbed for over 50 years and classified as a Southern Appalachian Low-elevation Pine Forest. We evaluate water consumption by plant species estimate as sap flow variation through the time (Granier's method) using a thermal dissipation probes, Dynamax Probe12 Sap Flow. We also collect soil moisture values using a DeltaT Soil Moisture Probe that work under the principle of Time Domain Reflectometry (TDR). These two equipment allow us to understand the availability of moisture to root systems and to correlate with sap flow during events of drought or when soil is past field capacity. The results indicate Relatively rich forest patches with more than 20 plant species/acre. The dominant plant species were *Pinus virginiana*, *Prunus serotina*, *Quercus* spp. We select three *Pinus* spp. (shortleaf pines) to assess water consumption. We found similar water consumption regimes among the three individuals that do not correlated with surface soil moisture content of precipitation events. The results suggest the possibility that forest cover participate in the local water cycle in the process of interception and evaporation of water but not necessarily in the direct consumption of surface water. Further studies will compare water consumption among different plant species.

Communication Audit of Real Estate Mortgage Network

**Sheryl Cone and Nigel Brett
Philip Aust**

College of Humanities and Social Sciences
Communication

Communication in organizations is integral to success. Information regarding corporate decision-making, employment, promotion, and customers must be communicated clearly and effectively. An Organizational Communication Audit examines a corporation or non-profit organizations communication both an internal and external perspective. Using ethnography, focus groups, surveys, and personal interviews, this communication audit of Real Estate Mortgage Network seeks to understand communication flow hierarchically, how information moves within the company, and examines employee morale and office culture. The findings are presented along with discussion of and recommendations for future company improvement. Finally the study limitations are presented.

A Model of Intercultural Conflict Communication

Nigel Brett

Deanna F. Womack

College of Humanities and Social Sciences
Communication

Communicating during conflict is difficult; emotions, tension, and stress often cloud judgment. This theoretical model of intercultural conflict describes how individuals modify their conflict communication in response to others. The degree to which an individual values the outcome of the conflict and the relationship, and his or her ability to communicate intentions and messages influence how the conflict is resolved. Individual level factors are part of a smaller cycle within the conflict communication sequence and are constantly changing with the dynamic nature of human experience. Culture (individualistic or collectivistic) influences the development of individuals' self-concepts, socialization, and in-group/out-group associations. Members of collectivistic cultures often avoid conflict, are overtly very polite, and infer a great deal of the meaning they attribute to an interaction from contextual elements. They often avoid conflict to preserve their own and others' face. Members of individualistic cultures often engage in low context communication, approaching conflict and other topics directly and candidly. Culture influences the next variable, individual self-construal. An individual's life experiences affect how an individual interprets and approaches conflict and what specific emotions he or she associates with the experience. As cultures evolve and individuals age, their self-concepts, socialization, and in-group/out-group associations change. In addition to the individual cycle, the model also examines the individual's concern for the relationship with the conflict partner. A high concern for the relationship will produce a desire to work through the conflict and resolve the issue with minimal struggle. A low concern for the relationship increases the likelihood of competitive tactics and an indifferent attitude towards the conflict partner's needs and wants. Next, the theory of message design logics explains why some individuals can create complex messages that accomplish multiple objectives. These messages are finally shared and assigned meaning during the actual conflict communication. Finally, the individual adds to previous experiences the conflict outcome and all the factors that led up to the positive or negative result. With deeper insight or the ability to predict communication behavior, individuals will be better equipped to navigate personal conflicts, leading to more personal satisfaction and more real collaborative resolutions.

Out of the Box: An Attitudinal Analysis of the Perception of Homosexual Characters on Television

James Triplett
Erin Ryan

College of Humanities and Social Sciences
Communication

The number of homosexual characters on television has been on the rise in recent years. One would think that with the increased visibility and portrayals as dictated by the writers of the shows on which they appear would lead to more social acceptance of the LGBT community in everyday society. The purpose of this study is to perform an attitudinal analysis of both straight and non-straight television viewers on the perceptions of homosexual characters on television. The research questions to be explored are as follows: What attitudes do straight viewers have regarding homosexual characters on scripted television? and What attitudes do homosexual viewers have regarding homosexual characters on scripted television? Survey methodology was utilized for this study with questions falling into three different categories regarding homosexual characters on television: visibility, representation, and attitudes. Pearson Correlations on likert-based variables and crosstabs and chi-square tests comparing the “sexual orientation” variable with all non-demographic and non-open ended survey responses were used to analyze the results of the survey. Several findings were statistically significant. For example, results from the survey show that regardless of a participant’s sexual orientation, there is a general disagreement with the statement that LGBT individuals are adequately represented on television. Analysis of the optional open-ended question found that participants generally thought there are unrealistic representations of homosexual characters on television. Stereotypes present on scripted television are also a problem.

Linguistic Constructions of Gamer Identity

Megan Golinski

Chris Palmer

College of Humanities and Social Sciences
English

Most sociolinguistic studies have explored traditional social variables such as gender, social class, and ethnicity; less has been said about other community and identity formations, such as gamer communities. This project explores the linguistic features of how gamers (people who play computer or video games for at least two hours per day) speak in order to determine how they identify themselves through language. I use conversation analysis and ethnographic methods to reveal how the sociolinguistic behavior of gamers defines their community identity. This study does not simply focus on the gamer community as opposed to non-gamers, though. Because there are many types of games, this project shows what linguistic features are shared by the gamer community as a whole, as well as which features are only used by certain subgenres of gamers. One of my participant groups consists of gamers who play cooperative first-person shooter games; the other participant group is made of gamers who play action real-time strategy/multiplayer online battle arena/roleplaying games. All of the participants are people who play PC games.

This project does not simply look at the well-established lexical features that have already been explored, such as *n00b*, which refers to 'a person lacking experience, especially in gaming.' Also unlike other studies, mine does not focus on the violent effects of games on gamers. My investigation is centered on the language a gamer uses to construct his or her identity. Other research that has been put forth on gamer identity does not focus on the stereotypical gamer; I consider the varied ways in which gamer subgroups construct both queer and normative identities as they interact with one another. Ultimately, this study finds that gamers use language in order to assert their dominance over other gamers, whether they are on the same team or not. Gamers seem to use more profane language in attempt to construct this identity, and pop-culture references also play a role in the expression of such dominance.

'Un-Varnishing' the Truth About Teen Pregnancy: 16 and Pregnant and Teen Sexuality

Kimberly Wallace Stewart
Letizia Guglielmo

College of Humanities and Social Sciences
Psychology

Feminist interventions foreground issues of race, gender, sexuality, class and, specifically, they uncover the ways in which women—both their work and experiences—have been excluded, deliberately ignored, and silenced. For young women in particular, women whose voices are often further ignored because of age and perceived lack of experience, personal narratives, as seen in collections like *Colonize This*, offer opportunities to gain agency while intervening in essentialist descriptions of women's experiences. One area in need of intervention, particularly in the face of proliferating abstinence-only programs, is the national discussion surrounding teen pregnancy. Since 2009 MTV has produced and aired *16 and Pregnant*, a documentary-style series that, according to program creators, "allow(s) young women to share their story in their own voice" and offers an "unvarnished and honest portrayal of their experience." While the program appears to offer a creative intervention through personal narrative, reinforced with voice-over and visual cues in each episode, in this panel we will explore how these narratives are co-opted and how women's voices are eclipsed by male "experts." Drawing from both individual episodes and online resources associated with the program, our analysis will prompt conference participants to question which story is being told and to consider how we might expand and improve current discussions on teen pregnancy.

The Farmer is the Man Who Feeds Them All...

Tanya Brown

Jane Barnette

College of Humanities and Social Sciences
English

One hundred years ago, 1/3 of the U.S. population lived on a farm and nearly 50% worked on farms, compared to only 1.7% of the labor force in 2000 (National Agricultural Statistics Service). In 1998, the largest single crop was corn, which accounted for more than half of the nation's crop output with 247,882,000 metric tons (MT). The second largest crop was soybeans, followed by wheat. The number of farms in the U.S. has decreased from about 7 million in the 1930's, to 2.2 million in 2009. Almost 91% of U.S. farms are considered to be small (less than 1,000 acres). In spite of this, on average, one American farmer produces enough food for 96 people. "Then the farmer he left town..."

Reinterpreting the Outsiders Society: Boundary Living and Romani Women's Poetry

Amanda Kruger
Federica Santini

College of Humanities and Social Sciences
English

The literary contributions of the Roma people, for centuries ignored and devalued, have in recent years begun to be understood as a crucial element of the Western literary tradition that can no longer go without notice. Focusing on the transnational and multilingual poetry of Romani women, this paper situates Romani literature within the context of Western feminist theory. With the philosophy of Mary Daly and the work of Virginia Woolf in *Three Guineas* and *A Room of One's Own* as its foundation, my analysis displays both the ways in which Romani women's poetry lends to a fresh interpretation of feminist theory, and the ways in which scholars can read the Roma's cultural journey as the actualization of the philosophies proposed by both Daly and Woolf. Daly's development of the Journey, Biophilic Bonding, Boundary Living, and the Archaic Future, as well as Woolf's concepts of the Outsider's Society, the power of indifference, and the need for female history form the crux of an analysis which aims to provide an interpretation of both feminist action and diaspora politics through the lens of Romani women's poetry.

Struggle and Rebellion in the Poetry of Alfonsina Storni

Meghan Lubben

June Laval

College of Humanities and Social Sciences
Modern Language and Culture

Without fail, each period in society produces at least a small group of women who challenge and rebel against what they believe to be unjust and constricting standards. Alfonsina Storni is one such exceptional woman. Born in Switzerland and raised in Argentina, Storni addresses her distaste for the imprisonment by the social mores for women during the early 1900's. Her renown as an expressive and nonconformist author is acknowledged throughout Latin America and beyond. We will study how the poetry of Alfonsina Storni reflects her rebellion against social parameters as well as a desire to embrace that which is "forbidden" or "unorthodox" in her society. We will examine representative poems which reflect the struggle in her life and work and show how for Storni, a woman's identity should be what she creates it to be, not inhibited by cultural margins.

Reminders of “Heimat” in Jewish-German Short Stories After World War II. – Die Gedächtnisstützen der Heimat in deutsch-jüdischen Kurzgeschichten nach dem zweiten Weltkrieg

Lenka Senkyrova
Sabine Smith

College of Humanities and Social Sciences
Modern Language and Culture

This project is focusing on literary aspects of German short stories written by two Jewish authors who survived the Holocaust. The authors' Heimat (home) is described and brought back to life through the portrayal of characters, language (Yiddish), traditional meals, and places in which they grew up. The distinct aspects of Heimat are examined via the analysis of *Die Tante Jolesch persönlich* by Friedrich Torberg (1975) and *Das verschwundene Shtetl* by Edgar Hilsenrath (1996). I chose this topic in commemoration of the 70th anniversary of the 1942 Wannsee Conference in which Nazi officials decreed the final solution for the Jewish population and other minorities; because the Holocaust is still very much talked about and even though almost 70 years have passed since the end of World War II not all issues have been resolved. I also have a personal connection with the topic of missing Heimat, since I am an international student and I have lived away from home for several years. Therefore I am also approaching this research from a more personal angle and with both emotional and academic involvement.

Kafka's Relationship with His Father in His Work -- Kafkas Beziehung zu seinem Vater in seinem Werk

Whitney Arrowood
Sabine Smith

College of Humanities and Social Sciences
Modern Language and Culture

This project explores how Franz Kafka's relationship with his father is reflected in his works. The continuous confrontation between Kafka and his father is described in depth in "Brief an den Vater" (Letter to His Father). The project examines the paternal characters and father-son relationships in "Das Urteil" (The Judgement) and "Die Verwandlung" (The Metamorphosis). The paper compares the two father figures in the stories and draws connections to Kafka's life and his relationship with his own father. In view of the one-hundredth anniversary of the publication of "Das Urteil," the poster honors not only the timeless themes of father-son relationships, parental love, and generational conflict, but also the fact that "Das Urteil" is still widely read in the undergraduate curriculum.

Religion and Society in Kleist's „The Earthquake in Chili“ - Religion und Gesellschaft in Kleists „Das Erdbeben in Chili“

Karen Rooker
Sabine Smith

College of Humanities and Social Sciences
Modern Language and Culture

Heinrich von Kleist, known for his short stories, poems, plays, and novellas, is noted as one of the most influential authors of the Romantic period in Germany. Kleist lived a life of conflicting views, burdened by his family's military background and by his desire to obtain absolute knowledge and artistic expression. Born in 1777, Kleist experienced a “Kant Crisis” in 1811 which propelled the author through his artistic journey. Religion and social institutions are two latent themes in many of Kleist's writings. Through a narrative analysis of “The Earthquake in Chili” (“Das Erdbeben in Chili”) I explore the relationship between of the author's personal attitudes and those represented in this work of 1807. In analyzing Kleist's use of the literary device “Falke” (a recurring symbol), the cyclical narrative structure, and the significance of the last sentence in this story, my project offers an introduction to understanding Kleist's other works and his perspectives as a literary artist. Through representing the devastation of a religion-crazed culture, the downfall of innocent lovers, and unification of society through such destruction, “The Earthquake in Chili” illustrates Kleist's intertwining respect and distaste for organized religion alongside his quest for untainted societal unity.

Themes of Dark Romanticism in German Novellas - Themen der Schwarzen Romantik in deutschen Novellen

Kayla Weiglein
Sabine Smith

College of Humanities and Social Sciences
Modern Language and Culture

Arguably, the Romantic era is a period in art and literature in which people are whisked away to a fantasy world as a way of escaping reality. The realm to which they are whisked is not always a happy place, and the darker, more grotesque aspects constitute what we know as Dark Romanticism. In the U.S., the writer Edgar Allen Poe was a contributor to this dark side of the Romantic era, but Americans were not the only ones who took part in this movement. German authors such as Johann Wolfgang von Goethe and Ludwig Tieck can be categorized as Dark Romanticists. In the novella "Die Schöne Krämerin" (1795), Goethe uses the common themes of the erotic und death. In Ludwig Tieck's "Der Blonde Eckbert" (1797), the dark romantic themes are madness, nature, and witchcraft. In the poster, I describe the Romantic era and specifically Dark Romanticism. I introduce the authors and the two stories. I identify the salient aspects of Dark Romanticism and describe why they are important, e.g. because they have subsequently influenced grotesque literature.

German Studies Senior Seminar Research Projects: Exploring Realms of Literary Heimat in German Short Fiction

**Lenka Senkyrova, Whitney Arrowood, Kayla Weiglein and Karen Rooker
Sabine Smith**

College of Humanities and Social Sciences
Modern Language and Culture

Four presenters introduce the audience to capstone research projects in German Studies. Against the backdrop of cultural and literary “homes” created in German short fiction of three centuries, the speakers examine specific realms of authentic, lost, or imaginary spaces. Lenka Senkyrova introduces the concept of Heimat and two post-Shoah authors and survivors of the Holocaust who live and write in German. Friedrich Torberg and Edgar Hilsenrath recreate Heimat through the portrayal of characters, language (Yiddish), traditional meals, and their places of origin. Whitney Arrowood explores how Franz Kafka problematizes intra-familial relationships in his work, especially the father-son relationships in “Das Urteil” (The Judgment) and “Die Verwandlung” (The Metamorphosis). Marking in 2012 the one-hundredth anniversary of Kafka’s first publication, a tribute to *Das Urteil* serves as a timely reminder of the timeless role of inter-generational conflict in identity formation. Intra-societal conflict forms the focus in Karen Rooker’s presentation. Through a narrative analysis of Heinrich von Kleist’s “Das Erdbeben in Chili” (The Earthquake in Chili), she examines early 19th-century perceptions of religious and secular institutions and the author’s creation of alternative and utopian spaces as reflective of his quest for societal unity. Kayla Weiglein rounds out the panel with a presentation on Germany’s *Schwarze Romantik* (dark Romanticism). Drawing on late 18th-century texts by Goethe and Tieck, she argues that readers transcend the realm of the familiar to encounter the characters’ fantastic and grotesque experiences. In the alternative space of the narrative, readers confront recurring themes of death, eroticism, madness, nature, and witchcraft. Together, the four presenters interpret and contextualize seminal works of German fictional literature from the late 1700s to today. All presentations converge to elucidate the extent to which each author or work creates a distinct aspect of literary Heimat. In examining manifestations of Heimat in language, plot, and character design, and in interpersonal and intra-societal relations represented in the texts, the researchers complement each other’s papers to shed light on the complex and multi-faceted construct of the cultural value of Heimat.

Paradise Promised in La nada cotidiana (Yocandra in the Paradise of Nada) - El paraíso prometido en La nada cotidiana

Michelle Choung
June Laval

College of Humanities and Social Sciences
Modern Language and Culture

The Cuban author Zoé Valdés was born in the year of the Cuban Revolution, 1959. In her novel, La nada cotidiana, (Yocandra in the Paradise of Nada), published in 1995, Valdés describes the decade named by Castro as the “special period in times of peace” (1992 – 2002) when the then Soviet Union disintegrated and abandoned the island. The author begins the novel with this sentence: “She comes from an island that wanted to create a paradise” and ends the novel with the same phrase. Instead of the paradise promised what we find is the daily struggle of the Cuban people to satisfy their basic needs. Valdés presents us with a realistic and at the same time humorous picture of daily life in Cuba and its deficiencies during this “special period”.

La autora Cubana Zoé Valdés nació el año de la Revolución Cubana, 1959. En su novela La nada cotidiana (1995), Valdés nos describe Cuba durante la década que Castro llamó el “periodo especial” en tiempos de paz (1992-2002) cuando la Unión Soviética se desintegró y tuvo que abandonar la isla. La autora empieza la novela con esta frase: “Ella viene de una isla que quiso construir el paraíso” y termina la novela con la misma frase. En vez del paraíso prometido lo que encontramos en la obra es la lucha diaria de los cubanos para satisfacer sus necesidades básicas. Valdés nos presenta un cuadro realista y crítico pero al mismo tiempo humorístico de la vida cotidiana y sus privaciones durante este “periodo especial”.

Love and Passion in the Poetry of Delmira Agustini - Amor y pasión en la poesía de Delmira Agustini

Jannah Fannin
June Laval

College of Humanities and Social Sciences
Modern Language and Culture

The poetry of Delmira Agustini, spiritual sister of Alfonsina Storni, reflects the conflictive duality between the traditional role of women of her time and the intense search for a passionate and erotic love. Her childhood, youth and society itself had an influence on her poetry but early on, “la niña” (the little girl) as Rubén Darío called her, rebelled against the rules of the bourgeois society of her time and explored new themes in her poetry, poetry which was very daring for a woman at the beginning of the twentieth century. We will explore the theme of love-passion in her poetry and the use of Eros as symbol and protagonist.

La poesía de Delmira Agustini, hermana espiritual de Alfonsina Storni, refleja la dualidad conflictiva entre el papel tradicional de la mujer de su época y su búsqueda intensa por un amor apasionado y erótico. Su niñez, su juventud y la sociedad tuvieron una influencia en su poesía pero muy pronto, “la niña”, como la llamaba Rubén Darío, se rebeló contra el código de la sociedad burguesa de su época y exploró nuevos temas en sus versos, versos muy audaces para una mujer del principio del siglo XX. Vamos a explorar el tema de amor-pasión en su poesía y el uso de Eros como símbolo y protagonista.

Lobbying: A Brief Overview Into the Industry of Influence

Shane Wright

Tara Stricko

College of Humanities and Social Sciences
Political Science

The lobbying industry is disturbingly ambiguous; the ordinary citizen is grossly unaware of just how profoundly lobbyists impact our government. Using a sampling of academic resources and an abundance of investigative journalist reports, I will highlight and present certain extraordinary examples of the obvious and overt influence lobbyists and foreign entities have exerted on the United States Government. Furthermore, though the regulation of the lobbying industry, and the way in which foreign agents are regulated has evolved, much work needs to be done to bring an element of transparency into the practice. The intention of this research is to give readers a brief overview of the lobbying industry and to provide insight into the often deceptive and tumultuous culture that envelops the business of influence acquisition.

How Consumerism has Grippped America: A Nation Defined by Shopping Malls, Fast Food, and Icons

Chris Keegan
Jane Barnette

College of Humanities and Social Sciences
Political Science

Consumerism defines America from politics (with lobby and interest groups) to lifestyles. Indeed many cultural icons of America now spread throughout the world as a representative of the American Dream: from Golden Arches to the proverbial Apple, these icons have come to represent America in the homes of humans around the globe. In an NPR article in 2009 Columbia Professor David Biem stated that household debt has surpassed the national GDP average [figure 3] (Biem, 2009). Thus more Americans are spending more than they earn in order to purchase more products and more services. Biem calls it, "living high on the hog;" every American is attempting to achieve a new standard of living and thus we have seen an increase in the American standard of living that has been dramatic as Americans attempt to buy more in search of having the perfect house, the perfect car, the perfect TV, etc. During the course of this semester we have analyzed numerous plays and musicals written by Americans. In *American Buffalo* by David Mamet this consumerism and love of business directly effects the relationships of the characters in obvious ways. However, consumerism and greed is present in some capacity in many of the plays we have studied. For instance, in *Rent*, the cast is trying to define their idea of American society, yet the title of the musical is *Rent* because they need money to pay the rent. Indeed much of the musical from the song "Santa Fe" to Angel's "You OK Honey?" is about earning money and spending that money; as well, Benny is a product of consumerism in that he has turned against his family in search of financial success. Even in *A Streetcar Named Desire* there were class differences and themes of money for in one scene Stanley thought Blanche had cheated them out of their rightful inheritance. The list continues, from *Bloody, Bloody Andrew Jackson* to the *Book of Mormon*, money is involved in every story in some capacity even if it is only in passing reference. This combined with the clear data shown by the rising level of American debt as well spending habits leads me to conclude that America and thus Americans are products of consumerism. It is American nature on some level to want the best, the most technological, the coolest, and the newest products and very few of us can deny that.

Access Control Logic

Kayla Von Hagel
Ana-Maria Croicu

College of Science and Mathematics
Mathematics

Access control is concerned with the policies and mechanisms that permit or deny the use of a resource or capability in a military operation. There exists no standardized method to reason about or represent access control, so mathematicians can utilize Access Control Logic to reason about and prove the soundness of access control designs and specifications. The Information Assurance Internship of 2011 allowed interns to explore the elements of Access Control Logic and Mission Assurance in order to design, develop and verify cutting edge systems for the United States Air Force. The application of Access Control Logic consists of rigorous proofs pertaining to confidentiality, integrity, availability, authentication and attribution. Each solution created by the interns gave the Air Force Research Laboratory valuable insight on the state of the military within cyber operations and is currently being used as a framework for new solutions.

L2-error of Adaptive Interpolation of Hyperbolic Functions by Linear Splines

**Shannon Bryce and Teagan Bryce
Yuliya Babenko**

College of Science and Mathematics
Mathematics

Splines are piecewise polynomial functions. Due to their simplicity, approximation by various types of splines is one of the standard procedures in many applications (computer-aided geometric design, image processing, numerical solutions for partial differential equations etc.). In all these applications, there is a standard distinction between uniform (mesh elements don't vary much) and adaptive (mesh adjusts to the given function) methods of constructing a mesh to build splines. In the uniform case, the domain of interest is decomposed into a partition where elements do not vary much. However, clearly more accurate adaptive methods are highly nonlinear and no polynomial time algorithm exists to provide an optimal approximant for each given function. Therefore, the next natural question would be to construct asymptotically optimal sequences of partitions (that are triangulations when we use linear splines) and interpolating splines on them. To that end we first need to find a triangle that is locally (for some small region) optimal. In this talk we shall discuss how to find the optimal shape of the mesh element triangle in the case of approximating the bivariate functions with negative curvature by interpolating linear splines, and the approximation error on it.

Total Efficient Domination in Cayley Graphs

Keegan Gary

Joe DeMaio and Mari Castle

College of Science and Mathematics
Mathematics

A set S that is a subset of V is a dominating set if every vertex in V is either in S or adjacent to a vertex in S . A vertex is said to dominate itself and all of its neighbors. A set S is a total efficient dominating set if each vertex in V is adjacent to exactly one member of S . From the work of Gavlas and Schultz a TEDS S exists on the path graph if and only if $n \equiv 1 \pmod{4}$. Furthermore a TEDS S exists in the cycle graph, if and only if $n \equiv 0 \pmod{4}$. A circulant graph $\text{Circ}(n; X)$ is defined for a positive integer n and a subset X of the integers $1, 2, \dots, \lfloor n/2 \rfloor$, called the connections. The vertex set is Z_n , and there is an edge joining two vertices j and k if and only if the difference $|j-k|$ is in the set X . A circulant graph is a special case of a Cayley graph. Castle and DeMaio have shown that, for all positive integers n and k , such that $2k$ divides n there exists a set C of order k such that $G(Z_n, C)$ admits a TEDS S . In this paper we will extend this result to Cayley graphs of Dihedral groups.

The Card Collector Problem

Michael Thomas

Anda Gadidov

College of Science and Mathematics
Mathematics

The problem addressed in this project is the following. Imagine that each box of cereal has a certain card in it and a card collector wants to collect all the cards that have a common theme. Assuming that not all cards have the same chance of being found, what is the probability that the collector will be able to complete the collection? Also, how many boxes of cereal should the collector buy in order to complete the card collection?

Combinatorial Proofs of Fibonacci Identities by Means of the Path Graph

John Jacobson

Joe DeMaio

College of Science and Mathematics
Mathematics

A graph is defined as a set of vertices and a set of edges such that an edge connects two vertices. Two vertices connected by an edge are considered to be adjacent to one another. An independent set of vertices of a graph is a collection of vertices such that no two vertices are adjacent. In 1982, Prodinger and Tichy realized that the number of independent sets of vertices of a graph corresponds to the Fibonacci Sequence, and therefore defined the Fibonacci Number of a Graph to be the number of independent sets of the graph. This research focuses on the Fibonacci Number of the Path Graph and how it can be used to combinatorially prove various Fibonacci identities. The visual nature of the path graph provides different proofs of classic identities, and has already led to the discovery of several new identities.

Intermediate Value Theorem and its Applications

Stefanie Erdman

Yuliya Babenko

College of Science and Mathematics
Mathematics

Everybody knows that Topology and Analysis are mutually enriching fields. However, there is one particularly beautiful topological result, which is introduced as early as in the beginning Calculus courses but have many counterintuitive implications. In this talk we will prove the Intermediate Value Theorem in its general form and discuss its applications, particularly to the Brouwer Fixed Point Theorem. Among other curious applications of the Intermediate Value Theorem to be discussed is the following interesting fact: assuming the surface of Earth is a sphere, and surface temperature is a continuous function defined on the sphere, at any given time there is a point on Earth that has exactly the same temperature as the point directly opposite to it.

Applying Hysteresis Phenomena in Economics

Anna Reyes and Nicole Dowling

Tatiana Rudchenko

College of Science and Mathematics
Mathematics

Applying Hysteresis Phenomena in Economics Many aspects of real economic systems are hysteretic. Research considers the influence of the memory effects on the functioning of economic systems and the result from oversimplifying specifications of input-output relations in economics, static hysteresis input-output systems, the Preisach model, macroeconomic models with hysteresis phenomena.

Hysteresis Phenomena in Economics

Nicole Dowling

Tatiana Rudchenko

College of Science and Mathematics
Mathematics

In economics today the classical approach of supply & demand graphs give information about the relationship between consumer needs and how much is purchased, but only for one instance of time. Economics and the needs of its consumers are constantly changing: not only over time, but there is also a phenomenon that happens when individuals buy goods and how that will affect future sales. Because of this rate of change, we can use the hysteresis phenomena to solve different economics problems and create more precise demand function model.

iPad Student Cost-Benefit Analysis

**Nikola Kolev, Travis Allen, Jason Soni, Kirtan Patel and Anderson Nelson
Louise Lawson and Gary Roberts**

College of Science and Mathematics & Coles College of Business
Applied Statistics & Management and Entrepreneurship

The iPad Student Cost-Benefit Analysis evaluates comprehensive expense research on the implementation of the iPad in learning. In this study, we examine the cost benefit associated with the iPad related to college students. This study compares the cumulative cost of conventional textbooks and course materials to the cost of using an iPad to accomplish the same or similar tasks. For instance, the Graphing Calculator app possesses a majority of the capabilities of a \$100 TI-83 or TI-89 and yet costs only \$1.99. In other words, a classroom of 50 students could be furnished with calculators for the price of what it costs one student to have a calculator in today's environment. We gathered a systematic sample to find the average savings using eBooks compared to traditional textbooks. In this systematic sample, every 25th course in the KSU catalog was selected and the required book prices were recorded for the new, used, rental, and electronic book versions and compared. The potential KSU bookstore buyback value of each physical book was subtracted from the total cost of the book to arrive at the net price of every book sampled. We also analyzed data for a case study of a computer science major by gathering information on all of the required classes and their respective required materials needed throughout the student's college career from start to graduation. In order to gain a better understanding of the semesterly costs incurred by students, we additionally facilitated a survey asking 98 KSU students how much money they spend on books and school supplies per semester. Research shows that on average, eBooks are 48% cheaper compared to buying new books and 28% cheaper when compared to buying used. After subtracting the potential buyback price of each textbook, the 4-year case study comparison shows eBook savings of \$438.91 compared to the net new book price and \$8.34 compared to the net used book price. The same comparison shows that renting the books is \$120.90 less expensive than eBooks over the 4-year term. Given that a new iPad at the price of \$499 and other necessary applications costing \$29.95 replace the current class materials needed, the study indicates a college student will save an average of \$1,200 on school supplies over the course of his or her college career.

Computing the Minimum-Norm Least-Squares Solution of $Ax = b$ with Gauss-Jordan Elimination

Ryan Anderson

Jun Ji

College of Science and Mathematics
Mathematics

Given a system of linear equations $Ax = b$, the solution is $x = A^{-1}b$ if A is a non-singular square matrix. The solution can be found using Gauss-Jordan elimination. For a general matrix A (either a non-square matrix or singular square matrix), one seeks to find the minimum-norm least-squares solution $A^{\dagger}b$ of the linear system $Ax = b$ where A^{\dagger} is the Moore-Penrose inverse of matrix A . In the talk, we will discuss a way to find $A^{\dagger}b$ using Gauss-Jordan elimination. This is motivated by a recent paper by Xingping Sheng and Guoliang Chen for computing A^{\dagger} with Gauss-Jordan elimination.

Domination and Independence on the Triangular Honeycomb Chessboard

Hong Lien Tran
Joe DeMaio

College of Science and Mathematics
Mathematics

Puzzles on the chessboard have long been studied by mathematicians. *Across the Board: The Mathematics of Chessboard Problems* by John Watkins is an indispensable collection of mathematically themed chessboard problems. We do not restrict ourselves to the standard 8×8 chessboard. Generalizations are quickly made to the square board of sides other than $n=8$, $m \times n$ rectangular boards and other variant surfaces. Chessboard problems are most frequently set in the context of Graph Theory. Two classic problems in Graph Theory that appear again and again are those of dominating sets of minimum cardinality and independent sets of maximum cardinality. For chessboards the question of a minimum dominating set transforms into how to threaten or occupy every square on the board with the fewest pieces. Maximum independent sets become the problem of how to place the most non-attacking pieces. Our project explores these two combinatorial problems on the variant triangular honeycomb chessboard for the rook, bishop, knight and king.

Applications of Lagrange Multipliers in Economics

John Hunt

Tatiana Rudchenko

College of Science and Mathematics
Mathematics

In the field of Economics, multi-variable equations with constraining factors are used as models of real-world scenarios. Complex computer programs and equations are needed to optimize these models for different values. Lagrange Multipliers provide methods to minimize and maximize multi-variable equations subject to constraints. Methods and examples of Lagrange Multipliers in economics are reported here. Results: Applying Lagrange Multipliers allowed for successful optimization of Economic problems subject to constraints. Conclusion: Lagrange Multipliers provide a viable method of Economic optimization that eliminates guess-based iteration.

Release Rate of Salicylic Acid from Stomach Relief Suspensions

Ariell Durden

Marina Koether

College of Science and Mathematics
Chemistry

Stomach relief suspensions contain bismuth subsalicylate as the active pharmaceutical ingredient. Dissolution testing was performed to determine the release rate of the total amount of salicylic acid from the suspension. Each test uses 900 mL of deaerated media (deionized water or 0.1 M HCl) at 37°C. Six replicates are performed at once. The stomach relief suspensions also contain salicylic acid and sodium salicylate as non-active ingredients which are also measured in the total amount of salicylic acid. While 50 RPM is recommended, 100 RPM was also tested. A full sample size (15 mL) is not tested due to the presence of cellulose which interferes with filterability. Only one mL is tested in the 900 mL vessels. Samples are drawn at 10, and 60 minutes for analysis. Results indicated that salicylic acid is less soluble at 50 RPM compared to 100 RPM but can be considered to be rapidly releasing. The salicylic acid that was recovered from the suspension in the 0.1M HCl media is greater than expected, so other non-active ingredients in the suspension was tested. Saccharin in concentrated HCl media has a similar absorbance as that of salicylic acid in 0.1M HCl. Saccharin is the non-active ingredient that interfered with the percent recovered of salicylic acid in the conc. HCl.

Dissolution and Analysis of Salicylic Acid Found in Stomach Relief Caplets

**Cheryle Gilmore and Angel Smith
Marina Koether**

College of Science and Mathematics
Chemistry

Dissolution testing determines the release characteristic of an active pharmaceutical ingredient in a dosage form as a function of paddle speed and medium. The dissolution rate of salicylic acid in stomach relief caplets is > 80% in 10 minutes in 0.1 N HCl for paddle speeds of 100 and 75 RPM. The dissolution to 80% salicylic acid dissolved in water is dependent on paddle speed (100, 75, 50 RPM) and brand of caplet. Dissolution testing can discern differences in brands of caplets when water is used. Analysis of the salicylic acid was by Uv-Vis at 301 and 296 nm for solutions in 0.1 N HCl and water, respectively. To ensure that “sink” conditions (dissolution volume of at least 3 times of that needed for solubility) were met, a solubility profile and a determination of the lambda max shift of salicylic acid was conducted as a function of pH.

Evaluating the Impact of Peer-Led Team Learning on Student Progression in General Chemistry

**Yancey Mitchell and Jessica Ippolito
Scott Lewis**

College of Science and Mathematics
Chemistry

Peer-led Team Learning (PLTL) is a widely disseminated pedagogical reform that employs previously successful undergraduate students, peer leaders, to lead a structured group setting in the target class. Numerous studies have evaluated the impact of this reform in various post-secondary chemistry classes. Results from these studies suggest that PLTL may be effective at improving student success in these classes, either through improved performance on common exams or reduced student attrition in the classes. This study seeks to take a broader picture at measuring the impact, by examining the role PLTL plays across a two semester General Chemistry sequence. This includes an analysis of PLTL on students' decision to progress through the two-semester sequence, and on PLTL impact on the algorithm-heavy second-semester General Chemistry. The effectiveness of the PLTL pedagogy was evaluated with respect to withdrawal rates and performance on an external, standardized exam. The findings suggest that the PLTL implementation is robust in improving student success directly in terms of the target class. The results suggest that PLTL implementation may have to be curricular wide in order to improve student progress toward graduation.

Release Rate of Zinc from Topical Solution

Richard Reeves

Marina Koether

College of Science and Mathematics
Chemistry

The release rate of zinc was determined for three over-the-counter anti-itch topical lotions including: Caladryl Clear®, Rite Aid® Clear Anti-Itch Lotion, and CVS® Calohist Clear. All three lotions are labeled to contain 0.1% zinc acetate, which serves as a skin protectant. Analysis with a Varian® SpectAA-220 FS flame atomic absorption spectrometer (FAAS) indicates that both the CVS® Calohist Clear and the Rite Aid® Clear Anti-Itch Lotion contain 0.083% zinc acetate. Furthermore, the Caladryl Clear® contained 0.098% zinc acetate. Dissolution testing was performed using Hanson's Vision® Classic 6™ dissolution tester in conjunction with a small USP Dissolution Apparatus 2 and Hanson's Ointment Cell. After the four hour dissolution test, samples were subjected to FAAS. Rite Aid® Clear Anti-Itch Lotion had the largest percent recovery of zinc with $62.7 \pm 2.9\%$ followed closely by the Caladryl Clear® with a percent recovery of $61.4 \pm 3.1\%$. CVS® Calohist Clear provides the least amount of protection with a percent recovery of $53.0 \pm 0.6\%$. Caladryl Clear® and Rite Aid® Clear Anti-Itch Lotion should provide the best protection for the patient. The CVS® Calohist Clear had expired and may have led to poor recovery of zinc.

A Calibration Matrix for Quantifying Actives in Over the Counter Medicines by GSAM/Target Factor Analysis

Truong T. Ho Lam
Huggins Msimanga

College of Science and Mathematics
Chemistry

Over the counter (OTC) medicines such as Migraine Formula, Robitussin, Dime Tap, and others contain more than one active drug. In addition, they contain excipients like sugars, saccharin, benzoate, dyes, citrates, and others, some of which will respond to the detector used. Usually the active ingredients are mixed in large concentration ranges, requiring broad range detection instruments. On the other hand, concentrations of the excipients that are possible sources of interference are not known. These situations pose a challenge in designing a calibration matrix for quantifying substances of interest. We have studied a few over the counter medicines by analyzing UV data with generalized standard addition/target factor analysis (GSAM/TFA). In combination, this method effectively corrects for both background and spectral interference. The method has been applied successfully to determine concentrations of brompheniramine maleate, dextromethorphan, and phenylephrine in Children's Dime Tap. This medicine contains several UV-active additives that pose a big interference problem.

Towards Synthesis of Trimetallic Complexes of NHC

Adam Smith and Greg Smith
Daniela Tapu

College of Science and Mathematics
Chemistry

In the past twenty years, N-Heterocyclic carbenes have emerged as one of the most important class of carbon-based ligands. They have been incorporated in a wide variety of metal complexes that have found applications in important catalytic reactions. However, most of the complexes reported to date are monometallic complexes. Here we report our progress toward the synthesis of a novel N-heterocyclic carbene, carbene that we designed as support for three different metal centers.

New Quinoxaline Derivatives of Heterocyclic Carbenes

Zachary McCarty and Jiexi Liao

Daniela Tapu

College of Science and Mathematics
Chemistry

Owing to their strong sigma donating ability, heterocyclic carbenes play a major role as carbon-based ligands in organometallic chemistry. This is why it is important to study the impact the substituents' modification has on the sigma donating power of the carbene center. Herein, we report our progress toward the synthesis and characterization of a series of quinoxaline based heterocyclic carbenes and their corresponding metal complexes.

Release Characteristics of Salicylic Acid and Bismuth from Stomach Relief Suspensions

Angel Smith
Marina Koether

College of Science and Mathematics
Chemistry

Bismuth subsalicylate is the active pharmaceutical ingredient in stomach relief suspensions. Dissolution testing was performed for both the bismuth and the salicylic acid. Each dissolution test used 900 mL of deaerated media at 37°C. Bismuth was not soluble in the media used in this study. However, in deionized water, salicylic acid becomes more than 50% soluble in 10 minutes. To discern different brands of stomach relief suspensions, variations in the paddle speed, media and sample size for the dissolution test were investigated. As sample size increased, filtering capability decreased. More salicylic acid is soluble in less time when using 50 RPMs as opposed to 100 RPMs.

Forensic Analysis of Wear Metals in Used Motor Oils

**Veronica Langley, Laurie Mulqueeny, Heather Overman, Khiem Truong and
Kathleen O'Rourke
Chris Dockery**

College of Science and Mathematics
Chemistry

We propose to determine the feasibility of using Laser-Induced Breakdown Spectroscopy (LIBS) to provide investigators with a chemical fingerprint for motor oil stains potentially allowing evidential matching to a suspect automobile. Successful completion of the project will generate a library of wear metal concentrations in different commercial motor oils at different mileage intervals that may be useful in criminal investigations. Nationally, criminal investigators are facing tremendous backlogs created by increased casework in the face of budget cuts, furloughs and reduction in force. There is a critical and recognized need for rapid and potentially field portable forensic methodologies. A commercially available LIBS spectrometer is small and potentially field portable. Because it can be easily mounted onto mobile investigative units criminal investigators may use LIBS to determine the elemental composition of a suspect sample, obtaining results within seconds. Therefore, LIBS could provide necessary presumptive evidence, allowing investigators to obtain a search warrant or progress a criminal investigation. This project was supported in part by a Kennesaw State University Incentive Funding Awards for Research & Creative Activity.

Accidental Poison: The Analysis of 1,4-Butanediol in Toys

**Katherine Drupiewski, Laurie Mulqueeny, and Heather Overman
Chris Dockery and Huggins Msimanga**

College of Science and Mathematics
Chemistry

A popular children's arts and craft toy made international headlines recently when it was discovered that 1,4-butanediol had been substituted into some of its formulations. The chemical 1,4-butanediol rapidly converts to the date-rape drug gamma-hydroxybutyric acid upon ingestion and resulted in the accidental poisoning of several children. In this experiment, students extracted 1,4-butanediol from the toys (or a prepared simulation) using their knowledge of drug chemistry, solubility, pH, extractions, etc., and quantitative analysis is performed using gas chromatography. Students were able to determine the average percent weight of 1,4-butanediol in the toy, and based on the percent weight (approximately 7%), calculated the hypothetical therapeutic and fatal doses. Case studies in the existing literature allow students to expand knowledge gained in laboratory to dose-response data in real cases of accidental poisoning. Simulations using commercially available toy craft beads make this experiment accessible to other undergraduate chemistry programs.

Novel Immobilization and Enhanced Sensitivity of Silver Nanoparticle Plasmon Resonance in Fiber-optic Capillary Waveguides

Lauren Beasley
Brian Keller

College of Science and Mathematics
Chemistry

In recent years there has been much investment in development of SPR (surface plasmon resonance) biosensors. SPR is a rapid and selective method of label-free detection to of biomolecular affinity and kinetics. Commercial SPR instruments utilize a thin layer of gold that exhibits surface plasmon oscillations when light excites surface conduction electrons. When a biomolecular binding event occurs at the gold surface after functionalization with the appropriate ligand, there is a change in the localized refractive index on the nanoparticle surface and corresponding in the plasmon absorbance properties. SPR biosensing is also possible with silver colloids. This project explores methods to increase the loading of silver nanoparticle thin films using PAMAM (polyamidoamine) dendrimers immobilized within a micro-tubular fiber-optic capillary (FOCap). Our results should enhance the optical waveguide sensitivity and accordingly reduce the amount of sample needed to perform biosensing measurements. Silver nanoparticles are routinely made in our laboratory via borohydride reduction. The nanoparticles are immobilized to the inside of a FOCap with a molecular tether or thin film, which includes PAMAM dendrimers from generation 1 to 5. Increasing the dendrimer generation should increase the number of terminal amine groups on the thin film and correspondingly increase the number of nanoparticles within FOCap sensor. Results obtained from this study also are important to future development of evanescent surface-enhanced Raman spectroscopy (SERS) and evanescent surface-enhanced fluorescence fiber-optic capillary sensors.

Introduction to Surface-Enhanced Raman Spectroscopy for the Physical Chemistry Laboratory

Jean-Francois Toure
Brian Keller

College of Science and Mathematics
Chemistry

Raman spectroscopy is a very powerful tool for chemical analysis. In Raman spectroscopy light is scattered from a sample irradiated with a laser, and appears as scattered molecular vibrational bands. This presentation gives the design of an undergraduate physical chemistry laboratory in surface-enhanced Raman spectroscopy (SERS). Students participating in this lab will learn how to use the Delta Nu Advantage 200A Raman spectrometer. The instrument is equipped with a HeNe laser operating at 632.8 nm and a digital camera to collect Raman spectra. Students will make the silver sol then investigate the signal enhancement effect resulting from adsorption of pyridine, a Raman-active molecule, onto the metal colloid surface. The adsorption coefficient of pyridine onto the silver colloid is determined by constructing a Langmuir isotherm plot.

Nuclear Receptor Regulation of MDR1 Expression in H295R Adrenal Cells

Jia Kim

Jennifer Powers

College of Science and Mathematics
Biochemistry

Multidrug resistant protein, also called P-glycoprotein, is encoded by the gene MDR1 and its overexpression is one of the major causes of decreased efficacy of chemotherapy over time. P-glycoprotein prevents the accumulation of chemotherapeutic drugs in the cells, interfering with the activities of these drugs. The purpose of this project is to determine the role of steroids and their receptors in the control of MDR1 expression in a human adrenocortical cell line (H295R). Control cells and cells treated with progesterone, angiotensin II (AII), and/or 2-aminoglutethimide (2AG) for various time periods was examined using quantitative RT-PCR. RNA of sufficient purity and concentration was isolated using a kit from Qiagen, then cDNA was synthesized using the Roche Applied Sciences two-step RT-PCR kit, and the expression level was determined by qRT-PCR using the Light Cycler 480 instrument and hydrolysis probes. A new reference gene, beta-2-microglobulin (B2M), was chosen, using the RT2 Profiler PCR Array, and the efficiency of the B2M PCR reaction was determined. Fold changes in expression were determined using the Pfaffl method. The fold changes of the sample treated with AII for 72 hours was significant, but no increase was noted at lower time periods, indicating that AII-induced MDR1 expression is likely due to increased steroid production rather than a direct effect of AII. Progesterone alone showed a slight increase in expression of MDR1 at 25 h. In addition, the combination of two compounds (progesterone/2AG and AII/2AG) showed a decrease in the MDR1 expression in H295R. All these results are preliminary and additional replicates are being obtained to ensure statistical significance. Additionally, further studies into the role of nuclear receptors, such as SXR, are being performed.

Enzymatic Deglycosylation of Oxalate Oxidase

Bridget Immelman

Ellen Moomaw

College of Science and Mathematics
Biochemistry

Oxalate oxidase catalyzes the oxygen-dependent oxidation of oxalate to carbon dioxide in a reaction that is coupled with the formation of hydrogen peroxide. Although there is currently no structural information available for oxalate oxidase from *Ceriporiopsis subvermispora* (CsOxOx), sequence data and homology modeling indicate that it is the first manganese-containing bicupin enzyme identified that catalyzes this reaction. Interestingly, CsOxOx shares greatest sequence homology with bicupin microbial oxalate decarboxylases (OxDC). CsOxOx is expressed recombinantly in *Pichia pastoris* as a highly glycosylated soluble protein. In this work, we describe experiments to 1) characterize the glycosylation of CsOxOx and 2) prepare a sample appropriate for crystallization trials.

Fluorescent Rhodium and Iridium Complexes Derived from NHCs

**Mahatab Chowdhury, Zachary McCarty, Lauren Hutchinson and
Christopher Ghattas
Daniela Tapu**

College of Science and Mathematics
Biochemistry

Catalytically active metal complexes derived from N-heterocyclic carbenes (NHC) have found increasing interest in the last years, in part due to the unique electronic and steric properties of the ligands. This project was directed toward the synthesis and spectroscopic characterization of a series of rhodium and iridium complexes that incorporate a new class of N-heterocyclic carbene ligands. The NHC ligands have been tagged with fluorescent moieties. The synthesis and spectral characterization of these new metal complexes will be presented. Interest in the development of these compounds has arisen due to their potential application in catalysis and in fluorescent devices.

The Synthesis and Characterization of New Imidazolium Salts Tagged with Fluorescent Moieties

**Lauren Hutchinson, Christopher Ghattas, and Mahatab Chowdhury
Daniela Tapu**

College of Science and Mathematics
Biochemistry

In 1991, Arduengo reported the first stable crystalline carbene. Since then, N-heterocyclic carbenes (NHC) have emerged as a powerful class of carbon-based ligands. Owing to their unique electronic and steric properties, they have been incorporated in a large variety of catalytically active metal complexes. Imidazolium salts have been used extensively as precursors for NHC. Using a high yielding, modular synthetic strategy, a series of polycyclic imidazolium salts has been prepared and studied as a new class of versatile fluorescent materials and as potential precursors for novel NHC. The synthesis and spectral characterization of these new materials will be presented.

Characterization of Two Isoforms of MAPKAP Kinase 2

Emily Rye

Carol Chrestensen

College of Science and Mathematics
Biochemistry

Despite the wealth of information reported about mitogen-activated protein kinase-activated protein kinase 2 (MK2), here we seek to add new findings about the two splice variants of the protein. In particular very little has been published about MK2 isoform 1. The closely related isoforms come from the same gene and only differ by 30 amino acids in the C-terminus but this likely gives each isoform overlapping and distinct functions. Our initial findings will be presented.

The Role of Molecular Chaperone GP96 in Areca Nut-Associated Oral Cancers

Crystal Chiu

Melanie Griffin and Ann-Joy Cheng

College of Science and Mathematics
Biology

In the tropical Pacific, Asia and parts of east Africa, betel quid is a popular oral habit. Betel quid is prepared with dried areca nut, the seed of the *Areca catechu*, and wrapped in the leaves of *Piper betle*. Chewing the areca nut has been shown to be related to the increase of head and neck cancer in Taiwan, especially oral cavity squamous cell cancer. Recognizing the relationship, Dr. Ann-Joy Cheng and her colleagues at Chang Gung University in Taiwan have researched the genes in betel quid and identified novel genes that they believe play a role in human carcinogenesis. One of the genes, *Ches1*, was functionally confirmed associated with carcinogenesis, suggesting the valid results of the microarray data. In this study, we wanted to determine if another gene, GP96, would function in response to areca nut and would lead to an oncogenic phenotype. Some characteristics of the oncogenic phenotype that we investigated include accelerated growth rates, high migration, and the invasion ability in human oral cells in tissue culture. The study aims were (1) to determine if GP96 gene expression is induced by areca nut extract; (2) to determine if the areca nut extract results increased cellular migration; (3) to investigate whether the oncogenic effect by areca nut is a GP96 dependent matter. Using oral cell lines OECM1, CGHNN9 and SAS, PCR analysis and dosage-dependent gene-expression of GP96 by Western blot analysis, we were able to demonstrate that the oncogenic effect by areca nut is a GP96 dependent.

Building a Brain in a Dish: Differentiating Mouse Embryonic Stem Cells into Dorsal Midbrain Tissue

**Teresa Smith and Clay Hembree
Martin Hudson**

College of Science and Mathematics
Biology

Embryonic stem cells (ESCs) have the potential to become any tissue in the body, making them an attractive system for investigating tissue regeneration and *in vitro* patient-specific disease models. An attractive model to test stem cell-derived tissue is to assemble a visual system *in vitro*. The key components of the visual system are the retina, dorsal lateral geniculate nucleus (dLGN), superior colliculus (SC) and visual cortex. The dLGN is an intermediate processing center for conscious vision, while the SC, a midbrain structure, is required for reflexive processing. Protocols have been developed for differentiating stem cells into retina and visual cortex cells. However, there are currently no protocols available for differentiating stem cells into dLGN and SC-like structures. The goal of this project is to develop and characterize a differentiation protocol to make superior colliculus cells *in vitro*. To do this, one must have an understanding of how the SC develops *in vivo*, particularly the cascade of transcription factors that mark neural expression in this region. The SC is a dorsal midbrain structure that expresses the transcription factor Mab21L2. There are well-characterized protocols for differentiating stem cells into ventral midbrain cells that utilize exogenous sonic hedgehog (Shh) treatments to drive ventral cell fate specification. To drive our differentiation towards a dorsal fate, we adapted a ventral midbrain differentiation protocol, but inhibiting Shh signaling with cyclopamine, a small molecule inhibitor of Shh function. E14Tg2A mouse ESCs are differentiated in N2B27 media for 16 days, and supplemented at various times with combinations of growth factors, growth factor inhibitors and cyclopamine. RNA is harvested to on days 5, 8, 12, and 16, reverse-transcribed and analyzed by quantitative-polymerase chain reaction for key marker gene expression. This tells us which genes specifically are turned on at what time and to what extent. We see Mab21L2 expression peaking at day 5, consistent with a role for this gene in early neural patterning. We will corroborate this data by using immunohistochemical techniques to investigate Mab21L2 expression at the single-cell level.

A Survey of Mycorrhizal Infestation in Three Drought Tolerant Species and Different Aged Tropical Dry Forests in Yucatan, Mexico

Karen Garcia and Devika Jaikaran

Thomas McElroy, Paula Jackson, and Troy Mutchler

College of Science and Mathematics
Biology

The ecological history of the Yucatan Peninsula in Mexico has left a legacy of highly disturbed seasonal dry tropical forests. Yucatan's forest trees live on karst topography and are subject to long periods of drought and pronounced seasonality in rainfall (~50 inches rainfall/ year). Species employ many strategies to exploit available water and survive the periods of drought. For example, some species are deciduous and drop their leaves during the dry periods. Other species are evergreen and maintain low levels of physiological metabolism during the dry periods. Still other species are brevideciduous and will lose some or all of their leaves depending on several factors including the severity of the dry period. Previous research indicated that these general strategies for drought tolerance are coupled with differences in maximum photosynthetic rates and water potential limits (ability to draw water from the soil matrix). This study focused on three species that are found throughout central Yucatan's dry forests and demonstrate different strategies for drought tolerance, *Bunchosia swartziana*, *Piscidia piscipula* and *Psidium sartorianum*. We examined the role of mycorrhizae infestation as part of their strategy mechanism to survive the dry season. Samples were taken from three different aged forests (10, 15 and 60 year old) located in Kaxil Kiuic, Yucatan. Three root tips were manually collected from ten individuals of each tree species for each forest site. Samples were stained with Trypan blue and microscopically examined for mycorrhizae infestation. The root piece method allowed us to inspect individual root tips at high-magnification. We analyzed mycorrhizal colonization and identified mycorrhizal structures. All three species had mycorrhizae present. The data also indicated that all three species differed in mycorrhizal infestation. *Piscidia piscipula* had the highest mycorrhizal infestation in the 10 year old forest while *Psidium sartorianum* had its highest mycorrhizal infestation in the 60 year old. *Bunchosia swartziana* demonstrated even percentages of infestation throughout all three forest sites. This research supports that mycorrhizae association may be a component of the many strategies that result in the enhancement of drought tolerance among these species in the Yucatán Peninsula, Mexico.

Ecological Variation in a Tropical Dry Forest

**Lauren Joyce, Carlos Lopez, and Evan Frisbee
Paula Jackson, Thomas McElroy, and Troy Mutchler**

College of Science and Mathematics
Biology

In this study we examined Tropical Dry deciduous Forests (TDF) at the Archeological Park of Dzibilchaltun (89°49'W and 21°9'N), a site in the Yucatan Peninsula of Mexico. Although TDF are among some of the most threatened ecosystems of the world, they have been studied less than their tropical moist and rain forest counterparts. Dzibilchaltun presents a mean annual precipitation of around 760 mm with a marked seasonality and a strong dry season of 5 to 6 months from May to September - October. Among plants in this area, coppicing or re-sprouting is a common strategy that is frequently evidenced by the presence of multiple stems growing from the base of a single tree. Because plants may produce multiple stems as a response to disturbance, and multiple stems may increase the probability of survivorship to drought; we hypothesized that younger plots, that is plots that had been more recently disturbed, and plots that were more distant from an underground water source or cenote would present a higher number of multiple stems. We also hypothesized that younger plots would present a lower species richness and diversity compared to older areas. We examined differences in the abundance of multiple stems and other ecological traits among plots located either near ~50 m or far ~800 m from a cenote (an underground body of water with an opening to the surface). For this, we set up two 100 m base line transects at each site. Within each transect, eight 10 m x 10 m quadrats were randomly established, and all trees greater than 2 cm diameter were identified and their diameters were recorded. To establish potential differences in time since disturbance, mean stem diameters of trees were compared among sites using a t-test, and differences in the proportion of multiple stems was examined using a Chi Square test. Overall species richness (Margaleff's Index), diversity (Shannon Index) and similarity (Sorensen's Index) among sites were also determined. Results from the comparison of mean stem diameters indicated statistically significantly larger stems at the site near the cenote (t-test $p < 0.05$), suggesting a potential difference among sites in time since disturbance. However, no significant difference in the proportion of multiple stems among sites was found (Chi2 $p < 0.05$) and species richness and diversity were similar.

Identifying the Best Method of Modeling Weight for Height Among Pre-Term Infants

Rebecca Cantrell

Louise Lawson

College of Science and Mathematics
Applied Statistics

The objective of this directed study was to determine the best measure and identify the best model to describe US infant growth data to be used in the creation of pre-term infant growth curves for publication. Methods: Data obtained from Pediatrix Medical Group containing 391,681 observations from multiple hospitals across the US was used in the creation of six measures for male and female infants ranging in age from 22 to 42 weeks. The measure that had the highest correlation with birth-weight and lowest correlation with birth-length was regarded as the best measure. After initial calculations, $\text{birthweight}/\text{birthlength}$, $\text{birthweight}/\sqrt{\text{birthlength}}$, and $\text{birthweight}/\ln(\text{birthlength})$ were excluded. Because of the similarities across gestational ages for BMI ($\text{birthweight}/\text{birthlength}^2$), $\text{birthweight}/\text{birthlength}$, and the Benn index ($\text{birthweight}/\text{birthlength}^n$, where n =regression coefficient of log birthweight on log birthlength), all three were modeled using the Lambda Mu Sigma (LMS) method to determine which measure best represented the data, or if different gestational ages might be described by a combination of measures. The EDF total (L+M+S) was calculated and the first insignificant corresponding GAIC deviance (from the model) indicated the L, M, and S values to use on the validation dataset. After obtaining the centiles, L, M, and S values for each measure across each gestational age, z-scores were calculated and the data was categorized into small, average, and large for gestational age groups. Results: After all exclusions the final dataset included 257,855 infants, 147,565 (57.2%) male and 110,290 (42.8%) female. After the initial correlations, there appeared to be a relationship between BMI and the Benn index. The exponent for the BMI calculations was 2, and the Benn index regression coefficient across over 80% of gestational ages for both males and females was within three tenths of that value. Both measures were used in the z-score calculations and age group categorization, and there were observable similarities for both males and females. Conclusion: Since it addresses the relationships between a single gestational age and the whole dataset, the Benn index should be the optimal measure, however it would be difficult for clinicians to efficiently produce and maintain a growth curve for each gestational age separately without the introduction of a new method of curve distribution (i.e. electronically). The BMI index seems to produce very similar results across all gestational ages where data is sufficient, and could be used as a single curve which offers a more effective implementation in the clinical setting.

Water Quality as a Determinant of Stoneroller (*Campostoma* sp.) Distribution and Abundance

John Bremner

Louise Lawson and William Ensign

College of Science and Mathematics
Applied Statistics

We investigated the effect of water quality on the abundance of *Campostoma* sp. (stoneroller minnows) to determine if environmental characteristics could be used to predict the species distribution pattern. Stoneroller abundance was estimated using standardized electroshocking methods from 50 sites in the Piedmont ecoregion in Cobb and Bartow County, Georgia. Water quality data for the 50 sites was obtained from the local water authorities. Measured variables included temperature, pH, dissolved oxygen (DO), biological and chemical oxygen demand, conductivity, turbidity, nitrate/nitrite, total Kjeldhal nitrogen (NKTN), total suspended solids, total phosphorous, and total chlorides. We employed two differing logit models to examine the relationship between fish abundance and water quality variables, an odds-ratio model and a propensity-ratio model. Our results indicate that difference in dissolved oxygen, conductivity, pH and NKTN among the sites influenced stoneroller abundance. At low DO levels, the likelihood of obtaining stonerollers in high conductivity water was 13 times greater than in low conductivity waters. In streams with intermediate DO levels, we were almost 5 times more likely to obtain a fish with each unit decrease in NTKN and 1.5 times more likely to obtain a fish each unit increase in pH. In high DO streams we were 3 times more likely to obtain a fish with each unit increase in pH, 4.6 times less likely to obtain a fish with each unit decrease in NKTN, and twice as likely to obtain a fish in high conductivity streams than in low conductivity streams. Our results suggest water quality is important in determining abundance of minnows in the genus *Campostoma* in the Chattahoochee and Mobile basins in northwestern metropolitan Atlanta but the underlying causal relationships are not entirely clear. The best possible model for species distribution and abundance would include measures of physical habitat, water quality, and biologic interactions.

Assessing the Needs of Homeless Education Liaisons in North Georgia: Determining Factors Regarding Expansion of MUST Ministries' Services

Margaret Brittany Wood
Jennifer Wade-Berg

Wellstar College of Health and Human Services
Human Services

Through Christ's call, MUST Ministries, a 501c3 organization, services those in need in Cobb and Cherokee Counties. The organization is looking to scale their organization, (i.e., expand services) into what is referred to by the Board of Directors as the "northern arc" of Georgia. With the support of an external committee of the Board of Directors (i.e., the Research and Development Committee), a research study was conducted to determine which counties in the northern arc were most in need of MUST's services, and which counties were most ready to receive these services. This research study focuses on one dimension of the project: determining the needs of homeless youth through an examination of the perceptions of Homeless Education Liaisons. According to the National Center for Homeless Education, "local homeless education liaisons are Local Educational Agency (LEA) staff responsible for ensuring the identification, school enrollment, attendance, and opportunities for academic success of students in homeless situations" (National Center for Homeless Education, 2011). To accomplish this, these individuals work for the school system in the direct provision of services to homeless children and their families by making referrals to other agencies. Homeless Education Liaisons have access to data and provided useful information that assisted MUST Ministries in discovering potential expansion opportunities. Based on the data generated from a set of structured interviews, insights to the types of services that MUST Ministries should consider when thinking about expansion are offered, including their successful Summer Lunch program. Additionally, the study highlights the need for further collaboration between public and nonprofit organizations when meeting the needs of this target market.

America: Where Freedom Rings and Closets are Encouraged

Mershawn Foley

Jane Barnette

University College
Interdisciplinary Studies

To live in a world absent of interference or impediments for many of our citizens is a dream they have been forced to sequester – or closet. I am referring to any person that has been othered by a segment of society; which simply stated means every citizen. The disturbing fact is we all other and are othered; simply placing labels on people others them. This is in no way a justification of othering; the generalized othering of that which is not like me is disturbing on many levels. If labeling or othering were viewed in society as an illegal substance it would be on the same plane as marijuana or alcohol; a gateway to more insidious offenses. Regretfully, we view drugs and excess alcohol as things that are harmful to our society at large, yet we choose to turn our back on othering. Many of our citizens have been subjected to a worldview that makes them ashamed to simply be who they are. They feel as if they are unacceptable to society at large and therefore closet parts and pieces of who they are. In doing this they perpetuate the myth of freedom, even if it is because they are frightened of real or perceived consequences.

2012

Undergraduate Research/

Creative Activity

Reception Program

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Faculty Mentor: Jesse Schwartz

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Faculty Mentor: Susan Kirkpatrick Smith

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Faculty Mentor: Brandon Lundy

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Faculty Mentor: Brandon Lundy

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Faculty Mentor: Brandon Lundy

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Faculty Mentor: Susan Kirkpatrick Smith

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Interdisciplinary Studies

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Mershawn Foley

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WellStar College of Health and Human Services

Human Services

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Margaret Brittany Wood

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Acknowledgements

- θ The Student Activities and Budget Advisory Committee (SABAC)
- θ Carol Pope, Acting Director of Student Development and Assistant Director for Disabled Student Support Services
- θ Dr. Michele DiPietro, Executive Director, Center For Excellence in Teaching and Learning
- θ Kaleem Clarkson, Operations Manager, Center for Excellence in Teaching and Learning
- θ Debbie RedWine, Office Lead III, Center for Excellence in Teaching and Learning
- θ Cameron Hayworth, Visual Communications Specialist, Center for Excellence in Teaching and Learning
- θ The Honor Society of Phi Kappa Phi
- θ The Undergraduate Research Club (URC), especially:
 - Courtney Collins
 - Max Harris
 - Darya Sipyeykina
 - Kimberly Wallace Stewart
 - Steven Williams

April 10, 2012

Dear Mentors and Mentees,

We wish to thank you for attending this special ceremony in honor of both of you for your engagement in scholarship activities in 2011-2012. Being recognized by the Kennesaw State University President Daniel Papp and Associate Provost Teresa Joyce indicates our gratitude for your dedication to advancing undergraduate scholarship and creative activities at KSU.

We hope that your experience has been significant and trans-formative. Your journey has only begun. The two of you will interact for years to come and become professional colleagues. At KSU we believe that undergraduate scholarship is an essential component of our mission to mentor students and provides an opportunity to deepen your learning and ultimate post-graduate success. This mentoring relationship will not only increase retention, progression and graduation success but will also create a pool of committed, successful and active alumni.

We thank you for engaging in the process of discovery, not only in research and creative activities, but also in the professional relationship.

Sincerely,

A handwritten signature in black ink that reads "Michele DiPietro". The signature is written in a cursive style with a vertical line to the left of the name.

Michele DiPietro, Ph.D.
Associate Professor of Statistics and
Executive Director of CETL

A handwritten signature in black ink that reads "Amy Buddie". The signature is written in a cursive style.

Amy Buddie, Ph.D.
Associate Professor of Psychology and
CETL Associate Director for Graduate Student Support and Undergraduate Research/Creative Activity

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