

**DEPARTMENT OF ANTHROPOLOGY**  
**Tenth Annual Honors Symposium**  
**Friday, April 26, 2019, 3:00 pm – 4:45 pm**

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**Honors Participant:** Tracey A. Bobadilla

**Advisor:** Dr. Becky Schulthies

**Major:** Cultural Anthropology

**Second Reader:** Dr. Kate Riley

**Topic:** *Epiphanies of a Soccer Mom: Child Commodification through Sport*

**Description:** In the United States, there appears to be an overinvestment if you will, in the sporting activities of children and their relation to their parents. Simply stated, parents are living vicariously through their children for a myriad of reasons. One of which I believe is to commodify them. Commodification in this sense is an active process of providing social and cultural capital in an effort to ensure that when children have matured, they will have been given all of the resources to make them successful thereby reflecting back positively on the parent. Soccer, I argue is merely the field, by which this process occurs because by paying for the ability to play on elite teams, paying for extra training, and expensive equipment, we are teaching our children that winning matters, but more importantly that if we are going to spend thousands of dollars, there needs to be positive outcomes, socially. A return in our investment.

**Honors Participant:** Renee D. Boucher

**Co-Advisors:** Dr. Hylke de Jong, Dr. Erin Vogel

**Major:** Evolutionary Anthropology

**Topic:** *Iron (Fe) and Copper (Cu) fractionation as an indicator of sex in rhesus macaques (Macaca mulatta)*

**Description:** The isotopes of trace metals, such as iron (Fe) and copper (Cu) in human blood (Walczyk and von Blanckenburg, 2002) and bone (Jaouen, et al., 2012) have been shown to vary between males and females. The variation between

males and females has not been examined in non-human primates, who exhibit sexual dimorphism greater than that of humans, which makes them more homologous to our ancient relatives, hominins. Here, we will investigate the isotopic fractionation of  $\delta^{56}\text{Fe}$  and  $\delta^{65}\text{Cu}$  in the bone and whole incisors of rhesus macaques (*Macaca mulatta*). Subsequently, we compare the isotopic fractionation of  $\delta^{56}\text{Fe}$  and  $\delta^{65}\text{Cu}$  in pre- and peri-pubescent individuals to validate if these sex differences are only present during puberty (Jaouen and Balter, 2014; Jaouen and Pons, 2016; Jaouen et al., 2017). We show that there is a significant effect between  $\delta^{65}\text{Cu}$  fractionation and sex in rhesus macaque occipital bone, but not in incisors. Similarly, we show that there are no significant effects between  $\delta^{56}\text{Fe}$  fractionation and sex in rhesus macaque occipital bone and incisors. However, there is an interaction between age and sex that affects  $\delta^{65}\text{Cu}$  fractionation in rhesus macaque occipital bone, suggesting that there is an evolutionary basis to this phenomenon in the mammal class. Future prospects are to continue researching the female metabolism, and the biological underpinnings of higher female survivorship in different life stages in the past, and to continue exploring the mechanisms for heavy metal metabolism in non-human primates and human ancestors.

**Honors Participant: Irene Fedyshyn**

**Advisor:** Dr. Susan Cachel

**Major:** Anthropology

**Second Reader:** Dr. Erin Vogel

**Topic:** *A Comparative Study of Caloric Intake and Nitrogen Balance Between Different Sex and Age Classes of Wild Orangutans (Pongopygmaeus wurmbii)*

**Description:** Orangutans are the red man of the forests. The largest arboreal primate is a wonder of the world. Orangutans (*Pongo pygmaeus*) dwell in the peat swamp tropical forests of Central Kalimantan, Borneo. The orangutans in this habitat undergo periods of significant nutritional deficiency. Flanged males must expend energy on their dramatic secondary sexual characteristics and must use extra energy to support these costly features. Also, there is a necessary amount of energy needed by an adult female to ovulate, gestate, or to lactate. This means that they need to allocate energy that could have been put in reserve but is instead used for other processes. Orangutans have evolved unique adaptations to sustain themselves in this highly seasonal environment. Depending on the age and sex of an orangutan, one can find behavioral and physiological difference between different sex/age classes. I will examine the average protein intake, average caloric

intake, and nitrogen balances between sex divisions of a population of wild orangutans. I used nitrogen isotopes to get non-invasive information on these apes. As anthropogenic disruption continues to affect this complex and rare eco-system, it is important to understand the dynamic interactions between nutrition and this critically endangered great ape. My hope is that this research can build on the information already available, and lead to a greater understanding of orangutan ecology.

**Honors Participant:** Carlie Hanlon

**Advisor:** Dr. Kate Riley

**Major:** Cultural Anthropology

**Second Reader:** Pilar Rau

**Topic:** *Sit Like a Lady: A Study on the Body Language of Transgender and Non-Binary People*

**Description:** Gender is the set of sociocultural expectations related to sexual expression. It is expressed through body language, dress, demeanor, vocabulary, etc. This expression is only functional if performed around other people (Butler). Gender is performative, it is created and recreated through the performance of gender and the actions and reactions to that performance. In Western society there is a female-male gender binary where children are assigned to and socialized as one of the two gender categories. A transgender person identifies as the gender opposite of what they were socialized as and non-binary people identify outside of the gender binary. Body language plays an important role in gender expression. It is unknown if gendered body language is learned or innate, through studying the body language of transgender and non-binary people information about whether gendered body language is innate or learned can be found. I was curious as to whether “masculine” or “feminine” body language is innate or a direct reaction to one’s gender socialization? I theorized that gendered body language of transgender and non-binary people could fall into one of three categories: entirely innate, unconscious protest against one’s gender socialization, conscious protest against one’s gender socialization. I hypothesized that most participant’s body language would fall under the unconscious protest against gender socialization. Through understanding the impact of gender socialization, society can begin to address its negative effects that have led so many young transgender and non-binary people to be homeless and abused.

**Honors Participant: Melina Luu**

**Advisor:** Dr. Gloria Dominguez

**Major:** Evolutionary Anthropology

**Minor:** Cultural Anthropology

**Second Reader:** Dr. Hylke de Jong

**Topic:** *The oral microbiome and lifestyles*

**Description:** The human oral microbiome has been well-characterized in Western urban populations, but less is known of less urbanized people, such as indigenous tribes, who adhere to more traditional lifestyles. We hypothesized that the oral microbiome diversity will decrease as people from remote villages with traditional lifestyles increase their exposure to urban practices. To test this hypothesis, we sampled the oral mucosa from remote villagers without market economy or highly processed diets, but with differential exposure to visitors and medicines (low or medium urban exposure, according to the exposure to visitors and medicines). We analyzed amplified oral 16S rRNA gene sequences (bacterial DNA), taken from oral mucosal samples from 188 individuals of the Yekwana or Sanema ethnicities in villages in Southeastern Venezuela (116 with low urban exposure, and 72 with medium urban exposure). We used data from 7 urban visitors as reference. We characterized alpha and beta oral bacterial diversity by urban-level groups (low or medium, assigned to each village) and age group (children < than 19 years versus adults > 18 years). The results indicated higher alpha diversity in individuals with lower than medium urban exposure, and in children in relation to adults. We conclude that exposure to visitors and medicines, without major changes in lifestyle, affects the oral microbiota diversity.

**Honors Participant: Sara Magee**

**Advisor:** Dr. Susan Cachel

**Major:** Evolutionary Anthropology

**Second Reader:** Hylke de Jong

**Third Reader:** Fred Foster

**Topic:** *The Effects of Chewing Time on Gonial Morphology in the Mammalian Mandible*

**Description:** Relationships between masticatory performance and mandibular structure have been well documented, yet few studies have addressed the gonial region of the mandible. Traditionally, the gonial angle has been used to determine sex in humans, but its broader role in mammalian feeding behavior remains unclear. This area of the jaw is an anchor for key mastication muscles, suggesting

that its morphology is influenced by localized muscular performance. Specifically, the degree of eversion and inversion may be affected by the use of the masseter and medial pterygoid muscles in long bouts of repetitive chewing. To address this, I compared the degree of gonial flare with chew cycle duration in a group of 89 mammalian species and spanning 12 taxonomic orders. Data on chew cycle duration was collected from a literature review, and seven landmark measurements were taken on mandibles from males and females of each species in collections at The American Museum of Natural History (New York City, New York) and The National Museum of Natural History (Washington, D.C.).

Multivariate linear regression was used to control for the effects of several confounding variables on chew cycle duration. A Phylogenetic Principal Components Analysis (pPCA) was conducted to determine which variables accounted for the most weight on masticatory cycle duration (MCD) while accounting for species relatedness. A Bayesian multivariate linear regression was also used to model the relationship between the dependent variable and multiple independent variables to determine if the flaring of the gonial region was related to chew cycle duration while also controlling for species relatedness. The results of my study suggest that the gonial region flaring is not significantly correlated to chew cycle duration, and is principally accounted for by phylogeny. However, the carnivore sample in this study was remarkably different from the other taxonomic groups, suggesting that gonial flaring and related mandibular morphology may be a result of bite force on the carnassial teeth.

**Honors Student:** Jodi L. Petrakian

**Advisor:** Dr. Lee Cronk

**Major:** Evolutionary Anthropology

**Second Reader:** Dr. Ryne Palombit

**Topic:** *Believing the Unbelievable: Religious devotion as a hard-to-fake signal of commitment*

**Description:** Trust is an important aspect of human relationships, especially in displaying and determining one's commitment to another person or group of people. People are able to communicate their commitment in a number of ways, including through hard-to-fake signals of commitment. Within a religious context, these signals of commitment can include regularly attending religious services or donating to religious charities, which are difficult and costly for outsiders, or uncommitted individuals, to replicate. This project sought to test profession of

belief in religious ideologies as a type of hard-to-fake signal of commitment, as many religious beliefs, such as the virgin birth that is inherent to Christianity, are difficult for outsiders to believe.

Two hypotheses were tested across three experiments, the first of which being that that perceptions of an individual's trustworthiness would increase when that individual discloses more about their religious beliefs when compared to an individual who discloses less information and when both are compared to individuals who possess beliefs in a non-religious set of beliefs, such as astrology or scientific theories. The second hypothesis employed the conjunction fallacy, which occurs when people incorrectly assume that one condition is more probable than another because the former aligns more closely with their presumptions about a specific type of person or group of people. The specific hypothesis for Experiment 2 was that negative and untrustworthy behaviors, such as stealing from a lost wallet, would be more frequently associated with an individual unaffiliated with a religious group and, if they are affiliated with a religion, then these behaviors would be more frequently associated with a less devout individual than a more devout individual, if at all. If the former was true, then the converse, that positive, trustworthy behaviors, such as bringing a lost wallet to a police station, would be more frequently associate with religious and more devout individuals, which was tested with a third experiment. Results from all three experiments, due to low variability and lack of statistical significance, did not support the hypotheses that were being tested.

PLEASE NOTE: Jodi Petrakian successfully completed her honors work in Anthropology. She will not be presenting a poster today.

**Honors Participant: Audrey B. Poe**

**Advisor:** Dr. Pilar Rau

**Major:** Cultural Anthropology

**Second Reader:** Hylke de Jong

**Topic:** *Edgy Memes for College Aged Teens*

**Description:** 'Web 2.0' has ushered in major changes for online communication, and the introduction of 'internet memes' is perhaps one of the most revolutionary. Stemming from Dawkins' original conception of the meme, internet memes are images, texts, and videos that spread across the internet through replication. Once an argot for the netizens of 4chan and Reddit, internet memes are now an expansive form of visual slang among today's youth. With this spread in use student-curated

meme pages, where students can share and create memes about their respective universities, are becoming a fad in America. It is particularly common in Ivy League and Tier 1 schools, with 15 of the 20 top universities in the United States having meme pages. Following this trend, in 2017, Rutgers University spawned its own meme page.

This research first analyzes internet memes as symbols and forms of cultural capital. Then, using interviews, surveys, and participant observation, it investigates how and why Rutgers students use memes to discuss their qualms with the university, which students are participating in meme pages, and whether or not students who produce and/or consume memes are likely to engage in real-world political actions in attempts to change the faults they see in their university. In short, this is an investigation into whether this form of student humor is the first step into student rebellion or simply an act of catharsis.

**Honors Student:** Eriel Santagado

**Advisor:** Dr. Lee Cronk

**Major:** Evolutionary Anthropology

**Second Reader:** Dr. Hylke de Jong

**Topic:** *Evolution and Art: Can we better understand art and aesthetics through an evolutionary lens?*

**Description:** This thesis examines the role that evolution may play in the human behavior of art-making. By addressing the problems that our ancestors faced, such as mate choice and habitat selection, we can better understand the innate aesthetic preferences that influence our choices today. Habitat selection evolved to allow us to assess the sustainability of certain environments and help our ancestors make better choices on where to live. When selecting a suitable environment, our ancestors looked for resource availability, shelter and predator protection, hazard cues, and wayfinding and movement. Over time, these components helped shape our aesthetic preferences into what they are today. Much like habitat selection, mate choice has helped to construct what we do and do not find aesthetically pleasing. By studying the evolutionary aesthetics of mate choice, we have found that humans consider certain traits, such as facial and body symmetry and level of femininity and masculinity, to be more attractive. When exploring evolution and art, there are two main views: (1) art is a byproduct of another adaptation and (2) art is itself an adaptation. In addition, there is a review of five different theories that focus on these two views in an attempt to uncover art's true function. Finally, there

is discussion on how the principles of evolutionary aesthetics work in tandem with the behavior of art-making and how they can be applied to the differing theories on the evolution of art. Given these considerations and the enigmatic qualities of art, I conclude that further research must be conducted in order to discern whether the function of art is adaptive.

PLEASE NOTE: Eriel Santagado successfully completed her honors work in Anthropology. She will not be presenting a poster today.

**Honors Participant: Alexa Ugarte**

**Advisor:** Dr. Susan Cachel

**Major:** Evolutionary Anthropology

**Second Reader:** Hylke de Jong

**Topic:** *A New Study Assessing the Sexing Technique on the Os Coxa: Observing the Auricular Surface Using Metric and Morphological Variables*

**Description:** Forensic anthropologists and bioarchaeologists establish biological profiles with the remains that they find. The biological profile is used to identify the deceased individual(s). The methodology used to determine sex, age, stature, ancestry, and trauma or pathology are very important for the accuracy of the biological profile. The os coxa is used to determine sex and age in the biological profile for an individual. The Phenice method focuses on the ischiopubic ramus, the ventral arc, and the subpubic concavity of the pubis. The auricular surface method has morphological and metric variables such as the overall morphology, apex morphology, elevation, and the length of the auricular surface.

The Hamann-Todd collection from the Museum of Natural History in Cleveland, Ohio has over 3,000 skeletons; age, sex, ancestry, and cause of death is known for most of the collection. In this study, I compared both methods on subadult and adult right os coxae from the Hamann-Todd collection; subadults were divided by age and adults were divided by age groups. Accuracy was determined for the Phenice and auricular surface method with pooled success also calculated; the sex was unknown with age and ancestry known. The findings of this study reveal that the auricular surface method is not the most accurate method. However, sex influences the size of the auricular surface and age groups.

**The Anthropology Department would like to thank you  
for your interest in the work of our students!**