Spring Undergraduate Research Symposium

Emory Undergraduate Researchers in all fields in the College

Wednesday, April 21, 2010
4:00pm-6:00pm

Coca-Cola Commons (Dobbs University Center)

sponsored by

SCHOLARLY INQUIRY & RESEARCH AT EMORY
Emory College of Arts & Sciences
SYMPOSIUM SCHEDULE BY DISCIPLINE

Humanities / Creative and Performing Arts

Khytie Brown  Alyssa Bruehlman  Allison Cohen
Estee Culbreth  John Culnan  Desiree Gonzalez
Jelle Lansdaal  Lia Marianes  Kaitlyn Pados
Jocelyn Pettway  Haley Steed  Nicholas Surbey
Atlee Tyree  Christina Welsch  Alexis Yalon

Social Sciences

Kaitlyn Bankieris  Sara Berney  Grace Choi
Andrew Crichton  Tonia Davis  Rachel Fudman
Desiree Gonzalez  Kelsey Jamerson  Jasmine Johnson
Nihar Mathur  Marina Santiago  Jessica Sunshine
Cassandra Webster  Wyatt Wilson  Golsa Yazdy

Natural Sciences

Phillip Andreae  Julie Chang  Stephanie Chiang
Gregory Decker  Jane Fisher  Gracia Kelly
Marki Guzlas  Daniel Kmetz  Stefanie Lang
Eunice Lee  Jonathan Lin  Alexander Wein
HUMANITIES / CREATIVE AND PERFORMING ARTS

Brown, Khytie

Culture Clash: A Socio-Theological Examination of Dancehall Music
Faculty Mentor: Dr. Dianne Stewart, Department of Religion

Abstract:
Dancehall music is a Jamaican musical form borne out of reggae music; however the content and character of the dancehall genre positions it as the ugly and wayward stepchild of its progenitor; reason being, is that dancehall music assaults the delicate sensibilities of “decent” Jamaicans (upstanding, usually middle to upper-middle class citizens, as well as the lower and working class who are Christian-minded) and forces them to address issues and topics considered uncouth. This research asserts that dancehall music while vulgar and hardcore comprises of a spiritual element. Dancehall practitioners may not necessarily possess an aversion towards the dominant religion, which is Christianity, but instead, many inner city Jamaicans who not only listen to dancehall music but live the lifestyle that dancehall narrates, manipulate its norms, values and doctrines to suit their immediate needs. Dancehall music and the resulting subculture, gives “ghetto youths” and inner city Jamaicans, a medium to express their humanity as well as to transcend the mundane and experience the transcendental in an unconventional manner.

Bruehlman, Alyssa

Performer, Pedestrian, or Person? An Exploration of the Real and Unreal Within Performance
Faculty Mentor: Dr. Gregory Catellier, Department of Theater

Abstract:
From my earliest years as a dancer, I have been encouraged to embody and exude perfection. Endless hours of class and rehearsal all strived to prepare me for some final performance, an opportunity for technical and presentational excellence. However, as my training has continued at a university program based in modern and postmodern dance, I am everyday exposed to the concept of dancer as ordinary human being. As a performer, I am constantly confronted by the demands of diverse presentational vocabulary—from simplest walks to buoyant prances, from minutest gesture to full-bodied abandon. I am often asked to be both human and superhuman, and I am not sure where the balance lies.

My research is an active and philosophical inquiry into this fluid role of the performer within concert dance. In a project-culminating concert on March 25-26, 2010, I
present self-choreographed works as a melding of three perspectives—everyday pedestrian, dramatic dancer, vulnerable self—to consider how each persona enters and exists within the theater. With a combination of live and video-recorded performance, my research scans the spectrum between theatrical presentation and mundane reality. In moments both staged and improvised, I attempt to understand the possibility of being pedestrian, performer, and person. Through this investigation, I ultimately question 1) how the performer relates to both reality and stage, 2) where impeccable execution ends and a vulnerable reality begins, and 3) what it truly means to be a performer.

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**Cohen, Allison**

**Divination in Contemporary Tibetan Society**
Faculty Mentor: Dr. Sara McClintock, Department of Religion

Abstract has been removed.

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**Culbreth, Estee**

**A Historical Relationship: Students and Staff at Cox Hall**
Faculty Mentor: Dr. Melissa Sexton, Transforming Community Project

Abstract has been removed.

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**Culnan, John**

**The REALM Test in Health Communication**
Faculty Mentor: Dr. Susan Tamasi, Department of Linguistics
Co-author: Dr. Hilary Prichard, Department of Linguistics, University of Pennsylvania

**Abstract:**
Health literacy, a concept that involves using literacy skills to apply information to medical contexts, is alarmingly low in the United States. There are currently several measures of
health literacy. Our study has focused on the Rapid Estimate of Adult Literacy in Medicine (REALM) test, a pronunciation test composed of 66 health-related words in order of ascending difficulty, from fat to impetigo. The study has been used since the 1990s as the fastest way to assess health literacy. The scores are often used to determine how physicians should talk to their patients, so an inaccurate score could make this interaction more difficult. The focus of the current study is to evaluate the extent to which phonological changes, such as the insertion of extra vowel sounds, and morphological changes, in particular suffix changes prevalent in certain dialects of American English, affect the score a patient receives on the REALM test. We seek to demonstrate that the REALM test is not the most accurate measure of health literacy, because the score a patient receives can be influenced significantly by minor changes to words on the test. For this study, we examined taped REALM tests administered to 104 patients at Grady Hospital. Our preliminary findings do in fact suggest that there are significant problems with the REALM test, and that those scores reported do not necessarily match the levels of health literacy for each patient.

Gonzalez, Desiree

Essentialism and Performativity in the Work of Ana Mendieta
Faculty Mentor: Dr. Judith Rohrer, Department of Art History

Abstract:
Ana Mendieta (1948-1985) created earth-body sculptures in the 1970s in 1980s, informed and influenced by the contemporaneous genres of performance, body, and earth art. Thematically, her work incorporated issues related to cultural displacement, gender, and ritual. My honors thesis attempts to understand her complex practice by looking at her work through the context of feminist theory, specifically theories of essentialism and performativity. Interpreted as a way to empower women through the reclamation of the land, these works have traditionally been considered and at times criticized for being "essentialist." Much recent scholarship on Mendieta steers away from the essentialist interpretation, instead employing Judith Butler’s performativity theory as if to revalidate her work. I argue that both the essentialist and performative interpretations are valuable to understanding Mendieta’s multifaceted practice, highlighting the tension between the eternal and the ephemeral. First, an overview of Mendieta’s practice contextualizes her work within the conceptual framework in which she was working. Next, I investigate Mendieta’s alignment with the feminist art movement. Then I look at how essentialism and performativity have been applied to readings of her work. Finally, I look at key examples from her oeuvre and how essentialist and performative theories can be applied to them.
**Lansdaal, Jelle**

What makes a language a language?
Faculty Mentor: Dr. Susan Tamasi, Department of Linguistics

Abstract has been removed.

**Marianes, Lia**

The Lover
Faculty Mentor: Dr. John Ammerman, Department of Theater Studies

**Abstract:**
The goal of this project is to explore, through the performance of my adaptation of The Lover by Marguerite Duras, the interplay between human memory and the factual reality of events, to discover the responsibilities of an adaptor and an actor in a potentially autobiographical work, and to use a new piece of theater to cause audiences to examine the impactful events of their own lives. Additionally, this project has served as a great an acting and writing challenge for me, and therefore has been a valuable senior honors thesis topic.

The research questions I pursued center on the interplay between memory and reality in Duras’ work. The novel was written in 1984 when Duras was an old woman, and yet is written about a time in her life of enormous youthful exuberance, growth, and change; this is interesting because it begs the question of whether this is autobiography or fiction, or both. Although Duras did factually have a Chinese lover as a young girl in French Indochina, Duras wrote several accounts of this story (The North China Lover, Wartime Writings, Eden Cinema, The Sea Wall), and the account of that lover and her relationship with him is entirely different in each retelling. Therefore, what belongs to fact, and what to fiction? Additionally, what is the adaptor’s responsibility to represent fact in a fictional, potentially autobiographical, work? This question has a great impact on me as the adaptor of the piece, as I too have a responsibility to the text that must be met.
**Pados, Kaitlyn**

**Control to Abandonment: Four Solos Exploring Dynamic Ranges**  
Faculty Mentor: Professor Anna Leo, Department of Dance and Movement Studies

**Abstract:**  
In today’s melting pot of modern dance, it is absolutely necessary for performers to be versatile in order to adjust to eclectic choreographic demands. A dancer cannot simply be an athletic mover, a graceful performer, or a technical expert. To hone my own movement adaptability as a dancer and as a performer, I approach this idea of versatility via dynamics. Dynamics include performance intentions such as timing, use of weight and energy, and use of space. In a series of four solos, I investigate the role of dynamics in performance by exploring extreme ranges of movement qualities. I also focus on the subtleties of my movement and intention that are responsible for governing overall audience interpretation. “Maya,” my first solo, features quick, direct movements, never remaining on the same idea for long. “Solo for Pop Music #2” and “Solo for Pop Music #3” present more relaxed and tense moments. Finally, I examine my developed understanding of dynamics in my own choreographic work, “Swallowed,” featuring a more drastic spectrum of control and abrupt abandon.

After exploring these aspects in rehearsal settings, my research culminates in a final performance, directly comparing these four works in the same evening. The challenge for me as a performer is to change between such varying qualities and reenter each work with a different character during the same concert. This performance reveals the ultimate goal of my research, discovering the ways in which I can be the versatile mover of today rather than a pre-labeled dancer from years past.

**Pettway, Jocelyn**

**Steamcon: The Gearing up of An Artistic Movement**  
Faculty Mentor: Dr. Leslie Taylor, Department of Theater Studies

**Abstract:**  
Steampunk, a genre which combines today’s technology with a fictional Victorian past, has been increasing in popularity in recent years. Although the movement began in literature, it has since spread to television, film, visual art, video games and even theatre. Steampunk has grown so much that last year Seattle hosted the first Steampunk Convention. Aside
from being a place where enthusiasts could mingle with each other and purchase more Steampunk “gear,” Steamcon created an environment where experts could share theories on what Steampunk is, where the movement originated and where it was headed. As someone who has long been passively interested in Steampunk, going to the convention and meeting the avant-garde of the Steampunk allowed me the opportunity to insert myself in the discussion and witness the development of ideas that would soon be fueling this movement.

As a theatrical artist, I was particularly interested in the way Steampunk could be applied to scenic design, and how such a choice would impact a production. Steampunk, more than being a veneer of design, is a movement with concerns and issues rooted within the design genre. I attended this convention with the desire to discover the major concerns of the movement, and to figure out where theatre fit in. My research into this movement, and how it could be applied to theatre, reached an exciting height during Steamcon, where I met both the artists and theoreticians that were shaping Steampunk.

Steed, Haley

Pirro Ligorio’s 1561 Map of Ancient Rome
Faculty Mentor: Dr. Sarah McPhee, Department of Art History

Abstract:
Pirro Ligorio’s 1561 map of ancient Rome came at the dawn of the cartographic industry in Rome. The development of mapmaking from Ptolemy to Leonardo da Vinci showed a progression of technological advancement in survey methods and accurate depiction of cities. Ligorio’s map is not a traditional map in the sense, as it is not intended to aid in navigation of the ancient city. Rather, the map is an expression of the character of the ancient city that Ligorio intended to be an example for contemporary Rome. Ligorio used methods such as archaeology and the study of ancient literature to research the map and create an eternal image of the eternal city.
Surbey, Nicholas

Culpability: Dealing with Financial Crisis Through Theater

Abstract:
Each summer, Edinburgh, Scotland hosts a month-long festival of theatrical presentations from around the world. After the 2008 global banking meltdown, I decided to attend the festival in search of theatrical representations of the financial crisis. Economic climate has often played a role in the creation of theater, most notably during the 18th Century, when the economic landscape of England underwent unprecedented change as a result of the Industrial Revolution. The establishment of a middle class comprised of nouveau riche Industrialists and the advent of a capitalist economy created specific social and moral fears that directly fueled the creation Melodrama, in which poor characters are rewarded for their moral-goodness and rich bankers fall from favor through dastardly deeds. With this in mind, I set out to discover the specific type of theater being created from the current economic climate. After viewing multiple shows, common trends began to emerge that signaled a unique method for representing this particular crisis through theater. Among these, the most prevalent were: actors directly addressing the audience to educate them on the causes of the crisis; representations of greedy corporations coupled with willingly blind victims; and, most commonly, direct audience involvement with the action of the drama and implication of the audience in the demise of characters. Together, these trends create a significant picture not only of how theater is dealing with the crisis, but of how this particular crisis is viewed in general: traditional “victims” are shown to be every bit as culpable as corporations.

Tyree, Atlee

Art and Development in Senegal: "Huit Facettes" and "Portes et Passages"
Faculty Mentor: Dr. Sidney Kasfir, Department of Art History

Abstract:
For my Institute for Developing Nations research project, I investigated the artist collective Huit Facettes as a model of development. Founded in Dakar, Senegal, in 1996, Huit Facettes operated several workshops in rural areas surrounding Dakar, such as Joal, Ndem, and Hamdallaye Sama M’Baye. Eight prominent and successful visual artists in Dakar began this collective in order to connect art and development while breaching the gap between the urban and rural.
Unfortunately, as I discovered upon my arrival in Dakar in the fall of 2008, Huit Facettes had no current projects underway. However, I nonetheless continued my investigation of the workshops and researched interviews, films, seminar recordings, and exhibition catalogues involving the work of Huit Facettes. I gained access to these sources thanks solely to Amadou Kane Sy (“Kan-Si”), one of the collective’s founders, and his wife Muhsana Ali.

Once I collected enough information on Huit Facettes to discover that the collective had in fact occurred on a project-by-project basis, I began interviewing Kan-Si and Muhsana about the next phase of Huit Facettes. Drawing from both his experience with Huit Facettes and her community arts research in the Ivory Coast, the artist couple had organized Portes et Passages, a holistic arts center to be built in Joal.

Welsch, Christina

How Two Indias Created One Empire: A Theory of Interperipheral Imperialism
Faculty Mentor: Dr. Tonio Andrade, Department of History

Abstract has been removed.

Yalon, Alexis

What Gets Lost on The Biggest Loser?
Faculty Mentor: Dr. Elizabeth Wilson, Department of Women’s Studies

Abstract:
Claims about the obesity epidemic are commonplace in contemporary news media and public policy debates. The consensus appears to be that America is getting fatter and sicker by the moment, and that weight loss is critical to not just individual health, but the health of the nation as well. This project interrogates that conventional wisdom by examining the effects of dieting culture on various aspects of identity. Using reality television weight loss programs, NBC’s The Biggest Loser and Lifetime’s DietTribe, I show that dieting
interventions seek to reform more than just body weight and eating habits. In fact, dieting is a profoundly normative intervention into the expression and experience of gender, sexuality, race, ethnicity and citizenship. Furthermore, the breadth and depth of transformation encouraged by these programs reveals the extent to which the fat subject is materialized as a failed subject. Although weight loss is typically conceived of as a measure to improve health, my research shows the ways in which dieting can work against the both mental and physical health.
SOCIAL SCIENCES

Bankieris, Kaitlyn

Sound Symbolism and the Perception of Shape and Implied Motion
Faculty Mentor: Dr. Lynne Nygaard, Department of Psychology
Co-author: Dr. Laura Namy, Department of Psychology

Abstract:
A growing body of sound symbolism research is beginning to challenge the classic linguistic assumption that the pairing of word to referent is arbitrary. The present study investigated this sound symbolism phenomenon during on-line processing and the extent to which sound symbolism relies on inter-sensory cross-activations. A cross-modal priming task was used, with foreign words meaning pointy, round, still, or moving as auditory primes and pictures varying in shape (pointy or round) or implied motion (still or moving) as targets. Participants classified pictorial targets (pointy or round, still or moving) during trials presented across three conditions: 1) Match, in which the prime was sound symbolic for the perceptual property of the pictorial target; 2) Mismatch, in which the prime was sound symbolic for the perceptual property opposite of the pictorial target; and 3) Control, in which the prime was not sound symbolic. The results showed that symbolic (Match and Mismatch) trials facilitated processing in the motion domain, but interfered with processing in the shape domain. The current results provide preliminary evidence that non-arbitrary sound to meaning mappings in natural language affect on-line processing of pictures and potentially result from low-level cross-modal connections.

Berney, Sara

HIV/AIDS Programming for ‘Men who have Sex with Men’ in Uganda
Faculty Mentor: Dr. Karen Hegtvedt, Department of Sociology

Abstract:
“Throughout Africa, LGBT communities are being decimated with a speed and breadth reminiscent of the impact of the epidemic on gay men in New York and San Francisco in the 1980s.” Yet there are scarcely “more than a handful of formal prevention programs targeting ‘men who have sex with men’ (MSM).” Studies on MSM and HIV have identified HIV programming as the next step to decreasing the high vulnerability of this population.
After spending Fall of 2008 abroad in Uganda, the researcher connected with Freedom and Roam Uganda (FAR Uganda), a grassroots organization in Kampala, which promotes basic rights for Uganda’s LGBT community. FAR Uganda recently initiated a series of education based HIV-AIDS programming’s for the at-risk MSM community. In December of 2009, the researcher will travel to Uganda to conduct twenty interviews with MSM and FAR Uganda staff. The interviews aim to gauge MSM understanding of the transmission and prevention of this virus and to probe at how programming for MSM changed (or did not change) respondent’s belief systems about the transmission and prevention of the virus. The researcher will also directly observe FAR Uganda programmings, review programming materials, lesson plans, director agendas, and instructor guides. This project will identify what aspects of programming are and are not working, and with this information, researchers can help influence the evolution of the programs and ensure that sponsors pursue, and funding supports, the most promising strategies to better serve the MSM population.

Choi, Grace

Vocational Schools: A Tool to Increase Access to the International Market

Abstract:
International trade is an important aspect in boosting economies in developing countries. The objectives of this study were to understand Ghana’s international trade market and research ways to increase access to it. Thus, I wanted to learn more about the barriers preventing business owners from engaging in international trade, particularly in the non-traditional exports sector. In addition, I wanted to determine the feasibility of using vocational schools as a strategy to increase growth the NTE sector of clothing. Last, I sought to gauge interest of students and vocational school heads in teaching, learning the export process. The study was qualitative in nature and mainly utilized the tools of observation, informal and formal interviews. There were four different interview groups and they included: small business owners, vocational school students, vocational school heads, and the Ghana Export Promotion Council (GEPC). Students showed a great interest in learning more about the export process while vocational school heads were eager to consider the idea of implementing such material into their curriculum. While meetings with the GEPC showed that the export process was not too difficult for students to learn, lack of financing was the other biggest barrier aside from knowledge of the export process. In future studies, there are many other areas to continue researching such as the declining vocational school enrollment.
Crichton, Andrew

Dissent From Denials of En Banc Rehearing as a Signal to the Supreme Court
Faculty Mentor: Dr. Micheal Giles, Department of Political Science

Abstract has been removed.

Davis, Tonia

Who really turned out the light? Defining metonymic licensing from an empirical standpoint
Faculty Mentor: Dr. Phil Wolff, Department of Psychology

Abstract:
Metonymy is the process by which one word is substituted for another, as exemplified by I ate a box of cookies (literally, no box was eaten). In this research, we examine the semantic conditions that license the use of metonymy, and in particular, test the proposal that certain types of metonymic reference are licensed by agency-based vagueness. According to this proposal, called metonymic clipping, a single individual can be used to refer to an entire series of events, as when we say William the Conqueror changed the English language. In Experiment 1, metonymic clipping was rated more acceptable for those sentences that use vague verbs than those that did not, and for sentences involving groups of agents rather than single agents. In Experiment 2, metonymic clipping was deemed more acceptable for sentences in which there was temporal overlap between the initiator's and the agents' actions than when there was no overlap. Experiment 3 indicated that the conditions licensing metonymic clipping are not simply due to the sheer number of agents in the causal chain, but rather (by hypothesis) the vagueness of events in the series. Experiment 4 indicated that metonymy clipping was less acceptable when the agents of the action were named than when they were nameless. Implications for the relationship between literal and non-literal language are discussed.
Fudman, Rachel

Not Just in the Eye of the Beholder: Beauty as a Status Characteristic in Mixed Sex Dyads
Faculty Mentor: Dr. Nancy Bliwise, Department of Psychology

Abstract:
The physical attractiveness bias, the tendency to attribute positive characteristics to attractive people, is ubiquitous in the social world and appropriates widespread advantages to attractive individuals. Past research has shown that physical attractiveness operates as a status characteristic that influences group behavior. Incorporating concepts from the physical attractiveness bias and expectation states theory, this study examines the communication behaviors of pairs working on a decision making task in order to draw conclusions about the unconscious influence of physical attractiveness and gender on social status hierarchy. 68 undergraduate students were separated into pairs that varied by gender and attractiveness rating and were videotaped while performing a task. Researchers measured the dominant (interruptions, gestures, total talk time, verbal latency) and submissive (affirmations, head nods, smiling) communication behaviors exhibited by participants and used this information to infer the status hierarchy of the pair. When participants evaluated their partners after the task, participants who were described as attractive were also described as possessing other positive traits, such as intelligence or thoughtfulness. Statistical analysis revealed that females smiled more and were more likely to perform the role of ‘secretary’, writing down the pair’s answers to the task. Attractive individuals, either male or female, were most likely to first initiate conversation with their partner. Attractive females head nodded more when paired with attractive males compared to unattractive males. Unattractive males head nodded more than attractive males. These trends suggest that physical attractiveness affords individuals an elevated social status in face-to-face interaction.

Gonzalez, Desiree

Defining Sex and Virginity Among Emory Undergraduate Students
Faculty Mentor: Dr. Susan Tamasi, Department of Linguistics

Abstract:
Stephanie A. Sanders and June Machover Reinisch published their 1999 essay “Would You Say You ‘Had Sex’ If...?” based on a survey given to Midwestern college students conducted eight years earlier. This survey, intended to research sexual health behaviors, produced answers that are relevant to linguistics as well as indicative of a heterosexist culture. Virtually all respondents considered penile-vaginal intercourse “sex,” 80% of population included penile-anal penetration in this definition, and only 40% considered oral-genital stimulation as “sex.” My project aims to take Sanders and Reinisch’s study one step further in studying how one’s sexuality might influence what one considers as having “had sex.” If society generally accepts penile-vaginal intercourse as the main act of sex, then how do individuals who engage in same-sex sexual activity define having “had sex”? A secondary question arises that Sanders and Reinisch alluded to, but did not discuss thoroughly, in their study: How do we define virginity? Does one lose one’s virginity when one has sex? Can an individual be a “virgin” and also be “having sex”? An anonymous online survey modeled after Sanders and Reinisch’s study sampled 63 Emory undergraduate students. While the data reveal widely divergent understandings of sex and virginity within the Emory undergraduate community, they also point to an overarching heteronormative view of sex as penile penetration.

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**Jamerson, Kelsey**

**Wanna Contraction**

Faculty Mentor: Dr. Majorie Pak, Department of Linguistics

Abstract has been removed.

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**Johnson, Jasmine**

**Black and White: Investigating the Gray Areas of Desegregated Public Schools in America’s South**

Faculty Mentor: Dr. Lawrence Jackson, Department of English

Abstract has been removed.
Mathur, Nihar

Phonetic Correlates of Sound Symbolism
Faculty Mentor: Dr. Lynne Nygaard, Department of Psychology
Co-Authors: Lauren Clepper, Emory University; Dr. Laura Namy, Emory University

Abstract:
The sound structure of spoken language is widely assumed to bear an exclusively arbitrary relationship to meaning. However, recent research in sound symbolism has shown that listeners are sensitive to sound-to-meaning correspondences that appear to occur cross-linguistically. The current study aims to evaluate potential correspondences between inventories of certain types of phonemes and particular semantic domains. Antonyms from different semantic domains were recorded from native speakers of ten different languages. Participants with no prior knowledge of the languages were presented with the sets of antonyms and asked to guess their meanings. Broad phonetic transcriptions of words referring to size (big/small), contour (round/pointy), motion (fast/slow), speed (still/moving), and valence (bad/good) were analyzed to determine if the phonemic profiles would differ as a function of meaning. In general, vowel height and consonant voicing distinguished words sounding big or small, vowel roundedness and the amount of vowels distinguished words sounding round or pointy, vowel height distinguished vowels sounding still or moving, and vowel height, vowel roundedness, and consonant sonority distinguished words sounding slow or good. These findings illustrate a reliable sensitivity to the mapping of certain speech sounds to certain semantic domains.

Santiago, Marina

Language Education Policy in South Africa
Faculty Mentor: Dr. Susan Tamasi, Department of Linguistics

Abstract:
The current status of languages in the South African educational system is one of the many results of the country’s long history of colonialism and race-based oppression. While black South Africans are in the clear majority in terms of population, they are historically the most oppressed. Black South Africans continue to have lower social status and socioeconomic power, and their struggle for social justice is reflected in their desire for equity in language education. In my project, I examine the state of modern South African language education policies, as well as opposing views on how the country should address the lingering issues of race and class discrimination evidenced in the achievement gaps
between white, black, and coloured students. The difficulty inherent in language education planning is amplified in the case of South Africa, where an extensive history of colonialism and racism have further complicated the issues of language in education.

Sunshine, Jessica

The association between anxiety and nonverbal decoding ability in children: Age and gender differences
Faculty Mentor: Dr. Stephen Nowicki, Department of Psychology
Abstract: The purpose of this study was to examine (1) if an association exists between the degree of anxiety in children referred for social problems and the ability to identify emotions in nonverbal communication channels and (2) to see if this association differs by age (5 to 8 years of age; and 9 to 12 years of age) or gender (male and female). Based on the theorizing of Sullivan (1956) and Harris (1995), who suggested that relationships were the basis for successful adjustment, it was predicted that there would be a positive correlation between nonverbal receptive skills and the degree of anxiety as observed and rated by parents. Scores from the Diagnostic Analysis of Nonverbal Accuracy Scale-2 (DANVA2) and the Child Behavior Checklist (CBCL) were obtained from the records of children (n = 331) seen at a social skills training center, Beyond Words. After conducting appropriate Spearman Correlations, it was found that gender acted as a moderating variable while age did not. The association between anxiety and nonverbal decoding ability varied depending on children’s gender. The more anxious girls were, the significantly more mistakes they made identifying emotions in adult faces and voices than for boys. The findings were discussed within the framework of the different ways males and females learn to relate as children.

Webster, Cassandra

Contraception Use by Married Women in Senegal
Faculty Mentor: Dr. Tracy Scott, Department of Sociology
Abstract: Most population theorists believe high birth rates and the concurrent rapid population growth are a hindrance to development in the modern world. Research regarding contraception use within marriage could yield explanations as to how contraception use
could be increased. Senegal, like most, if not all, countries in Sub-Saharan Africa, is classified as developing by the World Bank (World Bank, 2009), and for my research, I conducted five semi-structured in-depth interviews with NGO employees, as well as an additional interview with the researcher and an email exchange with a nurse/midwife, about married women’s use of contraception and factors informing related choices. I also asked about past, current, and future work of NGOs in relation to contraception and reproductive health for married women in Senegal.

From my research, I have ascertained that married women tend to have access to proper contraception for reproductive health. The issue of reproductive health is often framed as unmet need, but in light of my current knowledge of the culture, I think that right now organizations in Senegal would have more success with the pursuit of overall reproductive health for all by focusing on other aspects of reproductive health. Organizations could potentially be successful at lowering the infant mortality and maternal morbidity rates by pursuing the reproductive health facet of quality health care services for before, during, and after pregnancy. Maybe at this point in time, investing in more health care professionals to work where needed should be a higher priority than trying to change the culture so that women want to use contraception.

Wilson, Wyatt

Proud and Public: Civil Religion in America Since 911
Faculty Mentor: Dr. Barbara Patterson, Department of Religion

Abstract:
Civil religion is a social phenomenon most widely understood as Judeo-Christian traditions interfaced with social and political conditions within the American landscape. The civil religion product is made observable through postmodern theory and a thorough understanding of how social factors condition religious values. With these suppositions, particularly postmodern framework, ethnography offers a prime avenue to document civil religion. In this study, 15 participants were interviewed in an effort to compile 15 detailed and revelatory narratives concerning the events that happened on September 11th, 2001. Each oral history was transcribed in full with the guidance of an Introspective Journal. After interviews were completed, conceptual categories were then generated by grouping consistent, recurring phrases in a framework built by Grounded Theory. These categories demonstrated modes of American epistemologies and identity that related to the normative American vision endowed during the nation’s emergence in the 18th century. Furthermore, since these values were not strict reiterations of colonial American beliefs, they represent a negotiation between present, past and future values. This aspect illuminates the socially malleable nature surrounding the civil religious paradigm.
Additionally, while the interviews mainly concerned 911 and terror, they demonstrate how antagonistic situations provide a fertile arena in which for civil religion to thrive.

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**Yazdy, Golsa**

*Legalized Prostitution in Dakar, Senegal*

Faculty Mentor: Dr. Craig Hadley, Department of Anthropology

**Abstract:**

Since the outbreak of the HIV/AIDS epidemic in the mid-1980s, the Senegalese government has taken steps with the help of religious leaders and various NGOs to better educate their public about the dangers of HIV, AIDS, and STIs. Such action has helped the country to maintain an HIV/AIDS infection rate of approximately 1-2%. In addition to these initiatives, the country implemented a legalized system of prostitution—the first an only program of this sort on the African continent. Through the program, all sex workers are required to register with the government and attend monthly health checkups. However the prevalence of HIV/AIDS has in fact risen in this population, from approximately 5% in 1989 to 20% in 2007. The focus of my research examines the causes of this increase and evaluates prostitution in Senegal through the eyes of Senegalese professionals, health workers, NGOs, and sex workers themselves. In my work, I have strived to address the following questions:

- What are Senegalese perspectives on sex work? Why do women become sex workers and what are their reflections on the profession? How knowledgeable are professionals about sex work in Senegal?

- What institutions are in place to provide assistance to sex workers in Dakar? How effective are they at targeting both registered and clandestine prostitutes? What are the successes and faults of these initiatives?

- Can the overall system be deemed effective or ineffective at educating women and protecting them? How can systems be improved to decrease the risk of a potential HIV/AIDS epidemic?
NATURAL SCIENCES

Andreae, Phillip

Exploring male dimorphism in the dung beetle using a discrete-time stochastic population model
Faculty Mentor: Dr. Brian Walton, Department of Mathematics and Statistics, James Madison University

Abstract:
Certain dung beetle species that belong to the genus Onthophagus display an interesting behavioral and physical male dimorphism, with populations split between horned and hornless males with implications for reproductive behavior. We have developed several variations of a discrete time stochastic population model to study this male dimorphism to determine if there exists an optimal strategy for dividing a population between horned and hornless males. By comparing two subpopulations, each of which divides with a different proportion, we determine the probability that an individual in the next generation belongs to a particular subpopulation and inherits the corresponding particular strategy. Using adaptive dynamics, we find an optimal strategy for varied encounter rates, sperm potencies, and body sizes.

Chang, Julie* and Gracia, Kelly*

Study the science of art and the art of science -Leonardo da Vinci
Faculty Mentor: Dr. Nicole Gerardo, Department of Biology
*Each member contributed equally to the project

Abstract:
Our project’s goal was to illustrate the relationship between art and science. We studied the characteristics and behavior of two fungi cultivars and their corresponding parasitic microfungi in the genus Escovopsis over a period of seven months. The two fungi cultivars—Apterostigma dentigerum and Acromyrmex—are grown and maintained by fungus growing ants as food and shelter. The corresponding Escovopsis are specifically pathogenic to their fungus. We used our observations to predict how the cultivar and corresponding Escovopsis would grow in different situations. The interaction between the two different cultivars, the two different Escovopsis, the cultivar and its corresponding Escovopsis, and
each cultivar with the opposing Escovopsis was studied. We also experimented with the agar color using food-coloring. Once we had a set understanding of their behaviors, we were able to create artwork with the two cultivars and their corresponding Escovopsis, by carefully working with their attraction and repulsion to create patterns and images. We decided to create two final artworks for our final project, a landscape and one inspired by the pop art of Andy Warhol. We also included a series piece that shows the growth and behaviors over time of the cultivar and Escovopsis. In essence, we utilized fungi as our media and agar as our canvas to create art, which in turn functioned to explain the interaction of cultivar and Escovopsis. By showing artworks that could only be created through the use of the scientific method, we feel that we show how art and science work together, and are not two unrelated fields.

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**Chiang, Stephanie**

**Host-Pathogen Specificity in Cyphomyrex Fungus-Growing Ants**
Faculty Mentor: Dr. Nicole Gerardo, Department of Biology

**Abstract:**
Organisms often evolve in response to each other, a concept known in evolutionary biology as coevolution. With respect to host-parasite interactions, parasites are often specialized to a narrow range of hosts, which results in ideal infection of their coevolved hosts, but with the cost of a limited range of infection. In the fungus-growing ant system, host-pathogen specificity has been demonstrated among various genera’s fungal cultivars and their associated Escovopsis fungal parasites. In the Cyphomyrmex genus, two distantly related cultivars from C. muelleri and C. longiscapus are found very close, often less than a meter, to each other in nature. We propose that C. muelleri and C. longiscapus associated Escovopsis strains will be able to host-switch between species more readily. If host switching occurs in this system, C. longiscapus associated Escovopsis will infect C. longiscapus cultivar as well as C. muelleri cultivar and vice versa. Cultivar and Escovopsis were isolated from each of the C. muelleri and C. longiscapus systems and were inoculated on PDA (potato dextrose agar) to examine for inhibition or attraction. DNA extractions from all of the Escovopsis strain used in bioassays were sequenced and analyzed for significant differences between C. muelleri and C. longiscapus strains. Each Escovopsis was able to infect both species of cultivar supporting the hypothesis of host switching.
Decker, Gregory

The influence of seasonality, immature density, and nutrient addition on adult Culex quinquefasciatus in Atlanta, GA
Faculty Mentor: Dr. Uriel Kitron, Department of Environmental Studies

Abstract has been removed.

Fisher, Jane

Comparison and Children’s Categorization of Unfamiliar Objects
Faculty Mentor: Dr. Laura Namy, Department of Psychology

Abstract:
On what basis children categorize objects has been a heavily studied topic in the field of cognitive development, since it is an essential skill during the early stages of word learning. Previous research has revealed that children initially are drawn to a perceptual similarity such as similar shape as a basis for categorization, leading children to make such mistakes as classifying an apple and a balloon as belonging to the same category. However, further research found that encouraging children to compare two or more examples from a category reduces children’s over-reliance on perceptual similarity as a basis for categorization. Researchers have interpreted these results to mean that children begin to rely on deeper, less obvious characteristics of objects rather than only the perceptual ones when encouraged to compare objects within a category. The present study was designed to determine the effects of comparison on the categorization of unfamiliar objects, an important extension of the research on the role that comparison plays in children’s categorization. Children saw either one (No Compare condition) or two (Compare condition) perceptually similar target objects from the same category (e.g., apple or apple and orange). They were then asked to select an object from the same category among a perceptually similar out-of-kind object (e.g., balloon) and a perceptually dissimilar novel member of the target category (e.g., kiwano). Results revealed no clear evidence that comparison facilitates categorization of novel objects in three-year-olds. However, this study is the first step in a series of experiments designed to investigate this acquisition process.
Guzlas, Marki

Analysis of the cell nuclei from digitized FNA images of breast masses to determine malignancy
Faculty Mentor: Dr. Tomasz G. Smolinski, Department of Biology
Co-authors: Kate Fowler, Emory University; Liping Luo, Emory University; Dr. Pat Marsteller, Emory University

Abstract:
FNA is a useful technique for assessing breast mass cytology and a rapid, accurate method for diagnosis of breast cancer. In this study, nine cytological characteristics of breast FNA images (clump thickness, uniformity of cell size, uniformity of cell shape, marginal adhesion, single epithelial cell size, bare nuclei, bland chromatin, normal nucleoli, mitoses) from 699 samples were evaluated on a scale of 1 to 10, with 1 representing the most normal or benign appearance and 10 the most malignant. The samples were collected and scored by researchers at the University of Wisconsin Hospitals, Madison (Wolberg,1992). From the given dataset, 437 records were extracted to construct a model of malignancy. It was found that the frequencies of each value in benign samples were significantly different from those that were malignant and malignant samples tended toward higher scores. ANOVA analysis indicated that uniformity of cell size, uniformity of cell shape and bare nuclei had the strongest association with class distribution, while mitosis had the lowest correlation. T-test results confirmed that the mean values of these nine attributes in benign samples were much lower than the mean of malignant samples. Based upon this information, a model system was constructed by adding a new field to the dataset, combined (the sum of all attribute scores for each sample). The combined score for each sample was then used in a linear regression analysis to yield the equation: y=0.042X+1.54. When this equation was applied to predict class for each sample within our extracted data, 95.21% accuracy was obtained.

Kmetz, Daniel

Diagnosing heart abnormalities based on Single Proton Emission Computed Tomography
Faculty Mentor: Dr. Tomasz G. Smolinski, Department of Biology
Co-authors: Chris Bodle, Emory University; Ellen Bruenderman, Emory University; Takayoshi Kakiuchi, Emory University; Dr. Pat Marsteller, Emory University
**Abstract:**
Displayed on our poster are explorations of several file storing and data querying software programs, using data collected by Lukasz Kurgan and his colleagues, in the hopes of developing a model that will allow for semi-automatic diagnosis of abnormal heart conditions. The sample data represents certain aspects of cardiac images generated by Single Proton Emission Computed Tomography (SPECT) imaging and processed using computer algorithms. It is analyzed and synthesized in “Knowledge discovery approach to automated cardiac SPECT diagnosis” (Kurgan et al, 2001), which provided valuable data description and background information to supplement our investigation. The software used to transfer, store, and study this dataset includes: WebDrive, Timeshare, Microsoft Access, Microsoft Excel, and SPSS.

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**Lang, Stefanie**

**Anthropogenic Disturbance Increases the Prevalence of Pathogenic Protozoa in Wild Rodent Reservoirs in Uganda**
Faculty Mentor: Dr. Thomas Gillespie, Department of Environmental Studies
Co-Authors: Dr. Innocent Rwego, D.V.M., Emory University and Makerere University; Johanna Salzer, D.V.M., Emory University; Sandra Ockers, Emory University; Amanda Williams, Emory University

**Abstract:**
Giardia sp. and Cryptosporidium sp. are zoonotic neglected tropical diseases that cause widespread morbidity in the developing world. Despite the impact of these pathogens, little is known about their reservoirs in nature. To better understand this interplay, we sampled more than three hundred rodents for these pathogens along a disturbance gradient ranging from villages and associated crop lands to undisturbed tropical forests in Uganda. All rodent fecal samples were examined for these protozoa via immunofluorescent antibody (IFA) detection. Lophuromys sp. (Brush-furred Rat) was found to have significantly higher prevalence of both Giardia sp. and Cryptosporidium sp. No rodents living in undisturbed forests were infected with either of these pathogens. Interestingly, Lophuromys sp. was never found in undisturbed forests. Prevalence of Giardia sp. and Cryptosporidium sp. increased with anthropogenic disturbance along the gradient examined. These results identify a potential natural reservoir for Giardia sp. and Cryptosporidium sp., Lophuromys sp., and are associated with disturbed habitats.
Lee, Eunice

Patterns of Zoonotic Protozoa Infection Relative to Degree of Human-Ape Contact and Stress: The Case of Lowland Gorillas in Congo
Faculty Mentor: Dr. Thomas Gillespie, Department of Environmental Studies
Co-Authors: Elizabeth Canfield, Emory University; Stephanie Lang, Emory University; Ken Cameron

Abstract:
The close phylogenetic relationship between humans and great apes creates exceptionally high potential for pathogen exchange. High rates of mortality in wild apes associated with anthropozoonotic transmission of human respiratory viruses and proximity between wild apes and people has been demonstrated to promote transmission of gastrointestinal pathogens. These demonstrations of various human pathogens negatively impacting wild apes has sparked considerable debate concerning the costs and benefits to surviving ape populations of ecotourism. To better understand how ecotourism may affect ape health, we examined the prevalence of pathogenic zoonotic protozoa, Cryptosporidium sp. and Giardia sp., in apes experiencing varying degrees of tourism-related human overlap. One hundred and thirty fecal samples from western lowland gorillas (Gorilla gorilla gorilla) were collected noninvasively from three regions in the Republic of Congo: Mbeli (Nouabale-Ndoki National Park), Mondika (Nouabale-Ndoki National Park), and Odzala (Odzala National Park) and examined for these protozoa via immunofluorescent antibody (IFA) detection. Mbeli promotes ecotourism, but minimizes human-ape contact. Mondika promotes ecotourism, but cannot easily minimize human-ape overlap. Lastly, Odzala is an area of minimal human-ape contact where ecotourism is rare, but where apes may be under stress associated with a recent Ebola epidemic. Low levels of Giardia sp. were recovered from Mondika and Odzala, but not Mbeli. Cryptosporidium sp. was found only at Mondika. The presence of Cryptosporidium sp. in Mondika suggests transmission associated with greater ape-human overlap suggests a possible linkage between ape health and ecological factors. These results highlight the need for future work to better understand these issues.

Lin, Jonathan

The Effects of Uptake Modulation on Nanoparticle Cytotoxicity and Intracellular Accumulation in Mouse Neuroblastoma Cells (N2A)
Faculty Mentor: Dr. Amanda M. Schrand, Biological Interaction of Nanomaterials (BIN) Group; Dr. Saber M. Hussain, Biological Interaction of Nanomaterials (BIN) Group
Co-Author: Dr. Laura K. Braydich-Stolle, Biological Interaction of Nanomaterials (BIN) Group, Applied Biotechnology Branch (711 HPW/RHPB), Wright Patterson Air Force Base, Dayton, Ohio

Abstract:
We examined several nanoparticles (NPs) such as (1) fluorescent nanodiamonds (2-10nm, from ITC, Inc.), which have myriad biomedical applications, and (2) Cu-NPs (40nm, from NovaCentrix), which have antimicrobial and catalytic properties. The uptake of these and other NPs has been shown to be based on their physical dimensions, morphology, and surface chemistry (Chithrani, et al., 2006) with most NPs localizing to the cytoplasm in intracellular vacuoles or in the perinuclear region with high biocompatibility (Schrand, et al., 2007-2009). However, some NPs such as Cu have been shown to produce severe toxicological effects in the kidney, liver, and spleen of mice (Chen, et al., 2006). In these studies, we examined the effects of endocytosis and exocytosis inhibition on NP toxicity and accumulation to further characterize the uptake mechanism. (Clearance Number: 88ABW-2009-3755).

Wein, Alexander

Progress Towards the Synthesis and Characterization of Conformationally Constrained Sphingolipids
Faculty Mentor: Dr. Frank McDonald, Department of Chemistry
Co-Author: Abdul Kouanda, Emory University

Abstract:
Sphingolipids are a class of biologically active compounds that are active in cell signaling and control the cell cycle. Abnormal ratios of these compounds have been associated with a higher mortality in certain cancers. In this project, a family of unnatural sphingolipids have been synthesized for structure-function testing.