



April 27 Events

- Awards Convocation: 9:00am, Hardie Auditorium
- Poster Session I & Lunch Reception: 11:30am - 1:30

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FINE ARTS ORAL SESSIONS

Art: Exploring the Limits of Form

Clough 410

Session Chair: Nellie Moualeu

2:15 *Leonardo's Quest: Conquering Nature, Changing Art*

Amy Aughinbaugh

Faculty Sponsor: Victor Coonin, Department of Art

Leonardo da Vinci labored throughout his lifetime to recreate his observations of the natural world. His struggle met the ultimate obstacle when Leonardo had to confront the limitations of visual representation—to recognize that man cannot perfectly reproduce nature. Leonardo's attempts at defying such a proscription led to his identifiably peculiar style. The progress of his inquiry concerning natural representation runs parallel to his artistic development and his subsequent style. Leonardo's final recognition of the limitations of visual representation eventually encouraged him to harness the impossibility of artistic reproduction and use it to elevate his art with unusual optical effects. This argument centers upon four paintings representing distinct periods of Leonardo's artistic development: *The Annunciation*, *The Virgin of the Rocks*, *La Gioconda*, and *John the Baptist*. Each painting is analyzed in comparison to a series of stylistically related sketches. Leonardo's drawings are a window to his painting because drawings and sketches provide a more intimate perspective of Leonardo's artistic process. In terms of process, the purview of this essay on Leonardo's study of nature is restricted to questions of naturalistic setting (i.e. landscape) and micro scale naturalism such as plant, water, hair studies, and the like.

2:30 *Out of the Dark Room, into the Salon: Modernist Tendencies between Manet and Bouguereau*

Emily Wehby

Faculty Sponsor: Elliott King, Department of Art

Scholars have widely denigrated William Bouguereau and the art he produced as emblematic of the decline of nineteenth-century academic art—shallow, stagnant, and sentimentalized. By contrast, Edouard Manet is recognized as the turning-point

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2:15

by serial MR. Mean dose, age at treatment, and progression through puberty were assessed for their effect on physis closure. Median age at RT was 13.3 yrs. 67 physes were assessed for their initial status; 47 were open at RT onset. Median dose to all physes was 3564 cGy. Median dose to those that closed/remained open was 3679 cGy/3260 cGy, respectively. Median age at closure was 15.4 years (range 13.9-20.4). Neither increasing physis dose ($p=0.3$), nor gender ($p=0.36$) predicted risk of closure. Older age at RT was predictive of physis closure ($p<0.001$), likely related to normal pubertal completion. Passing through the pubertal phase (defined as age >15 years) significantly affected likelihood of physis closure ($p=0.025$). Physis closure did not correlate with the RT dose to the physis. Alterations in bone growth may be related to other factors and will be investigated.

3:00 *Interaction of Gli3 and SPOP in Hedgehog Pathway*

Zheng Wang, Rhodes College; Tanja Mittag, Department of Structural Biology, St. Jude Children's Research Hospital

Faculty Sponsor: Dhammika Muesse, Department of Chemistry

Hedgehog pathway plays a key role in controlling cell fate during embryogenesis. Overactivation of the Hedgehog pathway can lead to cancers such as medulloblastoma and basal cell carcinoma. It is identified that Hedgehog signaling can be tuned by E3 ubiquitin ligase through the degradation of Cubitus interruptus (Ci) in *Drosophila*. SPOP is a mammalian homolog of Hh induced MATH and BTB protein (HIB), which is a part of the E3 ubiquitin ligase. In mammals, the Hedgehog pathway mediates the degradation of Gli via protein SPOP. In *Drosophila*, Ci uses multiple Serine/Threonine (S/T)-rich motifs that bind HIB cooperatively to mediate its degradation. It is estimated that Gli3 only needs two out of its thirteen binding motifs

1:45 *A Rare Glimmer of Hope: The Ethnographic Study of a Local Food Market in an Urban Food Desert*

Anna Rose Fitzgerald

Faculty Sponsor: Susan Kus, Department of Anthropology & Sociology

Ethnography is a method of research most often used in anthropological and sociological disciplines, with a goal of learning about and gaining an understanding of the many different cultures and sub-cultures existing in our human world. Through participant observation I have attempted to understand and gain a better appreciation for the cultural scene at a local food market in a neighborhood of urban Memphis. This semester I have served as a volunteer at Urban Farms Market, but beyond this I have attempted to be a sensitive observer of the cultural scene at the market. Interacting with volunteers, customers, and workers, I have explored why they choose to support this local initiative and how they manage to do so. I have also explored the community aspects of the market. It is my hope that this presentation will provide you with the means to gain an understanding of and appreciation for Urban Farms Market, people's involvement there, and the communities it has both come from and created.

2:00 *Exploring Otherlands: An Ethnographic Study of a Local Favorite*

Jeremy Herman

Faculty Sponsor: Susan Kus, Department of Anthropology & Sociology

Anthropologists aim to cultivate an appreciation for human customs and practices that ultimately compels us to reflect on our own cultural logic, worldviews, beliefs and values. To accomplish this, anthropologists employ the ethnographic method of participant observation. This research method requires one to engage in observation and discussion with "insiders" to ultimately learn more about a particular cultural scene. There are strong implications for cultural diversity arising from this experience. In our increasingly complicated society, already unfamiliar cultures are only becoming more unfamiliar. The application of this ethnographic method is vitally important for understanding and appreciating alternative lifestyles. I have been practicing participant observation at Otherlands Coffee Bar, located in the Cooper-Young District of Memphis. My time spent here as an ethnographic researcher has shown me that Otherlands has more to offer than just coffee. I hope to share my experiences and the stories I have been told. The eclectic atmosphere, socially inviting environment, and friendly interactions are what attract people to visit and return. The ambiance that is both vivacious and serene, and the diverse range of its clientele affirms and confirms Otherlands Coffee Bar's claim on its website, to be an "Oasis in the Heart of Midtown".

2:15 *Mixing Business and Art: An Ethnography of Counterculture Artists*

Marie Hoag

Faculty Sponsor: Susan Kus, Department of Anthropology & Sociology

Ethnography serves a key purpose in the field of anthropology, allowing researchers to immerse themselves within a cultural setting as participant observers in an attempt to understand "the other". The purpose of my ethnography is to understand the ways in which a relatively new, local tattoo parlor operates. In my ethnography, I analyze how time is managed at the parlor, the artists' interpersonal relationships with each other and their interactions with customers. Over the past several weeks, I have been able to engage the artists and customers of Inked Tattoos using informal interviews and general observation. I have come to witness that specific artists take a more active, dominant role at the parlor, while certain others use the parlor for appointments only. I have also come to witness various attitudes surrounding the significance and meaningfulness of tattoos. The artists at Inked have created intensely personal pieces of art involving significant consultation and studio time, as well as spontaneous, on-the-spot artworks for walk-in customers. Overall, my ethnography has introduced me to a completely new environment and has helped me dispel preconceived notions that are often attached to tattoo artists and their clientele.

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5:00

experiences. A survey instrument was developed, tested and validated. Probit analyses indicated there is a significant inverse relationship between positive experiences during clinical practica and the probability of graduating from nursing school.

4:00 *Multiple Facets of the Nursing Shortage in United States*

Jing Zhou

Faculty Sponsor: Dee Birnbaum, Department of Commerce & Business

This paper will address the issue of nursing shortage in United States. Using survey data from a major urban hospital, this paper will test the conclusions made by Buerhaus concerning the supply of nurses. I will show the barriers to entry for new nurses and the retirement of older nurse are creating a vicious cycle that contributes to a bigger shortage. In addition, I will examine whether this shortage will continue as the demand for nurses grows with the aging of the baby boomer generation.

4:15 *Economic Liberty in Constitutionial History*

Ian Engdahl

Faculty Sponsor: Dan Cullen, Department of Political Science

The Supreme Court's consideration of the constitutionality of the individual mandate provision of the Affordable Care Act has renewed public discourse on the nature of economic freedom under the United States Constitution. The paper analyzes the ideas of such early legal thinkers as Locke and Blackstone, and evaluates their influence on the founder's conceptions of economic liberty. The founders had an almost religious respect for private property, and articulated an expansive view of economic liberty which included liberty t contract. This paper evaluates the Supreme Court's notorious Lochner decision in

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#76 *The Effects of Female Presence on Male Aggression in Cc*

#15 *Squirrels' Tail Movement: A Method of Communication Among Squirrels at Rhodes College*

Maggie Cupit, Cristine Osteen, Noah Brown

Faculty Sponsor: Sarah Boyle, Department of Biology

#16 *Environmental Preferences in Crickets*

Meredith Coulis, Allison Doubleday, Caroline Reel, Elyse Smith

Faculty Sponsor: Sarah Boyle, Department of Biology

#17 *The Effects of Detergent on the Growth Rate of Duckweed*

Erin Lowrance, Marshall Jones, Victoria Honnell, Amber Hunt

Faculty Sponsor: Sarah Boyle

#18 *Does Water Content Impact Cricket Food Preference?*

Eliza Hendrix, Taylor Weidow

Faculty Sponsor: Sarah Boyle, Department of Biology

#19 *The Effect of Certain Substrates on Lichen Growth*

Maitland Frilot, Alex Galloway, Summer Preg, Hailey Townsend

Faculty Sponsor: Sarah Boyle, Department of Biology

#20 *Feeding Preference of White Cabbage Butterflies to Different Kinds of Sweeteners*

Kevin Chien, Autumn Demonbreun, Yoonjee Kim, Jourdaen Sanchez

Faculty Sponsor: Rachel Jabaily, Department of Biology

#21 *Male Crayfish Competitive Behavior Effected by Presence of Female Crayfish*

Jamara Haymore, Jordan Infield, Denise Lee, Molly Mugford

Faculty Sponsor: Rachel Jabaily, Department of Biology

#22 *Correlation of Pincer Size with Dominance in Crayfish*

Camille Boudreaux, Breanna Durbin, Teddy Huerta, Taylor Maitland

Faculty Sponsor: Carolyn Jaslow, Department of Biology

#23 *Sweetener Preference of White Cabbage Butterflies*

Ben Carnes, Christine Corbett, Amelia Phelps, Bene' Woods

Faculty Sponsor: Carolyn Jaslow, Department of Biology

#24 *Comparing Lichen Growth near Road Pollution*

Sanhitha Valasareddy, Caroline Clark, Sooji Hong, Aubrey Howard

Faculty Sponsor: Carolyn Jaslow, Department of Biology

#25 *The Effects of Cheliped Length on Dominance in Crayfish*

Alexander Croft, Laura Lee Madigan, Brooke Tomlin, Adyita Biswas

Faculty Sponsor: Carolyn Jaslow, Department of Biology

#26 *Food Preference of the Omnivorous Cricket* (F08.0821.1308(np593(2)-7.8)-1.3574()-7.81593(r)-7.33892(s)389]TJ / Tf4683()8(690

#29 *Linear Correlation Between Dose of Gibberellic Acid and Consequential Increases in Length of Plant Stem*

Sebastian Atalla, John Raper, Juan Baiza, Drew Kerby

Faculty Sponsor: David Kabelik, Department of Biology

#30 *The Differences in the Stomatal Density and Aperture Size on the Abaxial Surface of Leaves at Various Heights on a Hybrid Between Rosa Glauca and Rosa Rubiginosa*

Matthew Cannavo, Megan LaBarreare, Sarah Malkowski, Addison Jezek

Faculty Sponsor: David Kabelik, Department of Biology

#31 *Can Lichenometry Accurately Predict the Relative Age of Buildings on Rhodes Campus?*

Perri Carroll, Laura Hales, Shannon Feamester, Stephanie Kaspar

Faculty Sponsor: David Kabelik, Department of Biology

#32 *The Stomata Density of Various Tree Leaves on Different Locations of the Trees*

Jingwen Chen, Patricia Pyda, Ning Nie, Courtney Whittle

Faculty Sponsor: David Kabelik, Department of Biology

#33 *The Presence of Bisphenol-A Effects Growth and Development in Plants*

Joe McPeak, Richard McGuire, Kaitlin Andrews

Faculty Sponsor: David Kabelik, Department of Biology

#34 *Leaves Found on Higher Level of Elevation on Trees Would Have a Higher Stomata Density*

Catherine Sullivan, Jason Crutcher, Nick James, Alyaa Altabbaa

Faculty Sponsor: Lynda Miller, Department of Biology

#35 *There is a Significant Difference in the Trill Frequency of Cricket Chirp with Varying Temperature*

Donya Ahmadian, Colin Chu, Gracie Gilbert, Erik Klingbeil

Faculty Sponsor: Lynda Miller, Department of Biology

#36 *Lichen Growth Distribution on Forest Trees*

James Simpson, Elizabeth Walker, Amanda Wright, Annika Wuerfel

Faculty Sponsor: Lynda Miller, Department of Biology

#37 *Effects of Direct Sunlight on Lichen Growth*

Katherine Flynt, Jacob Powers, Leah Joyner Morgan Cantor

Faculty Sponsor: Lynda Miller, Department of Biology

#38 *Increased Caffeine and Increased Melatonin Levels Independently Affect Aggression Between Two Male Crayfish*

Shelley Choudhury, Michael Davidson, Alvaz Kaukab, Shelby Scott, Sierra Thompson

Faculty Sponsor: Lynda Miller, Department of Biology

#39 *Effect of Light and Dark on Leaf Stomata*

John Lacheta, Jessica Baker, Aaron Vancil, Alexandra Elliott

Faculty Sponsor: Lynda Miller, Department of Biology

#45 *Identifying proteins potentially causal to development of autism-related antibodies in children with familial autoimmune history*

Ashley Ladd, Lawrence Reiter, Kathryn McVicar, Laura Jensen

Faculty Sponsor: David Kabelik, Department of Biology

Past research reveals many identifying factors contributing to autism, including environmental, molecular, and genetic factors that play a role in this disorder. Factors such as autoimmunity, maternal auto-antibodies, protein-specific serum reactivity all show a correlation with autism symptomology and prevalence. As this research expands; however, it remains difficult to target specific factors that are useful for treatment purposes. The current study focuses on the specific serum antibodies against proteins involved in children with autism with and without the influence of familial autoimmune history (FAH). Our hypothesis is that development of serum IgG antibodies against human proteins is the underlying molecular incident leading to autism in a subset of individuals with autism plus FAH. Using protein array analysis with human ser

#55 *The effects of DNA back-bone charge and solvent on intercalant/DNA interactions*

Ashley Tufton

Faculty Sponsor: Mauricio Cafiero, Department of Chemistry

Intercalant molecules are aromatic molecules that bind between nucleic-acid bases in DNA. The presence of the intercalant disrupts the DNA structure, interfering with replication. In this work, we examine the interaction energies between a model intercalant (indole) and segments of DNA. Differences in interaction energy, with respect to the particular base pairs binding the intercalant, provide information about the most likely locations for intercalants to bind to DNA. The six complexes of four DNA bases (AT..TA,GC..CG, etc), each with the intercalant bound in between, were optimized (gas-phase and solvent) using ONIOM(DFT/3-21G:AM1) with the DNA bases and intercalant in the upper-level and the sugar-phosphate back-bone in the lower-level. All interaction energies in the systems were calculated with MP2 and DFT with the 6-31+G* basis set. All complexes were examined with and without charge on the phosphate groups. The results show trends for the intercalant's preferred binding location and the effect of charge on binding.

St. Jude Summer Plus Fellowship

#47 *Radiation Treatment for Medulloblastoma Survivors Disrupts Normal Reading Acquisition*

Evan Savage, Rhodes College; Robert Ogg, Department of Radiological Sciences, St. Jude Children's Research Hospital

Faculty Sponsor: Kim Gerecke, Department of Psychology

We used fMRI to examine the relationship between acquired reading deficits and therapy-induced brain injury in the extrat

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