Southwestern University.

RESEARCH & CREATIVE WORKS SYMPOSIUM

2017 PROGRAM

2017
RESEARCH AND CREATIVE WORKS SYMPOSIUM
FROM EVERY VOICE

Southwestern University
Georgetown, Texas

EVENT PLANNER
Christine C. Vasquez
Office of the Dean of Faculty
Southwestern University

STUDENT PROGRAM CHAIR
Julia Henry ’17
Biology Major
Southwestern University

Southwestern University

April 4, 2017

Welcome to Southwestern University's 18th Research & Creative Works Symposium, featuring the work of undergraduates from across the University's many fields of study.

This event highlights one of Southwestern's strengths as an institution: the varied opportunities it provides for students to work on research, major projects, and creative expression as undergraduates, often working closely with faculty. It also highlights the creativity, intelligence, risk-taking, hard work, and collaborations of our students.

By taking their work public, Symposium presenters are also developing their communication skills and learning to engage with broader publics to whom their work matters. In this way, the Symposium supports the University's goal to "empower students to think, create, and make meaning through intentional connections, innovative academic pursuits, and a vibrant residential community."

This year's Symposium features 391 presenters from 24 departments and programs giving poster, panel, and oral presentations, showing art and other creative work, and discussing experiential learning projects. I invite you to approach this rich breadth of work with the spirit of the liberal arts: taking risks, considering new ideas, making connections, and listening to new voices.

I hope you'll be inspired by new ideas. Enjoy!

Sincerely yours,

Edward Burger
President and Professor

P.O. Box 770 · Georgetown, Texas 78627-0770
512.863.6511 · www.southwestern.edu

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SCHEDULE AT A GLANCE

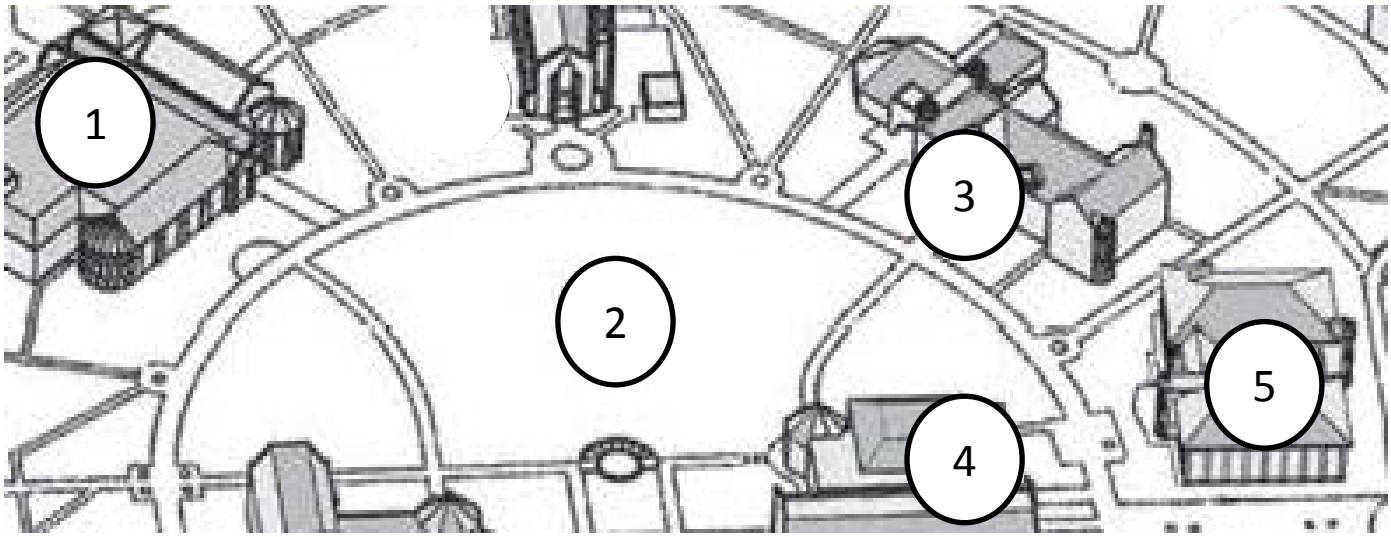
MONDAY, APRIL 3 , 2017

4:00-7:00	Registration	Alma Thomas Fine Arts Center

TUESDAY, APRIL 4, 2017

8:30-2:00	Information and Volunteer Check-in Table	Bishops Lounge
9:30-9:45	Introduction and Welcoming Remarks Dr. Julie Sievers, Director of Teaching, Learning, & Scholarship Dr. Alisa Gaunder, Professor of Political Science and Dean of the Faculty	Main Lawn
9:45-10:00	Poetry in Place Mary Emma Gary '19 and Madelyn Vaughn '20 Southwestern Andean Ensemble Matt Gonzales '18, Amara Yachimski '17, Victoria Garza '20, Dominique Rosario '20, Michelle Keller, Ms. Adrienne Inglis	Main Lawn
10:00-12:00	Creative Works and Exhibition Annual Student Art Exhibition Senior Art Exhibition Panel Presentations Experiential Learning Symposium: To Make Meaning and Make a Difference	Alma Thomas Fine Arts Center Fine Arts Gallery Fine Arts Gallery Lynda McCombs Ballroom Charles & Elizabeth Prothro Center for Lifelong Learning
12:00-1:00	Lunch Break	Commons Dining Hall
1:15-2:15	Panel Presentations (*continued*)	Lynda McCombs Ballroom
1:15-3:45	Oral Presentations Poetry in Place (*continued)*	FW Olin Building
4:00-5:00	Poster Presentations	Bishops Lounge
5:00-5:30	Celebration *(refreshments served)*	Bishops Lounge

MAP OF ACTIVITIES



1. **Red & Charline McCombs Campus Center**
   Information / Volunteer Table
   Various Panels
   Lunch in the Commons
   Poster Presentations
   Celebration

2. **Main Lawn**
   Introduction and Welcoming Remarks
   Creative Works and Exhibition

3. **FW Olin Building**
   Oral Presentations

4. **Alma Thomas Fine Arts Center**
   Monday Registration
   Creative Works and Exhibits
   Annual Student Art Exhibition
   Senior Art Exhibition

5. **Charles and Elizabeth Prothro Center for Lifelong Learning**
   Experiential Learning Symposium

PANEL abstracts

1. Muslims in America I: Muslim Food in the US
   Dr. Melissa Byrnes, Amanda Gomez ’19, Hays Hedrick ’20, Grant Jones ’19, Yingran Lin ’19, Rachel Mclain ’17
   History Department

   We will discuss Halal meats and their controversy in the US. Our focus is on the following questions: To what extent are Halal meats controversial because of the practice itself as opposed to it being an Islamic tradition? Secondly, how has the process of Halal slaughtering of animals reflected upon the Islamic community in those areas? Food accommodation is a commonly overlooked sector of Islamic-Christian relations that are very important to the Muslim community, knowledge of which would allow for productive dialogue between both societal groups. We can use our historical understanding of Islamic-Christian relations to look at interpretation of this practice by the Christian world at different points in time to track when certain views on Halal began to form and to what extent it was applied to the Islamic community overall, or inversely how interpretations of Islam were applied to Halal meats. To gain a wider context on the issues in the US, we will be looking at views from the United Kingdom, Germany, and France, all three of which became, at their height, massive multicultural empires with a substantial Muslim population. We will utilize scholarly analyses of the issue and rely on primary source material, notably contemporary newspaper articles, activist publications, and business policies; as such things will allow an understanding of movements within society’s collective psyche.

2. Muslims in America II: The Hijab in the West
   Dr. Melissa Byrnes, DeQuay Glascoe ’20, Johnson Elrod ’20, David-Alvin Quinton ’19, Ian Williams ’20, Camille Martin ’19, Clarissa Sheehan ’18
   History Department

   In this panel discussion, we will focus on the identities of Muslim women living within the United States by specifically discussing and debating the role of the hijab in American Culture today. The present conflict between Western and Islamic ideals in the specific usage of hijab dressing exemplifies a broader disconnect between the two cultures centering on gender equality, religious freedom, and personal liberty. In this discussion, we will reference current events, news articles, statements released on this topic by other countries, and academic sources on religious freedom and feminism, respectively. We will also draw from the personal experiences of Muslim American women in order to outline that the debate of the hijab in American society is an issue that personally affects several women in our society today. When considering the views and experiences of Muslim American women, we will also be analyzing the social context of Islamophobia what it means to means to a Muslim American.

3. Muslims in America III: The Racialization of Muslims in America
   Dr. Melissa Byrnes, Holly O’Hara ’17, Abbie Boatwright ’20, Meili Criezis ’17, Emma Walsh ’18, Ryan Moriarty ’19, Rachel Holm ’17
   History Department

   Our project will seek to understand how Muslims have been/are being racialized in America, using 9/11 has a point of emphasis within a broader time period and continuum of events, all the way to the current political discourse about Muslims in America. Additionally, we will seek to understand the growth of the perception of Muslims as a foreign existential threat to the US, specifically to Christians, the supposed liberal and forward-thinking nature of US society, as well as to white Americans. Since categorizations of Muslims are slippery (race vs. ideology vs. religion), Islamophobia produces and reproduces harmful rhetoric and misinformation that is, in fact, based on racial stereotypes and racial profiling. Our research question will ask how political rhetoric has racialized Muslim Americans, using 9/11 as a point of importance, but placing it with a broader timeline of events and ideas. How have historical Western ideas about Islam informed this rhetoric? How do we associate race with Islam and attach negative meanings to this association? These questions are relevant and important to explore given the current political climate and public discourse regarding Muslim identity in America. We plan to use scholarly books, news

articles that are both current and contemporary to the time period we are discussing, speeches made by politicians, and social media platforms. We believe that these sources will allow us to successfully explore the racialization of Muslims in America.

4. Community-Engaged Learning Fellows: A Faculty Development Model
Dr. Sarah Brackmann, Dr. Debika Sihi, Dr. Abby Dings, Don Gregory, Dr. Erika Berroth, Dr. Michael Kamen, Desi Roybal
Community-Engaged Learning Office

The Community-Engaged Learning (CEL) Fellows Program is a year-long faculty development program that provides faculty members an opportunity to integrate community-engaged learning into their pedagogy while becoming recognized campus leaders in community-engaged pedagogy. The Fellowship includes a faculty development award in the form of a professional development account to be used for professional development, course development, and research. Each month, CEL Fellows meet to discuss a variety of topics such as introduction to civic engagement and community-engaged learning, developing learning partnerships, designing reflection, Georgetown 101, risk management, and scholarship of engagement. The seven 2015-16 CEL Fellows will discuss how they are developing or modifying their courses through community-engaged learning. Dr. Kamen will discuss is Educational Technology course in which SU students will work with GISD teachers to develop their class websites. Professor Roybal will discuss how he is developing an intergenerational community-engaged learning with a theatre group in Sun City. Language professors Dr. Dings and Dr. Berroth, will address how they are using the CEL fellowship to more intentionally implement community-engaged learning pedagogy into modern languages. Dr. Sihi will discuss a marketing class that partners with Williamson county nonprofits. Finally, Coach Gregory will discuss how he incorporates community-engaged learning in the work that he does with student athletes and the Williamson County Juvenile Justice Center.

5. CELTAs: A Leadership Program for Students
Dr. Sarah Brackmann, Mac Fyfe ’19, Christopher Hernandez ’18, Michelle Hershberger ’17, Yesenia Rivera ’17, Mary Rouhianinen ’18
Community-Engaged Learning Office

(CELTAs) support community-engaged learning pedagogy in Paideia Clusters. CELTA’s assist cluster coordinators with the implementation of community-engaged learning as it relates to the cluster themes and questions. Throughout the academic year, CELTAs participate in ongoing training and reflection sessions with the Director of Community-Engaged Learning. CELTAs develop skills in project management, communication, facilitation, and community building. Monthly training topics focus on an introduction to community-engaged learning pedagogy, Georgetown stats and figures, working with community learning partners, recruiting student volunteers, risk management, and preparing for a leadership transition. They also work closely with cluster coordinators to identify projects goals, and timelines. CELTA panelists from the Global Health, Situating Place, Conflict, and Americas clusters discuss their experiences supporting community-engaged learning within Paideia. Each panelist will share how they are supporting community-engaged learning, how supporting clusters connected with their own Paideia experience, and other lessons learned.

6. Teaching Philosophy: Social Awareness through Dialogue
Dr. Michael Bray, Kenneth Knowlton ’17, Donte Houston ’19, Karla Cruz ’17, Jessica Price ’20, Jonathan Lauret ’19
Philosophy Department

The purpose of this panel is to present a student-designed after-school program that teaches philosophy in relevant and pragmatic ways to at-promise youth in situations of risk. All too often philosophy appears as abstraction. Our program directly contradicts this by engaging students in ways that encourages critical thinking, reflection, participation and productive forms of communication. This program is oriented towards the acknowledgement of the student’s perspective in the classroom, their interpretation of what they are learning and making it useful to their everyday lives. Thus, the purpose of this program is to enhance student’s social awareness by giving them a space in which stimulating dialogue occurs and where their voice matters. A further component is assisting students in their

college applications. In short, this program is a move towards integrating SU into the community, helping young community members by giving them a space for their voices to be heard while tackling the concreteness of philosophy itself.

7. Understanding Psychology Through Academic Internships
Aliehs Lee ’17, Christina Rosendahl ’17, Joseph Vadakekalam ’17
Sponsor: Maria Kruger ’91, Office of University Relations & Dana Luna, Office of Career Services

Students majoring in Psychology are provided the opportunity to engage in the high impact practice of academic internships as an option of their capstone requirement within their major. Academic interns choose sites based on specific interests and goals tied to their academic pursuits and with approval from their faculty supervisor. This group of academic interns provides an opportunity to explore the various psychological theories learned and how those function within settings in not-for-profits, government agencies and private industry. Academic interns establish learning goals prior to beginning their internship experience, but often soon realize that their unique learning experience provides secondary learning outcomes incorporating professional expectations, organizational culture, skill development and personal reflection within their chosen industry field that help to solidify the connection between their chosen academic field and intended career. Our panelists will discuss their experiences interning with three different psychology-related organizations.

8. The Experiment of Multiculturalism: Immigrants and Refugees in Germany
Dillon Betros ’18, Tyler Riordan ’20, Megan Canik ’20, Sarah Semlitsch ’20, Austin Grammer ’19, Kichelle Walker ’18
Sponsor: Dr. Michelle Reyes, Modern Languages and Literature Department (German)

Chancellor Angela Merkel made headlines in 2010 when she pronounced multiculturalism in Germany a failure. Her concern is shared by other countries around the world seeking to eradicate multiculturalism from their vocabulary and refocus on citizenship. But what is multiculturalism? What role do immigrants and refugees play in shaping the multicultural nature of a country? Why (or why not) is this important? This panel seeks to provide an overview of the history and current situation of multiculturalism in Germany. With over 2 million Turkish immigrants and 600,000 Syrian refugees, to name but a few of the country’s minorities, this is an issue that Germans are certainly trying to come to terms with. In the midst of current global debates on the immigration issue and the refugee crisis, this panel also gives special consideration to the question of whether multiculturalism is antithetical to building unity in increasingly diverse societies. It considers both the positive and negative aspects of multiculturalism in a comparative scope – finding points of similarity and difference to multiculturalism in the U.S. – while also considering productive paths (in theory and activism) moving forward.

CREATIVE WORKS AND EXHIBITION abstracts

9. Poetry in Place
Class Foundations
Matthew Amerie ’18, Berkeley Bacon ’17, Chelsea Banawis ’20, Noah Berlanga ’19, Katherine Bricarell ’19, Zhazze Brown ’20, Emily Bruckner ’20, Sarah Buchanan ’20, Sydney Cardenas ’18, Cristina Costas ’19, John Free ’17, Amber Gajevsky ’20, Armando Garcia ’18, MaryEmma Gary ’19, Taylor Gressett ’20, Ayinde Hall ’18, Addie Henry ’19, Quincy Holland ’19, Denise Huber-Ramos ’20, Kayla Juarez ’18, Madeline Lucero ’20, Bailey Meyer ’20, Megan Mick ’20, Ryan Moriarty ’19, Philip Nelson ’17, Amanda O’Banan ’20, Alex Phan ’20, Katherine Rynearson ’19, Amanda Schneider ’18, Devin Shaw ’20, Jordan Smith ’20, William Spaulding ’20, Tabitha Thiemens ’18, Brooke Tomalty ’20, Wedngamah Toney ’20, Madelyn Vaughn ’20
Sponsor: Dr. Stephen Marble, Education Department

   “Poetry begins as a lump in the throat.” Students in the 2017 Foundations and Curriculum class present poems written to celebrate schools as places of power and emotion.

10. Andean Music Ensemble Performance
Matt Gonzales ’18, Amara Yachimski ’17, Victoria Garza ’20, Dominique Rosario ’20, Michelle Keller
Sponsor: Adrienne Inglis, Music Department

   The Southwestern University Andean Music Ensemble (SUAME) would like to give a performance of folk music indigenous to the South American Andean region at the Research and Creative Works Symposium. The ensemble plays sikus (panpipes), bombo (goatskin drum) and guitar, where the sikuris (sikus players) play in the traditional hocket style, indicating each sikuri only has the ability to play half of the notes of the musical scale. Whereas the guitar may not be traditionally included in Andean folk music, the SUAME incorporates Hispanic, flamenco-inspired techniques such as rasgeo or gulpeo to achieve a unique sound from the traditional Andean stringed instrument, charango. Furthermore, a charango uses only nylon or catgut strings, whereas a guitar uses three nylon or catgut strings and three wound metal strings. This sort of music frequently uses syncopated rhythms and parallel fifth harmonies throughout, and during performances, the SUAME wears ponchos brought from Argentina by our ensemble leader, Prof. Inglis.

11. Annual Student Art Exhibition
Sponsor: Mary Visser, Art and Art History Department
10:00-12:00 pm – Alma Thomas Fine Arts Center, Sarofim Fine Arts Gallery

   The exhibition consists of work by many Southwestern students ranging from freshman to seniors. The exhibit will showcase works in a variety of mediums. Featured work will include all of the Fine Arts and Architecture classes from the following Professors: Dr. Thomas Howe, Ron Geibel, Mary Visser and Kristen Van Patten.

12. Experiential Learning Symposium: To Make Meaning and Make a Difference
Purna Bajekal ’17, Ryan Beeman ’17, Amanda Blanchard ’17, Anne Brown ’17, Katie Glasgo ’17, Nathan Heaviland ’18, Todd Heger ’19, Abbey Johnson ’17, Aliehs Lee ’17, Marissa Madrid-Ortega ’17, Olivia Noel ’17, Morgan Patterson ’17, Worth Payton ’18, Travis Richardson ’18, Olivia Ruane ’17, Kayleigh Thomas ’18, Valerie Vacek ’17, Joseph Vadakekalam ’17, Robert Wehman ’18, Kyle Zarosky ’17
Sponsor: Dr. Sarah Brackmann, Community-Engaged Learning Office

   The Offices of Community-Engaged Learning, Intercultural Learning, and Career Services host a special poster session during the Research and Creative Works Symposium to showcase exemplary experiential student learning.

Students designed posters that highlighted their experiences in community-engaged learning, academic internships, and study abroad (or all three!).

13. Understanding and Responding to the Needs of the Southwestern Community
McKenzie Bryan ’17, Travis Carmichael ’17, Stevie Collier ’17, Coleman Counihan ’17, Jahmaal Dumes ’17, Jermaine Dumes ’17, Will Ellis ’18, Manuela Figueroa-Casas ’18, Joe Fisher ’17, Matt Gillen ’17, Zack Haligman ’17, Jack Jacobs ’17, Abbey Johnson ’18, A.J. McCort ’17, Megan McGrath ’17, Josh Mercado ’17, Matt Montagne ’17, Harvey Mulvihill ’17, Ben Patterson ’17, Keaton Patterson ’17, Alyssa Phillips ’17, Olivia Podaras ’17, Tanner Rogers ’17, Salma Segebre ’17, Dante Smith ’17, Robert Kuhen Smith ’17, Katie Smithson ’17, Brennan Sooter ’17, Colin Sprunger ’17, Makaela Starks ’17, Sarah Surgeoner ’17, Laith Tucker ’17, Sean Vickers ’17, Ariana Weeks ’17, Colton Williams ’17, Kenny Wynn Jr. ’17
Sponsor: Dr. Andy Ross and Dr. Debika Sihi, Economics and Business Department

    The Business Capstone empowers students to utilize the knowledge and skills they have gained in their business and general education courses on projects that deliver value to the greater Southwestern community. The class is divided into four person student teams. Each of the student teams identified and selected projects which have the ability to enhance the Southwestern experience for students, staff, faculty, and alumni. Project topics included: marketing University events, effectively managing campus internal and external communications, enhancing food service and meal planning alternatives using on-campus, off-campus, and online channels, reducing waste on campus, developing new initiatives for spiritual and religious services on campus, and offering new opportunities for student-alumni connections and professional career development. The students conducted primary (surveys, focus groups) and secondary research. They also applied benchmarking analysis with peer level institutions. The final outcome for each project team is the development of a plan that includes a summary of the research conducted, detailed steps for implementation, and strategies for continuity of the projects.

14. Walks Through Nature: The Art of Chinese Landscape and the Environment
Taylor Bailey ’17, Brayden Bishop ’19, Jack Brehmer ’20, Claire Bressette ’19, Ella Doss ’20, Elizabeth Farwell ’18, Kyle Fraser ’17, Felicia Gonzalez ’20, Christopher Hernandez ’18, Ruth Hoglen ’20, Michelle Kuroda ’20, Seth Nicholas ’18, Anna O’Donnell ’19, Morgan O’Neal ’17, Ryan Ogden ’18, Meredith Parks ’18, Jessica Peterson ’20, Sarah Peterson ’20, Ezra Riscar ’19, Jesus Romero ’19, Isabelle Sapienza ’19, Lauren Tims ’17, Samuel Vardy ’18, Riley Wayland ’18, Natalie Young ’19
Sponsor: Dr. Allison Miller, Art and Art History Department

    Landscape painting was a dominant subject in Chinese art beginning in the 10th century. However, the roots of the tradition extend back nearly a millennium earlier to the Han dynasty (202 BCE-220 CE). This exhibition, planned and curated by Dr. Allison Miller’s Landscape and Environment in Chinese Art course, features major works of the landscape tradition, which were painted from the 10th to the 17th century. Students explore the relationship of these paintings to conceptions of nature and China’s environmental history. Most of the works on display are full-size reproductions of masterpieces held in the National Palace Museum in Taipei. They were acquired by Southwestern several years ago from the Nigensha Publishing Company in Tokyo with partial funding from the Freeman Foundation.

15. Optical Expression: Conversation Through Digitalization of Eye Movement
Diana Beltrán ’18, Susana Beltrán ’18, Ryan Benner ’17, Alexis Dimanche ’20
Sponsor: Dr. Steve Alexander, Physics Department

    Many people suffering from neurological diseases such as paralysis or any other ailment that hinders their body’s physical capabilities to communicate suffer from depression, partially because of their inability to express themselves. Most of these patients have unaffected brain activity and command of their eyes that goes unused. Our goal as a team is to tap into their brain activity to allow for self-expression. The Optical Expression: Conversation through Digitalization of Eye Movement project presents them with the ability to verbally or artistically communicate with others only using the movement of their eyes. Using Arduino, a PS Eye, and software, the project enables patients to express themselves onto a digitized canvas on a computer screen using shapes or phrases that can be verbalized by a speech synthesizer.

16. Picbreeder: The Evolution of Art Inside of a Computer
Lauren Gillespie ’19
Sponsor: Dr. Jacob Schrum, Mathematics and Computer Science Department

Evolutionary computation is a powerful tool for optimization and problem-solving and also has the power to create novel and diverse works of art. Picbreeder is a program that combines the power of evolutionary computation with human ingenuity to create unique and diverse images. Much like the diverse traits that have come from generations of selective breeding seen in domesticated animals, users are able to harness and direct the powerful process of evolution with images, using Picbreeder. By combining a human’s ability to discern and appreciate unique patterns and images along with computational evolution’s ability to evolve new and novel images, an initial population of plain, simple images can be evolved into striking art quickly and easily. Picbreeder demonstrates how evolution can create novel, beautiful forms without having any specific starting goal in mind; computational evolution creates new art and the human user acts as the filter, thus influencing but not dictating what is created in each new generation. The beauty of Picbreeder is that it allows anyone to create art, whether it is random or inspirational.

17. Turning Your Spoil Into Soil: Invertebrates and Composting
Kenly Gaynor ’17
Sponsor: Dr. Romi Burks, Biology Department

Rich in vitamins, composting material can then be used as soil in farming and gardening. Many participants contribute to the processes of composting, such as bacteria, fungi, actinomycetes, and various invertebrates. Three groups of consumers donate to composting: primary, secondary, and tertiary consumers. Primary invertebrates include nematodes, millipedes, and earthworms, secondary invertebrates include flatworms, mites, and beetles, and tertiary invertebrates include earwigs, ants, and centipedes. Decomposition and soil aeration by invertebrates benefit composing by increasing surface area of the compost through feeding, providing food for other consumers, and enriching the soil by excretions. To display the importance of these invertebrates, I will create a painting using paint formed from natural materials such as berries, dirt, and coffee to represent the items invertebrates will help to break down during composting. The painting will also represent the differing levels of consumers by having the consumers and the foods they decompose in certain sections of the painting, such as the primary consumers being at the bottom, secondary consumers in the middle, and tertiary consumers at the top. This art piece provides a visual representation of how invertebrates play an important ecological role in soil health and the farming of the foods we eat.

18. A Political Atlantis
Natalie Lesnick ’18
Sponsor: Dr. Romi Burks, Anthropocene Paideia Seminar

The concept of statelessness, within the context of the Anthropocene, has increasingly become a common term. As Earth’s deserts and oceans expand, more nations are finding themselves without the land and/or resources to sustain themselves. However, due to policy restrictions, or the lack thereof, these people are stuck in a transition-like state, between being classified as citizens of their home nations, but trying to make a home in places that deny them environmental asylum. This painting is a depiction of this concept, specifically, within land loss due to rising sea levels. With their homes and businesses underwater, the people depicted cannot return to their home, but the chain connecting them to the land below is a representation of the inability to leave, legally. In political terms, these people have a home, but environmentally they do not, and due to the barriers and other policy phrasing, seeking asylum due to environmental displacement is not a good enough reason to allow people to land on our shores. This media strives to show what these barriers create for those on the other side, effectively a limbo state of wanting to belong but not knowing the place of belonging.

19. Human Sized Hamster Wheel
Victoria Gore ’18, Shirin Hussain ’18, Julieanne Whitehurst ’18
Sponsor: Dr. Steve Alexander, Physics Department

A human sized hamster wheel is exactly what it sounds like, a giant cylinder designed for the average human to run or walk in. The main purpose of this giant wheel is to encourage the physical activity of students at times when they would be stressed from studying and working. Studies have shown that sitting for extended periods wreak havoc on the human body to the point where sitting for too long is actually more detrimental to a person than smoking. The hamster wheel is approximately six feet tall and two feet wide and is made of wood and track foam. It is held by a wooden base to keep the wheel in place while it is rotating. One of the main factors in creating this wheel was identifying the ideal surface, one that would increase running efficiency, have ideal traction, and offer optimal stride frequency while decreasing the risk of injury.

20. Bee Aware
Claire Schumann ’17
Sponsor: Dr. Romi Burks, Biology Department

Many historians and social scientists attribute the dawn of civilization to the ability grow and produce crops on a continual basis. Successful agriculture ecosystems depend heavily on honeybees and wild bees to pollinate crops for human consumption. The bee population declines every year due to human destruction and practices, as well as bee colony disorders. The decreasing number of bees will have a linear effect on agricultural output; as bees decline, crop production will also decrease. With the growing population of humans, the bee population should grow with it to sustain all human life. My project will illuminate the importance of invertebrates by using the US census population of 318.9 million people and the USDA estimated bee colony population of 2.66 million to show the unequal ratio of humans to bee hives (120:1) while also highlighting human dependence on bees. The visual display created will highlight bees supporting human civilization and accurately represent the heartbreaking ratio of humans to beehives. Viewers will gain insight into the importance of bees and understand the implications of deteriorating bee population for humanity. Though not commonly thought to be of major importance, people will appreciate invertebrates as integral to civilizations success.

21. A Pacific Island in the Anthropocene
Zoya Goodwin ’18
Sponsor: Dr. Romi Burks, Anthropocene Paideia Seminar

Culture can be understood as a way of life for a particular group of people. Using a video, I will connect the culture of indigenous people on a small island of Pohnpei to the era of the Anthropocene. By recounting my experience on the islands, my video exhibition provides insight into an islander’s reaction to an environment that has slowly changed over the years. This is an island of 334 km² of land with the highest point of about 772 meters, completely surrounded by water. We cannot afford the luxury of denying science that proves climate change because in the end, we are limited to only three choices: we leave our home, we adapt to these changes one way or another, or we die. For people who rely solely on the environment and ocean as a way of life and survival, the Anthropocene poses a looming threat over the present, but alarmingly, also the future generations of Pohnpeians. As a developing society with a lack of resources and funds to support our future, we are trying to adapt and to solve these problems despite relentless back- to -back typhoons, creeping sea levels, and other dramatic alterations introduced by the Anthropocene.

22. A Trip Down Invertebrate Lane
Elizabeth Miller ’18
Sponsor: Dr. Romi Burks, Biology Department

Invertebrates constitute a large portion of the living species but often get disregarded. Visuals guide an audience to interpret and connect relationships. Relationships provide a way for new or previous knowledge to be used to enhance learning and understanding. Therefore, I will create a pyramid scheme visual model to display the presence of invertebrates in different scales of daily life, whether beneath, on or above the ground. Then I will aim to connect their relationships in the environment to their overall functions that include beneficial services to the public. The ignorance concerning invertebrates by the general public is alarming, daily behaviors and interactions of invertebrates assist population survival. However, the visual will help combat the ignorance, accompanied by the hope that the audience creates and gains a fundamental understanding of new relationships. Through learning about

invertebrate location and function, I believe this study showcases the ways in which science gets generalized and specific aspects overlooked and almost forgotten about in the public's mind. In other words, invertebrates encompass the idea of "out of sight, out of mind". However, providing a project dedicated to solely invertebrates, sets this concept in sight and mind.

23. Worming Our Way to Destruction: Implications of Deep Sea Drilling on Giant Tubeworm Species, Riftia pachypt
Kaitlyn Campbell '17
Sponsor: Dr. Romi Burks, Biology Department

Annelids play an important role in oceanic ecosystems and serve as excellent foundation species. For example, aggregations of Siboglinid tubeworms at hydrothermal vents provide nutrients and refuge for many species. Unfortunately, bottom trawl fishing, mining, and oil and gas extraction have begun to destroy hydrothermal vents and their residing species. To highlight invertebrate value, I chose to focus on the giant tubeworm, Riftia pachyptila, which can reach lengths of 2.5 meters. This species lives in depths up to 2,600 meters and inhabits deep-sea vents of the East Pacific Rise. The loss of this species would significantly decrease biodiversity and alter chemosynthetic communities. To draw attention to deep-sea drilling and its negative impacts, I will construct a colony of giant tubeworms, Riftia pachyptila, to scale out of toilet paper rolls, paper mache, and chicken wire. One section of the colony will appear broken, with another caught in the grasp of a mining claw to illustrate this destructive process. Corpses of local species litter the bottom of the fragmented portion to highlight the impacts on biodiversity. Through this project, I hope people will realize the effects of our actions and actively vote against bills that support these harmful activities in the future.

24. Recording Studio Design
Aaren Horak '17
Sponsor: John Ore, Theatre Department

This is my independent major (Audio Technology) degree's capstone. Currently Southwestern University does not have a recording studio. I wanted to design a recording studio that could easily be implemented in a found space on this campus, or built in the future. This studio could be used for a number of projects by students, faculty, and staff. I researched equipment needed in recording studios, using various books and online resources, and then found at least two different options for everything that was needed. One was more expensive and the best equipment there is, and the other was the best option for a lower price. I then used a cad program and drafted a space with the more expensive options implemented, and a space with the cheaper options implemented, to show how both would look. I also created equipment lists for each space with the total cost of each space with all of its equipment. These show what would be the best equipment that money can buy for a studio compared to a more realistic version of a studio that costs less, but still has good equipment and would still be able to produce professional-quality recordings. The latter is the studio that would most likely be the one to be implemented on campus.

25. Don Juan Project: A Lecture-Performance
Matthew Murphy '19
Sponsor: Dr. Sergio Costola, Theatre Department

This project is intended to be a contribution to the long tradition of the myth of Don Juan, one that stretches from 1616 to the present. The presentation will consist of information that I have acquired throughout my research of the different versions of the Don Juan myth and will show how its evolution has been key in the myth retaining its relevance across generations. In addition, I will also address the work done during the process of creating a new adaptation of the myth entitled *Don Juan Project: A Lecture-Performance*, to be performed for the stage, and which has taken inspiration from both primary (several Don Juan versions) and secondary sources (critical material on the myth).

26. Storyboarding Gabriel Garcia Marquez
Beulah Agyemang ’17, Andres Carreno Mendez ’17, Mary Cavanagh ’17, Karla Cruz ’17, Andrew DeHennis ’17, Andrew Herrera ’17, Andrew Meynig ’17, Nickie Okolo ’17, Yesenia Rivera ’17, Arlene Rodriguez ’18, Christina Rosendahl ’17, Madison Tillery ’17
Sponsor: Dr. Laura Senio Blair, Modern Languages and Literature Department (Spanish)

This creative presentation showcases the crossroads between computing and the humanities. Using the program "Storyboard That," Spanish Capstone students are using digital storytelling to reinforce close reading and analysis of Gabriel Garcia Marquez's short stories from the collections Los funerales de la Mama Grande and Doce cuentos peregrinos. Digital storyboarding Gabriel Garcia Marquez short narratives compliment the research the students are conducting at the Harry Ransom Center at the University of Texas, Austin. Southwestern University's Spanish Capstone Students are the first undergraduate students in the world to conduct semester long research of the Gabriel Garcia Marquez's archives at the Ransom Center.

27. The Tough "Life" of Invertebrates. Will You Survive?
Shannon Walsh ’18
Sponsor: Dr. Romi Burks, Biology Department

According to the Center for Biological Diversity, 1.3 million animal species live on Earth. These species include two types of animal categories: those that possess a spinal column (vertebrates) and those that do not (invertebrates). Humans fall into the first category, and as such, historically we tend to study vertebrate animals more in depth. However, these well-studied animals only make up less than 3% of the animal kingdom. That means greater than 97% of all animal species on Earth have substantially less information known about them in both public and science communities. I wanted to create a fun and interactive way to teach people about invertebrates. I started with a popular board game design and created questions about invertebrate morphology, habitats, ecological function, feeding, and movement. Each player moves through the game collecting resources necessary for survival, with the winning player having the most resources at the end. Every time a person plays the game, each player hopefully learns something new about invertebrates. The repeated use of this game would increase awareness of invertebrates for adults; show children that more animals exist than what they see at the zoo, and help biology students learn their course material.

28. Lost In...
Aluminum, Mixed Media. 48 x 84 x 36.
Zoe Watts ’19
Sponsor: Dr. Mary Visser, Art and Art History Department

My goal was to tackle identity, intersectionality, and race in America from the perspective of an adoptee and immigrant, through the combined use of Western and Asian art elements. My story has put me in the middle of America’s “melting pot” of tradition, language, and people, but at a distance from any specific aspect of any culture, and so I decided to create one of my own in an effort to visualize how an individual can be a part of a culture by definition, but feel significantly separated from it. In the piece, I take industrial parts and create a maze that contains scenes from my personal experience, memory, and stories. Each image is inspired by a form of Chinese art and combines traditional art with modern narratives. The lighting and interlocking pieces highlight specific narrative images, while also preventing access to certain parts of the story which require the audience to engage with the sculpture in order to view them.

ORAL PRESENTATION abstracts

29. Destigmatizing Mental Health Perceptions Through an Analysis of "Winnie the Pooh"
Abbey Johnson ’17, Beulah Agyemang-Barimah ’17, Courtney Ragland ’17, Kate Davis ’17, Shannon Walsh ’18
Sponsor: Dr. Maria Todd and Dr. Alison Marr, Global Health Paideia Seminar

The purpose of this project is to explore the topic of mental health and wellness and ways to approach deconstructing negative stereotypes and convictions. The lens through which we hope to look at different mental illnesses is through the main characters of the show entitled "Winnie the Pooh." For this presentation, viewers will be asked to watch a clip and select the character they most identify with. We will then ask them to discuss/predict the types of mental disorders to which the various characters in the show seem most prone. This activity stems from the writing of Sarah E. Shea et. al, entitled, “Pathology in the Hundred Acre Wood: A Neurodevelopmental Perspective on A.A. Milne.” Their work analyzes the personality of the creator of "Winnie the Pooh," A.A. Milne, and discusses the potential disorders "Winnie the Pooh" characters appear to have, as well as the implications of not receiving treatment. By analyzing the attributes of favorite characters from a psychology perspective, we will highlight the significance and prevalence of mental health, as well as the often unrecognized commonplace of mental illnesses in society. We will also emphasize the importance of social support and treatments for those diagnosed with mental illness.

30. Herbal Medicine: A Case Study
Taylor Holland ’17, Jiyoun Ahn ’17, Grayson Beck ’18, Devon Bradley ’18, Brianna Timourian ’17
Sponsor: Dr. Maria Todd and Dr. Alison Marr, Global Health Paideia Seminar

Herbal medicine has been practiced since 3000 B.C. Herbal medicine has withstood the test of time and is still used today by one-third of Americans. However according to the New England Journal of Medicine nearly 70% of Americans using herbal medicine are afraid to disclose this to their doctors. It is, therefore, important for American’s to be educated and empowered about the history and efficacy of herbal medicine. After receiving a brief introduction to herbal medicine participants will be assigned a case study and asked to correctly select an herb, from a selection provided to them, to treat the patient featured in the case study. This activity aims to facilitate the active learning of the principles and effectiveness of herbal medicine. We expect participants to leave with a general understanding of herbal medicine and its use in the treatment of disease.

31. Mindfulness in Meditation
Carlos Jimenez ’18, Maxx Prado ’18, Denise Sandoval ’18, Logan Glick ’18
Sponsor: Dr. Maria Todd and Dr. Alison Marr, Global Health Paideia Seminar

The purpose of our presentation is to explore the effects of meditation on mental health. We will begin our presentation by exploring the origin of meditation. We define meditation, as engaging in mental exercise for the purpose of reaching a heightened level of spiritual awareness. Emphasis will be placed on the importance of mindfulness, which is the ability to place steady attention to a particular experience during meditation. There are a plethora of different types of meditation, however, we will center on the “focused attention meditation” which is the process of focusing on a single object during the entirety of the therapeutic session. We will then partake in a brief meditation exercise. This will allow the audience to gain first-hand experience with meditation. After our exercise, we will come together and discuss our individual experiences with meditation and ask participants, whether or not, they would consider meditation as a viable therapeutic medicine. We will emphasize the importance and influence of the medical benefits one will be able to receive by practicing and performing meditation for the sake of their mental health.

32. Think Food: Why is it Important to Become More Food Conscious?
Hansol Haldeman ’17, Rory McCullough ’17, Reid Cumbest ’17, Emma Qualander ’17
Sponsor: Dr. Maria Todd and Dr. Alison Marr, Global Health Paideia Seminar

The food that we consume is directly correlated with our overall well-being. It is what gives our body the nutrients we need to take on daily tasks; however certain food groups such as sugary treats can also be detrimental to our health. In this study, we will first discuss the nutrient composition of each food group and how these specific nutrients are utilized/metabolized in our bodies. We will then compare the nutritional strengths and weaknesses of diets from several different cultures. In order to help our audience become more food conscious, we will lay out both healthy and unhealthy snacks before the presentation and invite them to make a selection. At the end of our presentation, we will discuss the snack choices of the audience, addressing why particular choices were made and whether or not the nutritional value of the snack was known and/or taken into account. The United States has one of the highest obesity rates compared to other countries. By helping our citizens become more food conscious, we can attempt to lower the obesity rate as well as reduce the many other health risks that are linked to obesity.

33. Painting Out The Pain: Art Therapy as the New (non) Medication
Kali Rose ’18, Anna Faust ’18, Martin Martinez ’18, Priyanka Aranha ’18
Sponsor: Dr. Maria Todd and Dr. Alison Marr, Global Health Paideia Seminar

Current research supports the notion that art therapy including coloring has a variety of mental benefits for people. Our presentation will begin by giving the background and rationale for art therapy. The hands on activity will be a coloring activity. Specifically, we will bring a couple of coloring books and allow people to color for a couple of minutes. Then we will ask them to reflect on whether this short activity evoked any feelings of relaxation, and if they would use this activity in the future as a calming tool.

34. Variations in Total Phenolic Content Among Clove (Syzygium aromaticum) Essential Oils
Joon Chang ’17
Sponsor: Dr. Emily Niemeyer, Chemistry and Biochemistry Department

Essential oils are extracted from plants and may have positive effects on human health due to the presence of antioxidants and phenolic compounds within the oils. One popular essential oil is derived from clove, specifically flower buds from the Syzygium aromaticum tree, and is known to have very high phenolic content and strong antioxidant activity. However, it is unclear if the phenolic content and resulting antioxidant properties vary in clove oil produced by different manufacturers. Therefore, the Folin-Ciocalteau method was used to quantify the total phenolic content within clove essential oils purchased from 10 different companies, and results were compared to a gallic acid standard curve. The gas chromatography/mass spectrometry (GC/MS) was used to identify the specific compounds within the clove oils, such as eugenol, to determine if the presence of those compounds related to antioxidant properties. This presentation will discuss how manufacturer and essential oil extraction method affect the phenolic content in clove oil and will relate those results to the composition of the oil.

35. CRISPR in Genetic Health Care
Kyle Bauemschmitt ’17
Sponsor: Dr. David Cooper, Chemistry and Biochemistry Department

Studies have shown the success of delivering the CRISPR/Cas9 system to neurons and hepatocytes in mice, while retaining transcriptional function. Staphylococcus aureus Cas9 proteins are significantly smaller than other bacterial species’, making protein therapy a viable method for gene editing in vivo. Through engineered targeting of defective genes by sgRNA scientists are able to correct mutant DNA sequences in mammalian cells. In this proposal we outline three experiments to test various facets of CRISPR to make it more applicable in medicine. We propose to calculate the most efficient vector for delivery of the CRISPR/Cas9 system to mammalian organs by examining the spread and function of inserted plasmids or proteins. We will work to understand what disease-causing genes can be corrected using CRISPR by exposing human cells in vitro. We propose to elucidate the mechanism of Cas9’s nuclease function using single-molecule FRET to create a dynamic animation of the protein. These studies will help CRISPR become more relevant in therapeutic applications, and pave the way for the future of genetic health care.

36. Effects of Nutrient Deprivation on Cell Fate Decisions in Mouse Embryonic Fibroblasts
Alexandra Taylor ’17
Sponsor: Dr. Kerry Bruns, Chemistry and Biochemistry Department

Cells respond to stress such as nutrient deprivation or other changes in growth conditions by mechanisms such as autophagy or apoptosis. During apoptosis, caspase proteins are cleaved, which activates them for the initiation and execution of the apoptotic mechanism. The aim of this project was to determine whether there were differences in cell fate decisions in response to nutrient deprivation by KBalb and Balb3T3 cells. Cells were initially grown under nutritionally optimal conditions. This optimal medium was then replaced with a minimal medium containing neither glucose nor glutamine. These replacements occurred at twelve and twenty-four hours prior to cell lysis and caspase activity measurement. A fluorescent caspase assay was utilized to monitor the activity of caspases 3 and 7, both of which are involved in the induction of apoptosis and the degradation of cellular contents. Relatively high amounts of caspase activity were induced within the KBalb cells, with a higher amount of activity within twelve hours of nutrient deprivation. In the Balb 3T3 cell line, relatively little caspase activity was observed, with little difference occurring across the incubation periods. Western blot analysis does not seem to be consistent with these trends.

37. Studies on Apoptotic Induction in Balb-3T3, K-Balb and Jurkat T Leukemia Cell Lines
Morgan O'Neal ’17
Sponsor: Dr. Kerry Bruns, Chemistry and Biochemistry Department

When cells are stressed, a series of biological consequences may result, possibly leading to cell death. Apoptosis is a cellular process often described as “programmed cell death” that leads to the death of cells. This project investigated the effects of cellular stress on K-Balb and Jurkat T Leukemia cells with Balb-3T3 cells as a control. Cell stress was administered by the introduction of a selectively cytotoxic peptide, synthesized in our lab. K-Balb, Balb-3T3, and Jurkat T Leukemia cells were grown in a 96-well plate. The activation of caspase proteins by proteolytic cleavage is involved in the apoptotic process. A Promega Caspase Activity Assay was performed and quantified with an Agilent Cary Eclipse Fluorescence Spectrophotometer. In comparison to the Balb 3T3 cell line and +/- controls, the K-Balb and Jurkat cells appeared to have undergone a small degree of apoptosis. However, the K-Balb cells without peptide had a higher degree of fluorescence than the K-Balb cells stressed with LfcinB. A second assay was performed just on the Jurkat T Leukemia cells and the opposite apoptotic trends as predicted were observed. A western blot will be completed to determine the effectiveness of our anti-FAS induced positive controls and the effects of serum concentrations in RPMI growth medium. The results of this study will contribute to current understanding of apoptosis induction and the mechanism’s application in cancer treatment.

38. Expression of Dopamine Receptor, Gonadotropin-Releasing Hormone Receptor, and Kisspeptin Receptor Genes in Peri-Adolescent Rats Exposed to Ritalin
Nova Mebane ’17
Sponsor: Dr. Fay Guarraci, Psychology Department

Methylphenidate (MPH), (trademarked as Ritalin), is a psychomotor stimulant that is commonly prescribed to treatment Attention-Deficient Hyperactivity Disorder (ADHD) in adolescents and adults. This stimulant does so by increasing synaptic dopamine by blocking reuptake. We have seen in previous studies that long-term exposure to therapeutic doses of MPH alters endocrine functioning and sexual behavior in female rats. In order to further explain previous results in endocrine functioning and behavior, gene expression will be analyzed in three brain regions (Pre-Optic Area, Nucleus Accumbens, and Arcuate Nucleus) of female rats that were exposed to Ritalin during peri-adolescence. Current results from qualitative tests (Nanodrop and Bio-analyzer data) shows that RNA extractions from these brain areas had appropriate concentration and were not degraded. RT-PCR (Real-Time Polymerase Chain Reaction) will be conducted in order to determine if expression of specific genes (D1, D2, GRP45, GnRH) critical to the functioning of these brain areas differ between controls and MPH exposed females. Our overall goal is to make connections between gene expression and motivated behavior following exposure to Ritalin during peri-adolescence in female rats.

39. CroS Does Not Regulate ICE 391-encoded RumA’2B Despite Shared Binding Sites with SetR
Kylie Borden ’17
Sponsor: Dr. Martín Gonzalez, Biology Department

The integrating conjugative element (ICE) 391 codes for the error-prone DNA polymerase V homolog, RumA'2B. DNA polV homologs have been shown to factor in cellular levels of spontaneous and DNA damage-induced mutagenesis. Bacteria harboring R391 must be able to regulate mutagenesis in order to avoid needless and lethal mutations. It has recently been shown that R391 encoded SetR represses the rumAB operon. Furthermore, it has been shown that R391 encoded CroS and SetR compete for binding sites to regulate maintenance and excision of the ICE within the host chromosome. That these two proteins bind the same sites suggests that CroS might regulate rumAB as well. In order to address the regulation of the rumAB operon by CroS, spontaneous mutagenesis assays were performed to characterize its ability to repress rumAB. Escherichia coli expressing CroS demonstrated the same level of RumA'2B–mediated spontaneous mutagenesis relative to cells lacking CroS, suggesting that it in fact does not play a role in the regulation of rumAB. While ICE R391 already carries genes that confer resistance to the antibiotic kanamycin, understanding the regulation of the RumA'2B-mediated mutagenic activity is essential to minimizing mutation induced antibiotic resistance.

40. Proteins Involved in Interstrand Crosslink Repair
Jaclyn Jones '17
Sponsor: Dr. David Cooper, Chemistry and Biochemistry Department

UV light, exogenous stressors, and oxidative damage to DNA cause Interstrand crosslinks (ICL), which are toxic to dividing cells because they induce mutations and chromosomal rearrangements. ICL occur when DNA breaks on both strands of DNA in different locations, and the repair often results in loss of overlapping sequence information. Healthy cells can repair ICL, but the mechanism of ICL repair is largely unknown. It is known that without certain proteins in the cell ICL repair cannot occur, but the exact proteins are unknown. The focus of this study was to find the proteins needed to repair ICL. Cells treated with three different enzyme protein knock downs after being damaged by Psoralen and UVA lights, which creates ICL in DNA, were run through an alkaline comet assay to determine the proteins required to allow ICL repair to occur. Preliminary results show that FANCI and BRCA1 are needed for significant ICL repair to occur.

41. Antioxidant Properties and Total Phenolic Content of Herbs Within the Lamiaceae Family
Jiyoun Ahn '17
Sponsor: Dr. David Cooper, Chemistry and Biochemistry Department

Many Lamiaceae herbs produce high levels of antioxidants; compounds that may help reduce oxidative stress in the human body. This study examines differences in antioxidant properties and phenolic levels among a variety of Lamiaceae plants grown under similar conditions. Sixteen Lamiaceae herbs – including cultivars of sage, bergamot, mint, catnip, marjoram and thyme – were grown from seed in a greenhouse setting. The Folin-Ciocalteu method was used to determine total phenolic concentrations within the various herbs, whereas antioxidant capacities were measured using the ferric reducing ability of plasma (FRAP) assay. Individual phenolic compounds within each plant were also quantified using high-performance liquid chromatography (HPLC). Total phenolic concentrations for herbs in this study ranged from 7.85 to 201.83 GAE (gallic acid equivalents in mg/g dry weight, DW) while antioxidant capacities ranged from 49.81 to 558.64 TEAC (trolox equivalent antioxidant capacity in mg/g DW). Initial results show that wild bergamot contained the highest total phenolic content and antioxidant capacity of the herbs studied. Based on the high levels of antioxidants found within these herbs, Lamiaceae plants may be helpful in the prevention of certain diseases associated with oxidative stress.

42. Sustaining the Southwestern Ecological Laboratory: A Strategic Framework
Samuel Guess '17, Farrell Stucky '17, Thomas Gromatzky '17, Austyn Laird '17
Sponsor: Dr. Joshua Long, Environmental Studies Program

Southwestern's Ecological Laboratory (Ecolab) is a university-owned, 25-acre site located just east of campus. Currently in its early stages of development, Ecolab is guided by student leadership and independent research interests, but is in need of more clearly defined structure so that opportunities for research, education, community engagement, and conservation can be fully realized. Ecolab affords students the opportunity to gain practical experience conducting environmental fieldwork such as water and soil quality analysis, wildlife monitoring, and environmental restoration projects. Additionally, Ecolab has the potential to benefit numerous academic

departments at Southwestern by providing collaborative, hands-on research opportunities. In its current state, Ecolab has dense vegetation with no clear footpath and is littered with trash, which presents multiple challenges. Site cleanup projects and the instillation of a quarter-mile footpath are currently underway to address these concerns. In this presentation the 2017 Environmental Studies Capstone group proposes a dynamic strategic framework for sustaining Ecolab as a university research site. This plan incorporates background research on curricular structures, fieldwork protocols, management policies, and legal statuses of ecological laboratories at other institutions of higher education. Our findings have allowed us to begin developing a comprehensive land management plan and curricular structure for hands-on, field-based courses to enhance prospects of outdoor research and recreational activities at Southwestern University.

43. Navigating the New World of GIS: Lessons from the 2017 Geodesign Summit
Simone Yoxall ’19, Keara Hudler ’18, Caitlin Schneider ’17
Sponsor: M. Anwar Sounny-Slitine, Environmental Studies Program

The 2017 Geodesign Summit, hosted by ESRI, a GIS software provider, explored the new developments in ArcGIS technology to aid in fostering communication between municipality officials and their constituents. These developments are wide ranging, using tools such as 3D visualization, crowd sourced ideas and feedback on proposed developments, web applications, and story maps to engage citizens. Visualizing and communicating this data in innovative ways has furthered the involvement of community members in city planning processes, allowing them to voice their concerns about changes taking place in their own cities. Additionally, it has made maps and data more accessible and easily understandable to the average citizen. In doing so, this provides numerous unique avenues to apply these ideas at multiple scales, such as municipal governments, regional planning, and college campus. There are a number of potential applications for these ideas at Southwestern, including using story maps to highlight projects such as the Green Fund and proposed campus developments. Implementing these new methods could provide a valuable way to further expand channels of communication and participation within the campus community as a whole.

44. School Policies on Expulsion and Suspension: The Role of Race
Lorena Roque ’17
Sponsor: Dr. Dirk Early, Economics and Business Department

This study addressed the inequality in school policy in U.S. public elementary schools, middle schools, and high schools along with its economic implications. According to the Warren Institute of Social Policy, the national suspension rate has more than doubled, rising from 3.7 percent of students in 1973 to 7.4 percent in 2008. In the state of California alone, 400,000 students were suspended at least once during the school year. Of interest is whether race plays a determining factor in the expulsion and suspension policy of a school. Using a logistic regression analysis, this study examines 2,065 public schools and finds that there is a positive correlation in the percentage of racial minority students and school expulsion rates as well as other criminalizing school policies.

45. School Quality and the Price of Housing
Manyun Liu ’17
Sponsor: Dr. Dirk Early, Economics and Business Department

By exploiting three rich data sets on unit and neighborhood characteristics of both rental and owner-occupied units as well as nearby school quality, this paper examines the effect of school quality on neighborhood housing prices across the United States using a hedonic regression model. The results presented in this study confirm previous findings that school quality contributes positively to housing costs and housing values. The results suggest a that one standard deviation improvement of state assessment test score of the local elementary school leads to a 2.34% increase in home value and a smaller, 0.84%, increase in rents. While surrounding literature exhibits mixed findings regarding adequate measurements of school quality, the results of this study suggests that compared to input variables, such as free or reduced lunch participating rates and student teacher ratios, the output measures of test scores has a large and significant effect on the price of housing.

46. Gender Wage Gaps by Region and College Major
Megan Rogers ’17
Sponsor: Dr. Dirk Early, Economics and Business Department

Historically, women have earned less than men. Although the gender wage gap has been closing, women still earn roughly 77% of the average salary of men. This study examines whether the remaining wage gap varies by geographic region and by college major. Using the 2013 Personal Annual Income data from the American Community Survey (ACS), this study estimates the average difference in wages between men and women. Specifically, these data are used to regress wages on, among other things, gender and gender interacted with region and college major. The coefficients on the interaction terms will determine whether the gender wage gaps vary across areas and majors. Of interest is whether a gender wage gap exists across all college major or if some majors see more equality in the pay between men and women. To control for other factors, the regression also includes race, age, hours worked per week, and the level of education attained.

47. Legalized Marijuana and Crime
Rhoads MacGuire ’17
Sponsor: Dr. Dirk Early, Economics and Business Department

The prohibition of illicit drugs has long been the status quo for drug policy in the United States. Proponents claim the policy reduces drug use and drug related crimes. Previous research has shown these to be dubious claims, yet there is little empirical evidence comparing concurrent instances of prohibition to non-prohibition. Studying the prohibition of illicit drugs has long been difficult because no control group exists. However, in recent years, states like Colorado and Washington have legalized marijuana, opening the door to studying its effects on crime. In an attempt to gauge the effects of prohibition, I will use data on the availability of the substance (amount of recreational dispensaries in a city) and the crime rate (gathered from Uniform Crime Reporting Statistics). The data will be on a city by city level to obtain the most robust results. Furthermore, I will attempt to control for the effects on violent crime caused by, income, race, presence of a major University, unemployment, average educational level, and other factors in order to single out the effects of prohibition. The study has possible policy implications. If the removal of a prohibition leads to the elimination of inherently violent black markets, then we have exposed prohibitions as failing one of their major policy objectives.

48. Inequality in Income and Food Expenditure
Zhaoyu Ye ’17
Sponsor: Dr. Dirk Early, Economics and Business Department

The increase in income inequality in the U.S. has been well documented. Of interest is whether food expenditures mirror the inequality in income. Several programs, Temporary Assistance for Needy Families (TANF) and Supplemental Nutrition Assistance Program (SNAP), for example, should help reduce the inequality in food expenditures. However, the spending pattern on food in relation to income is ambiguous. This paper explores various factors that affect people’s expenditure on food through Ordinary Least Squares (OLS) regression using Consumer Expenditure Survey (CE) diary data. The focus of this paper is the differences in food spending across income levels, and how the SNAP program reduces the gap in food expenditure between rich and poor.

49. Predicting Income with Social Media
Connor Murphy ’17
Sponsor: Dr. Dirk Early, Economics and Business Department

Acquiring information about users from their social media is useful for research in the social sciences and advantageous for online marketing. In this study, Twitter statistics were used to model users’ income. Twitter is an online social networking service that enables users to send short, 140-character messages called tweets. Based on active users, Twitter ranks as one of the leading social networks worldwide. This study used data collected from the Twitter Search API which includes statistics such as the number of followers, number of tweets, and number of retweets. These statistics were used as proxies for different components of social aptitude such as popularity, social activeness, social skill, and friendliness. Income was based on the median income of a user’s displayed occupation.

An OLS regression was used to find the relationship between these Twitter statistics and user income. It is hypothesized that users with higher social aptitude, as measured by their Twitter statistics, have higher income.

50. Financial, Social, and Human Capital Determinants of Total Factor Productivity
Brett Marcom ’17
Sponsor: Dr. Dirk Early, Economics and Business Department

Traditional macroeconomic theory has regarded total factor productivity, or TFP, as an exogenous factor that explains how efficiently inputs are used in production processes within an economy. Recently, a body of literature has emerged attempting to measure variables that could explain differences in TFP. Many studies have concluded that human capital, such as education and health, is a fundamental determinant of sustained growth. Institutional differences regarding the distribution of credit may be an explanation for differences in capital accumulation for firms and human capital development amongst countries. Further, political instability and corruption may contribute to the slower rates of growth in some areas. This study examines the effect of several financial inclusion factors, educational quality statistics, and worldwide governance data concerning perceived levels of political corruption from the World Bank and International Monetary Fund to provide a cross-country analysis of productivity growth in the last two decades. It is important to measure the effects of fluctuations in productivity, as well as other indicators associated with higher living standards for developing economies, so that policies aimed at reducing poverty and inequality may be tailored to a country’s needs.

51. Financial Regulation, Stability and Economic Growth
John Langston ’17
Sponsor: Dr. Dirk Early, Economics and Business Department

The importance of financial regulation was evident in the lead up to, and aftermath of, the Great Recession. Regulations introduced shortly after the Great Recession were designed to bring about financial stability, but possibly at the cost of slower economic growth. This study analyzes the changes in banking regulation, before and after the Great Recession, in an attempt to determine how banking regulation affects financial stability and economic growth. Data across countries and years is used to analyze how banking regulation effects both financial stability and growth. Data from 2007 and 2011 are used to determine how banking regulation changed after the Great Recession and how this change affected financial markets. Knowing the role of regulation in financial stability and economic growth will inform policy makers considering banking regulations and their effects on the economy.

52. The Car Allowance Rebate System (CARS), Gasoline Consumption, and Driver Efficiency
Benjamin Little ’17
Sponsor: Dr. Dirk Early, Economics and Business Department

In 2009, President Obama signed the Car Allowance Rebate System, more widely known as Cash for Clunkers, into law. This policy provided monetary rebates for the purchase of new, more fuel-efficient cars, in exchange for trading in older, less efficient vehicles. The program was intended to stimulate consumer spending on new vehicles in the midst of a recession, while at the same time trying to improve the fuel efficiency of the U.S. vehicle fleet. In this study, time series regressions will estimate the program’s effect on total gasoline consumed and gallons consumed per mile driven. This will evaluate how effective the program was in reducing consumption and improving efficiency. The second model will show the program effect on driver efficiency. Monthly panel data across states from 2007 to 2011 is used to estimate the models. To capture the influence of the CARS program in each state, variables such as gas prices, taxes, road characteristics, driver population, and the unemployment rate are included.

53. Ban the Box and Incarceration Rates
Alexandria Colurciello ’17
Sponsor: Dr. Dirk Early, Economics and Business Department

African Americans, and other minorities, have been systematically oppressed for so long that it has become ingrained in our everyday society. This oppression presents itself in many different forms, and even extends as far as the United States justice system. Once convicted of a felony, convicts lose their right to vote, they have a harder time obtaining a job, which is normally a requirement of their parole, and many of them are unable to return home, because their families live in housing paid for by the government, which is restricted from felons. Of these rights, the ability to obtain a job is one of the most important because it provides a livelihood and a pathway to an alternative life beyond prison. Ban the Box legislation prevents potential employers from asking for criminal records until later in the hiring process. The goal for this research is to determine if the Ban the Box policy reduces incarceration rates. This study utilizes panel data across states and times to estimate the policy's affects while controlling for different state level variables, such as education, economic factors, region, and gender. If the Ban the Box law improves opportunity, then felons will have the ability to make a better life for themselves, instead of reentering the jail system.

54. The Power of Place
Kristen McCrary '18, Jaclyn Jones '17, Amy Goodman '18, Kolton Noreen '18, Vale Cantu '18
Sponsor: Dr. Laura Senio Blair, Situating Places II Paideia Seminar

Power in politics is tied closely to place. By power, we mean not only authority, but also energy and technology. As members of the Situating Place Paideia cluster, we are interested in how claims regarding place reinforce and contest power, ownership, access, and privilege. To answer this, we take an international and interdisciplinary approach, examining various countries and aspects such as political alignment, primary sources of energy, and stance on censorship, which expose how power is related to place and place to power. We investigate how such attributes of place and power come into play to affect their population's access to resources such as information, energy, and technology, and we compare and contrast these results between countries. We also identify similar influences locally, exploring how decisions made in Austin regarding renewable energy has affected the cost of living and therefore people's access to affordable housing. Such decisions and policies made on a local and global scale evidence a strong correlation between power and place.

55. The Role of Language and Place in Developing Identity
Manuela Figueroa-Casas '18, Yesenia Rivera '17, Blake Harvey '18, Marie Nugpo '18, Riley Wayland '18,
Sponsor: Dr. Laura Senio Blair, Situating Place II Paideia Seminar

Paideia Language can strengthen or diminish an individual's ability to identify with a place and community. Institutions such as schools, businesses, and governments have the power to shape the public's perception of value through language, thereby favoring certain groups and ideas over others. For example, the lack of diversity among the language used in signs, documents, and other means of communication demonstrates how these institutions can limit or even fail to represent the true demographics of an area. The lack of language diversity creates a barrier between an individual's sense of identity and the neighborhood, school, and work communities in which they live. This project will explore how language affects an individual's identity in relation to their community, both at the institutional and personal level. We will examine scholarly articles from different disciplines and conduct various interviews in order to have a broader understanding of how language can influence an individual's perception of their community and their sense of belonging. At the end of this project, we hope to expand our understanding of the role language plays in developing an individual's identity and how they identify with place.

56. CDs, Vinyl, and Digital, Oh My: The Place of Music and Identity
Mark Haas '17, Victoria Miller '17, Hector Aleman '17
Sponsor: Dr. Laura Senio Blair, Situating Place II Paideia Seminar

This study examines how place and space are negotiated through three of the most recent mediums for experiencing music: vinyl, CD and digital. Furthermore, this study will discuss how mediums change the way music is experienced compared to live music. These music industry artifacts− cd, vinyl, and digital− shape individual and collective perceptions and experiences of place. Each artifact represents a time period in which music was experienced. Many music artifacts have existed throughout the decades and these might be most influential on how music is experienced, individually and collectively. By engaging these experiences, a certain type of identity in

relation to place and space is taken on by the listener. This is especially prevalent when examining the recent media artifacts in contrast with live performances. Previous works on music mediums and place have focused on cultural and regional values, while this study strives to add intrinsic value in relation to personal identity from experiencing music in a certain place to the discourse. Music in relation to place and identity is important as music is one source of emotion and has daily exposure in many lives. How listeners experience specific mediums can change how they experience place. While engaging previous work upon music, place, and identity, and engaging popular culture's depiction of music mediums, this study will show how music is experienced influences personal identity and perceptions of place.

57. The Power of the University: Exploiting Gabriel Garcia Marquez
Karla Cruz '17
Sponsor: Dr. Laura Senio Blair, Latin American and Border Studies Program

The Harry Ransom Center at the University of Texas at Austin holds a variety of archives from various points in human history. One of their recent acquisitions is the collected works of Colombian author Gabriel Garcia Marquez. The purpose of this paper is to inquire into the processes by which UT was able to acquire these works, the implications contained therein, and its significance within a framework of unequal and inequitable hegemonic relations. That is, how does this financial transaction impact the cultural significance and relevance of Marquez's work, and what does it imply about the power residing in centers of knowledge production geopolitically located in the dominant countries? In other words, this transaction is not neutral, but rather hints towards the explicit economic disparities between the aforementioned geopolitical spaces, and how such disparity allows for the exploitation of cultural, intellectual and aesthetic production of peripheral peoples.

58. ¿Puedo Ponerlo en Instagram?: La Investigación Académica de una Milenia Sobre Gabriel García Márquez
Mattie Cryer '17
Sponsor: Dr. Laura Senio Blair, Modern Languages and Literatures Department (Spanish)

Durante su vida rica, la influencia de Gabriel García Márquez impregnó no sólo la literatura internacional, sino también la política y la cultura latinoamericana. A pesar de haber muerto en 2014, el autor reconocido internacionalmente continúa afectando académicos en todas partes del mundo, iniciando conversaciones dentro y fuera de la comunidad académica, especialmente en relación con el esfuerzo reciente del Centro Harry Ransom de la Universidad de Texas para digitalizar su gran colección de pertenencias personales, que en su mayoría son copias de documentos y fotografías, de los cuales los derechos fueron comprados por una gran suma. Como una nueva fuente rica de información e investigación, queda mucho por descubrir en esta colección íntima de documentos y posesiones del ganador del Premio Nobel. Muy pocas investigaciones de pregrado utilizando los archivos analógicos se han llevado a cabo debido al acceso limitado de los acuerdos de copyright. Además, la accesibilidad y disponibilidad del archivo está en realidad estrictamente limitada geográficamente hasta que la totalidad se convierta en una base de datos digitales que puede ser lanzada en su totalidad al público a través de Internet. Este ensayo explora los entresijos de una estudiante de pregrado realizando investigaciones sobre un enorme archivo alojado en una instalación de renombre mundial, con el propósito de analizar la información digitalizada y analógica y conectar la obra de ficción de un autor notorio con su archivo que contiene elementos de la propia vida del autor para encontrar nuevas y originales conexiones intertextuales. Además, explorará simultáneamente las implicaciones culturales y políticas de una universidad americana que aloja la propiedad de un autor colombiano de renombre mundial.

59. Investigation of Central Texas Surface Ozone Concentrations 1980-2015
Oliver Sale '17
Sponsor: Dr. Becca Edwards, Physics Department

Thirty-five years of surface ozone concentration data were leveraged for a climatological study of surface ozone concentrations in two metropolitan areas in Texas, Austin and Houston. Austin's ozone climate is dominated by local production driven by transportation-related precursor emissions and few exceedances of the National Ambient Air Quality Standards (NAAQS) standards. Houston's ozone climate is more complex, with a large commuting population in addition to the presence of a thriving petrochemical industry and meteorological conditions which

favor limited dispersion of precursors. Time histories of ozone data for each month were developed for each site. A decreasing temporal trend was identified for the Houston dataset but not for the Austin dataset. Some dependence of surface ozone concentrations on the El Niño Southern Oscillation (ENSO) phenomenon was suggested for a number of the Houston sites. Removal of the temporal trend in the Houston data enhanced the differences observed due to El Nino, but because of the small dataset size (three strong El Nino events during the study period), more data collection is necessary to characterize that influence completely. For the Houston Croquet and Clinton sites, a statistically significant suppression in 8-hour averaged surface ozone concentration was found between the means of very strong El Niño years and Neutral years for March, April and May. Though the time series analysis proved inconclusive for Houston Aldine, this research has provided valuable insight into temporal trends in one of the nation's largest industrial cities, Houston, Texas.

60. Understanding the Benefits of Informal Science Institutions for Student Learning
Courtney Olson '17
Sponsor: Dr. Stephen Marble, Education Department

The purpose of this research is to determine how Informal Science Institutions (ISI's) - and other informal educational environments (IEE's) - benefit student learning. During a series of educational interactions in a museum setting, observation data, staff interviews and correlating reflections were collected to explore and understand the advantages of these educational resources. The exploration brings into question what we think knowledge is and how its acquisition, through various avenues, affects the learning process. The research also investigates how learners in IEE's -specifically ISI's- process information presented to them and whether it is authentic, so that the learning is true and identifiable to the individual for application. This leads to an examination of connections ISI's can provide that may be limited through formal, standardized institutions. The findings provide evidence of enhanced educational benefits through constructive ISI participation, affording phenomenographic experiences for deeper meaning. The findings also present evidence of existing challenges which ISI's endure for optimal provisions, namely, lack of public awareness and significant visitor feedback to cater to community uniqueness and establish networks for educational goals. Through this research, I conclude that with the proper resources, ISI's serve to bring significant benefits to education through authentically relevant and interactive exploration. Thus, this article seeks to bring ISI's into a position of stronger collaborative partnerships with formal scholastic institutions by highlighting the benefits of integrating ISI's and other related informal institutions into formal education practices.

61. Exploring Benefits of Outdoor Education
Michael Kitner '17
Sponsor: Dr. Stephen Marble, Education Department

The following research paper explores the benefits of outdoor education and how it enhances performance inside the classroom. First I identify the problems that arise from the lack of outdoor education and physical activity by addressing the benefits of physical education itself. I describe the historical decline of physical education from the 1990's and into the 2000's. The paper presents three different theories and pedagogies about outdoor education. Different outdoor education opportunities are explored, including museums, playgrounds, and summer camps and the benefits of outdoor education identified scholarly articles are discussed. I conclude the paper with a personal account about my internship as a High School Boys coordinator at Camp Balcones Springs. The positive impact of outdoor education on student personal growth is reported through personal observations collected during the internship.

62. Critical Inquiry in Public Schools: Taught to be Fools or Taught to Learn?
Amy Gu '17
Sponsor: Dr. Stephen Marble, Education Department

In what ways do programs for at-risk students challenge the Foucaultian notion that schools operate like prisons by submitting youth to expectations of normalcy and authority rule? In my capstone paper for education, I position the educational philosophies of Foucault and Plato into a dialogue addressing the question above. The theorists I cite in this paper argue that public schools display elements of control and depersonalization described by Foucault. Other

theorists suggest the Platonic notion that learning liberates people from external systems of control. Some research suggests that modern-day public schools perpetuate expectations of normalization, surveillance, and punitive discipline similar to Foucault's perspective. Standardized examination, for example, reinforce the notion of conformity and normalization as our youth's only escape from expulsion from society in the form of the school to prison pipeline. However other scholars have suggested that within public schools, individual teachers and students develop critical inquiry and other authority-challenging skills. These skills, according to theorists hooks and Freire, prevent the prison-like fate that Foucault predicts from the schooling process. I enter this scholarly discussion using expository essays, personal narratives, and creative writings collected from seventh grade students from a summer fellowship with Breakthrough. Breakthrough is a national nonprofit that supports students of under-resourced communities in their endeavors to become first-generation college students. Even though created to satisfy a system of control like the state system of standards, Texas Essential Knowledge and Skills (TEKS), these writings demonstrate individual liberatory skills such as critical thinking.

63. Heavenly Haircuts & Missing Bodies: An Examination of Berenice's Absence from within Callimachus "Coma Berenices"
Madeline Ezell '18
Sponsor: Dr. Halford Haskell, Classics Program

Dating from the third century BCE, Callimachus writes his poem "Coma Berenices" from the perspective of Berenice's lock of hair. This evokes the ritual of hair cutting, which, along with the constellation, uphold Berenice's image as a figure of divinity. The lock of hair is the loudest voice in the poem. Yet the physical figure of Berenice herself remains absent. The lock takes on all the action: it narrates, mourns, feels distress, remembers its past, and receives oils. This is a stark contrast to the lack of Berenice's voice and body; in fact, she remains largely absent from the fragmentary Greek. My presentation will explore this tension between the presence of the hair and the absence of the body, looking at the way in which Berenice is represented, even as her physicality remains absent. From this position, I will consider Kathryn Gutzwiller's "Callimachus' Lock of Berenice: Fantasy, Romance, and Power," as it provides a thorough analysis of Berenice II's representation. She traces the implications that Callimachus' text holds for Berenice, exploring how Callimachus crafts an image for the Ptolemaic Queen. I will test the assertions that Gutzwiller makes, while keeping a feminist perspective in mind. I will also incorporate Dee L. Clayman's compelling research in regards to the ritual of haircutting and the figure of Berenice, noting how Berenice is situated as queen within Ptolemaic Alexandria. I will then conclude with what Berenice's absent body might have to say to her portrayal as woman, queen, and goddess.

64. Talking about Campaign Advertisements: How College Students Discuss the Appearance of Political Candidates
Cadie Pullig '17
Sponsor: Dr. Sandi Nenga, Sociology and Anthropology Department

The political glass ceiling is an invisible, institutional barrier that keeps women from reaching the higher levels of politics (Palmer and Simon 2008). Gender stereotyping, or societal beliefs about men and women and the expectations of people based on their gender, is one barrier women face in politics (Murray 2010). Symbols are functions, such as stereotypes, that have learned and shared meanings and that people respond to on the premise of its meaning (Hall 1972). Women are interpreted through stereotypes every day, but for women candidates, these stereotypes can affect the efficacy of their campaign and the perception of voters (Schneider and Bos 2014). This study interviewed ten college students on the campus of a small liberal arts university and focuses on the response and language used by the respondents immediately after watching four thirty-second political campaign advertisements of women and men politicians. All respondents commented on the age and the outfit of the women candidates, usually in a shallow and negative manner. Some respondents also commented on the outfit of the men candidates, but they described the outfit in positive terms, such as being personable or charming.

65. Searching for a Genuine Sorority Woman: Greek Recruitment Practices at Public and Private Universities
Holly O'Hara '17
Sponsor: Dr. Sandi Nenga, Sociology and Anthropology Department

The Greek system is a central extracurricular activity in the undergraduate setting and has been found to produce successful career outcomes for its members. Sorority life at Southwestern University is often thought of by its participants as an exception to negative stereotypes associated with sorority life at larger public universities. However, comparing the sorority recruitment process at Southwestern with the recruitment process at larger public universities can shed light on the relationship between sorority membership and class reproduction across institutions. Using interviews with sorority women at both private and public universities, I found that under the guise of recruiting a "genuine" woman, class was reproduced in highly similar ways at both types of schools. Sorority women in both institutional settings valued potential new members asking questions in recruitment conversations, engaging in a natural and comfortable conversational style, easily fitting into the larger group and being willing to take on leadership positions, among other behaviors. Notably, women at Southwestern University were more likely to have a critical perspective of the Greek system than the women at the public universities. These findings indicate a need for sorority women to recruit more inclusively in order to extend the benefits that sorority membership provides in the professional world to more women.

66. Catching Up: Overcoming a Deficit in Cultural Capital as a First-Generation College Student
Kelly McKeon '17
Sponsor: Dr. Sandi Nenga, Sociology and Anthropology Department

First-generation college students make up nearly a third of the undergraduate population in the United States. Many scholars have examined how deficiencies in cultural capital are detrimental to the students, resulting in low retention rates. Through in-depth interviews with first-generation college students I show how cultural guides help these students rapidly overcome deficits of cultural capital. While all cultural guides help first-generation college students accumulate cultural capital, some cultural guides are more beneficial than others. First-generation college students whose cultural guides did not take a deficit approach to supporting them feel less disadvantaged as they progress in university and more proud of being first-generation college students. Cultural guides associated with a deficit approach are not able to help first-generation college students feel less disadvantaged and like capable students. Universities are urged to reconsider their approach to first-generation college student support because taking a deficit approach is detrimental to these students.

67. Should We Say Something About Her Sister?: Family Roles and the Siblings of People with Disabilities
Melanie Theriault '17
Sponsor: Dr. Sandi Nenga, Sociology and Anthropology Department

To date, there is a large body of research considering families of children with one or more disabilities. While most of this research has focused on family experiences from a parent's perspective, the field of sibling research in regard to disability studies is very narrow and has barely scratched the surface. I examine how young adults (ages 18 - 33) with one or more siblings with a disability interpret their roles in the family and how these roles change from childhood to the young adult years. Three roles emerged which had significant effects on individuals' life course patterns through the childhood and young adult stages: the Supports, the Mediators, and the Caretakers. However, when these siblings were blocked from performing their roles, respondents underwent a period of tension and frustration within the family, which resulted in more negative experiences. I conclude that by specifying what role the sibling without a disability is expected to perform in the family and allowing him or her the freedom to express that role, parents can make the family relational experience a more positive one for the whole family.

68. Femvertising: Commodification and Critical Consumption of Feminism in Advertising
Sarah Surgeoner '17
Sponsor: Dr. Sandi Nenga, Sociology and Anthropology Department

Advertising acts as a reflection of current society and culture, particularly in its representation of women. A new trend in marketing has begun to incorporate feminist ideas and frameworks into advertisements aim at women creating advertisements known as "femvertising." This research, using the framework of a reception study and symbolic interactionism, analyzes how this new shift in advertising to feminist-focused narratives reflect women viewers' personal definitions of feminism and how these advertisements promote empowerment of the individualized consumer and through what means. Women's definition of feminism determines the way in which

they interpret empowerment in the femvertisement, acting as the symbol through which they construct the meaning of the advertisement. Generalist definitions find empowerment through the products and continue the commodification of feminism and empowerment rhetoric. The more critical definitions of feminism limit the interpretations of empowerment because of a critical consumption of the advertisement. This research contributes to the study of how definitions of gender or feminism can determine how meaning is constructed, particularly in the medium of advertising and the way in which advertisement co-opts feminist values and sells empowerment.

69. The Effects of Sexual Assault and Zero Tolerance Policy Perceptions on the Gender Climate of a Small Private University
Dakota Cortez ’19, Holly O'Hara ’17
Sponsor: Dr. Reggie Byron, Sociology and Anthropology Department

Since early groundbreaking work on the chilly climate for women on university campuses, a number of studies have sought to understand students’ perceptions of the campus gender climate. An equally robust body of literature has focused on the various contexts of campus sexual assault. However, few studies have measured these factors simultaneously. This paper employs a multivariate regression analysis and in-depth interviews conducted at a private university in the American South to examine whether the contexts of sexual assault and views about the university’s responses to them affect students’ perceptions of the campus gender climate. Results suggest that, controlling for gender and other demographic variables, those who have been sexually assaulted on campus and those who disagree that the university has zero tolerance towards gender harassment have more negative perceptions of the campus gender climate. Both quantitative and qualitative analyses highlight fraternity parties as an uncomfortable campus space for some students – one that reifies gender and sexual inequality and affects their overall perceptions of the campus gender climate. In particular, some male students express that they feel pressure to engage with women in scripted sexualized ways or else face being held accountable by other male students for their failure to appropriately do gender and sexuality at fraternity parties. We conclude by offering policy recommendations that offer ways for colleges to improve their campus gender climates.

70. La Música y Colores Sobre Nosotros- The Music and Colors About Us
Julie Han ’17
Sponsor: Dr. Angeles Rodriguez Cadena, Latin American and Border Studies Program

The movie La Luz Silenciosa, directed by Carlos Reygadas, is about a family from the Mennonite Community living in Mexico. Although this community is labeled as honest and Christian, the main character, Johan is unfaithful to his wife, Esther. The style of this movie is very different, but extraordinary. Reygadas creates his works with actors of no experience, scenes that are lengthy and full of color, and without any music accompaniment. Instead, his ‘music’ is the sounds from nature, and utilizes the colors in their setting to his advantage. Therefore, in La Luz Silenciosa, Reygadas constructs genuine emotion of the characters through the sounds and colors from nature, which is projected to the audience. Throughout the movie, I will discuss the use of these sounds from nature, and the specific colors during specific scenes to reveal the emotions that the audience may feel. The various scenes reflect the thesis, and in results produces the thought that John’s infidelity is forgivable.

71. Cómo Vale la Pena: Escojé y Luchá
Beulah Agyemang-Barimah ’17
Sponsor: Dr. Angeles Rodriguez Cadena, Modern Languages and Literature Department (Spanish)

La película Camila que fue dirigido por Maria Luis Bemberg en 1984 se trata de una mujer (Camila) que se enamora de un sacerdote, Ladislao Gutiérrez, de la iglesia. La familia de Camila quiere que ella se casa y finalmente ella lo hace pero no como pensaron sus padres. También oímos en un momento muy claro que la mujer sola, sin marido es un caos. Camila solo quiere casarse con alguien de que ella puede ser orgullosa, alguien que le ama, el sacerdote. Esta relación romántica es un escándalo así que la pareja se mudan a un lugar lejos. Finalmente alguien muy malvado y curioso les descubran y son ejecutados juntos, primero Ladislao y después Camila y su hijo porque ella se muere embarazada. La película, Camila, dirigido por Luis Maria Bemberg, apoya la lucha peligrosa para la libertad merecida de la mujer a través la consecuencia desafortunada de la muerte física y la muerte espiritual.

Pienso que la película nos sugiere que solo hay una sola consecuencia para la mujer la cual lucha por su libertad. En el caso de Camila, ella experimentó tres tipos diferentes de la muerte; su muerte física, su muerte espiritual, y finalmente la muerte de su hijo lo cual no era nacido. Con el ejemplo de Camila pienso que la película quiere decir que aunque la consecuencia es grave y profundo, la lucha vale la pena porque la recompensa de la libertad y el conocimiento de sí misma es mejor que la consecuencia es mal. Con el desarrollo de Camila y su relación con Gutiérrez, su diálogo, y el desenlace, podemos ver que Camila sufre tres tipos de muerte con las sabiendas y su cabeza bien alta. Pienso que la película quiere decir que la lucha de la mujer hacia su libertad es una lucha con riesgos y es peligroso pero tenemos que tener valor a elegir nuestros futuros.

72. Laser Frequency Combs and the Search for Exoplanets
Isabella Ferranti ’17
Sponsor: Dr. Steve Alexander, Physics Department

The laser frequency comb is an array of uniformly spaced optical frequencies that is analogous to a ruler for measuring the frequency or wavelength of light. As a precision measurement tool, it has revolutionized several calibration processes and aided in the development of optical atomic clocks, high-speed communication, waveform synthesis, and accurate metrology and spectroscopy measurements. Through the application of laser frequency combs in astronomical spectroscopy, the search for earthlike planets is becoming more feasible. Periodic Doppler shifts in the stellar spectrum of the parent star are the signature of an orbiting planet. However, for an earthlike planet orbiting a star like our sun, the Doppler shift is only 10 cm/s, or fractionally 3×10^(-10), and its detection would be impossible without the aid of an “astrocomb”. The astrocomb’s ability to detect these minute frequency shifts is heavily dependent upon the stability of the comb itself. To ensure the overall reliability of one astrocomb in the making, I measured the frequency of a constant-wavelength laser, which will ultimately serve as the astrocomb’s reference and center wavelength. These measurements and their continuation, though seemingly minor, may ultimately help provide answers to some of our greatest questions regarding our planet’s uniqueness and its place within the universe.

73. Applying Band-Aids: Challenges Associated with Molecular Detection of Angiostronglyus Cantonensis Infection within Uruguayan and Brazilian Apple Snails
Carissa Bishop ’17
Sponsor: Dr. Romi Burks, Biology Department

The rat lungworm disease comes from the parasitic nematode Angiostronglyus cantonensis, and humans become accidental hosts for A. cantonensis after consuming infected gastropods that serve as common intermediate hosts. Infection prevalence poses a threat to inhabitants of areas that may regularly consume raw or undercooked mollusks, including snails. Uruguay represents the southern limit for a group of apple snails (Pomacea spp.), which are known intermediate hosts for the parasite. In addition, certain regions of Brazil represent areas previously understudied in regards to infection prevalence. We screened for the presence of A. cantonensis in apple snails by extracting total genomic DNA from foot tissue and conducting a species-specific PCR targeting the ITS-1 (internal transcribed spacer-1) gene. We sought to quantify infection prevalence by identifying infected individuals through visual comparison of gel electrophoresis bands against three positive controls. We have found no positives samples to date but we have only screened a subset of samples (~400 of 900). A number of challenges exist in defending negative screens, namely the difficultly in distinguish between primer dimer and ‘false positives’. Targeted parasite DNA tends to be short (>200 bp) and move toward the bottom of gels. Other challenges include determining the detection threshold of primers because template DNA may have too little parasite DNA for detection, finding positively infected tissue for use as a control, and guarding against cross contamination in PCR. In this talk, we discuss strategies to overcome these challenges associated with verifying negative results.

74. Snail Slime in Real Time: qPCR Detection of Environmental DNA with Apple Snails
Madison Granier ’19
Sponsor: Dr. Romi Burks, Biology Department

Understanding origin, state, transport, and fate of environmental DNA (eDNA) provides insight into its utility and limitations, thereby improving confidence in conservation studies. Environmental DNA represents extra-organismal

genetic traces that individuals release into their environment such as sloughed cells or bodily fluids. Conservation efforts have documented more sensitive, cost effective results from eDNA rather than traditional survey methods. Studies that develop eDNA approaches in aquatic systems commonly use amphibians and fishes, despite the fact that freshwater snails represent highly diverse and widely distributed invertebrates. We focused on eDNA production from freshwater apple snails (Pomacea maculata) and investigated how abiotic factors influence eDNA degradation. We placed adult snails in a two-by-two mesocosm design (N=5) with warm and cool temperature treatments crossed with freshwater and salt treatments (6 ppt). DNA accumulated over 72 hours, at which point snails were removed and DNA degradation occurred over the next 72 hours. We took water samples (250 mL) at 12 time points and then ran material through 1.2 μm Isopore membrane filters to retain eDNA (feces, slime, tissue, etc...), which we later extracted with chloroform to obtain total genomic DNA for use in quantitative PCR (qPCR). At peak eDNA accumulation, our preliminary results show an increase in eDNA production at higher salt and warmer temperature, possibly due to the active nature of the snails or stabilization of eDNA by salt. Overall, this research will continue to add valuable insight into the ecology and persistence of eDNA, particularly about the ultimate fate of eDNA.

75. In Fourteen Hundred Ninety-Two, The Spanish Exiled Every Jew: Cultural Syncretism in the Early Modern Mediterranean
Alexandria (Lexie) Larson ’17
Sponsor: Dr. Melissa Byrnes, History Department

The 1492 expulsion of Jews from the Spanish Kingdom ended the Convivencia brought in by Muslim rule centuries before. The migration of Spanish Jews into the Maghreb helped form North African Jewish identity from the fifteenth century onward; this event has only recently been analyzed as a syncretic process. My paper explores the migration of Iberian Jews from the peninsula across the Mediterranean and looks specifically at how that population reformed their identity through culture. By searching for the new culture that Iberian Jews encountered and helped form from this immigration crisis, I also explore the reaction of other powers and their host communities to this abrupt population change. Drawing from personal journals and other forms of literary culture as well as analyses of the Jewish Diaspora, I consider how this forced movement of people helped form syncretic identities within the exiled community and their new lands. Ultimately, I argue that this sudden change of place created new cultural identities for the Jewish descendants of exiled peoples as well as their new hosts. My study sheds light on some of the unsettling reaction to the refugee crises that we are facing today. This historical event, instigated by rulers many know by name—King Ferdinand and Queen Isabel—as sponsors of discovery, shows the unsightly side of homogenizing national populations. By mapping out the ways in which the exiled Iberian Jewish population prospered, I hope to show the historical ways that these people found their niche, in spite of their initial refugee status.

76. The Repeal of the Contagious Diseases Acts: Prostitution and its Connection to the British Women's Suffrage Movement
Rachel Holm ’17
Sponsor: Dr. Melissa Byrnes, History Department

This study investigates the gender politics of marriage in nineteenth century England and how changing conceptions of sexuality inspired some women to leave their private sphere and engage in public agitation for women’s rights. I will demonstrate how the movement for women’s suffrage that began in later nineteenth century England had roots in a renegotiation of the marriage relationship, which was in turn informed by a rejection of norms of sexuality. To accomplish this I have drawn on contemporary gender theory and works by medical professionals that aimed to put a finer point on the distinction between the two genders. In addition to such prescriptive literature I examine legislation such as the Contagious Diseases Acts of 1864-1869 as a formal regulation of female sexuality. I then move to a discussion of the debate inspired by the acts. Several organized repeal movements produced sizable literature articulating various positions against the acts. Their charismatic leaders, particularly Josephine Butler, wrote extensively about the conditions of prostitutes in Britain. This normalized the discussion of prostitutes by women. It was this examination of the broader condition of women’s treatment by the state that facilitated the increase in activism on behalf of women’s political rights, namely, the women’s suffrage movement.

77. Islam and the Algerian Revolution for Independence
Meili Criezis ’17
Sponsor: Dr. Melissa Byrnes, History Department

The presentation will examine the ways in which Islam served certain objectives of the French colonial government as well as Algerian Nationalist groups (primarily the Front de Liberation National – the National Liberation Front) during the Algerian Revolution for Independence. It will also focus on the connection between French orientalist perceptions of Islam and of Muslim women who were frequently portrayed as oppressed and in need of liberation by French universal values. The French continued to hold orientalist notions of Muslim women and they promoted Western-feminist propaganda in attempts to undermine the FLN. The FLN, on the other hand, generally preferred women to contribute to the resistance in their more traditional gender roles. Additionally, the presentation will address the process of racializing Muslims in France during the Algerian Revolution as a ‘security’ measure to counter Algerian nationalist activity. The continuing relevancy of both the 1954 Algerian Revolution and perceptions of Islam will also be discussed.

78. A Song of Burning Wood: Colonization and Memory in George R.R. Martin’s *A Song of Ice and Fire*
Hannah Gildart ’17
Sponsor: Dr. Jim Kilfoyle, English Department

The narratives of George R.R. Martin’s multi-volume *A Song of Ice and Fire* are woven with myths of giants, a small elf-like species, huge wolves, and an icy zombie-like species. These non-human species are the subjects of Westerosi myths: narratives of colonization, attempted genocide, and the displacement of indigenous non-human species. To most of the fans of the television and book series, the history of colonization is nothing more than a backdrop on which the exciting plots of the present take place. However, these myths are a repressed history, which informs the text’s present-day conflicts. In this paper, I probe A Song of Ice and Fire to identify and examine the ways in which humans colonized those who sing the song of Earth, the effect the history of colonization has on present humans and those who sing the song of Earth, and the possible consequences both species will face in the future. Humans colonized those who sing the song of Earth through subordinating and anthropocentric naming, destruction of their bodies and displacement of the remainder to barren land, erasure of their knowledge and memories, and over a process of thousands of years, perhaps most significantly, erasure from human’s history. These fictional practices are inspired by various colonial processes, which have occurred in our world, and connections to current colonialism in our world will be referenced when relevant.

79. National Identity & Racial Discrimination: Implicit Bias Within the Hiring Process
Alexandria Colurciello ’17
Sponsor: Dr. Emily Sydnor, Political Science Department

There have been many policies aimed at correcting for racial discrimination within the United States, especially discrimination during the hiring process; such policies include the Ban the Box movement. This policy and policies like it increase the likelihood that employers engage in statistical discrimination. Statistical discrimination occurs when there is limited information about job applicants, so employers use easily observable characteristics such as race, gender, employment history, etc., in their hiring decisions. The population that is affected most by statistical discrimination is the black male population. Why is this the case? There are many different explanations, including institutional racism and neoliberal ideology. However, national identity may play a stronger role than what has previously been studied. National identity measures how strongly a citizen identifies with the Americans as a group. The American group is defined by a “prototypical” member, and those who have strong national identity also tend to share the characteristics of the prototypical American. Studies have shown that the prototypical Americans are more likely to participate in marginalizing behavior, so one would expect these strong identifiers to practice statistical discrimination, especially against the atypical American. To explore this relationship, I conduct a survey experiment that investigates who the participant would hire, when given two similar racially coded resumes. If we find that national identity actually plays a role in the likelihood of engaging in statistical discrimination, then we are one step closer to correcting this injustice.

80. The New Vanguard: Contentious Politics in Tibetan and Uyghur Populations
Hunter Jurgens ’17
Sponsor: Dr. Alisa Gaunder, Political Science Department

This paper addresses why recurring unrest from Tibetan and Uyghur populations occurs, and why these two groups tend to protest in different ways. After emerging the victors of an extended and bloody civil war in 1949, reclamation of lands on the periphery of the new China was one of the first objectives for the Chinese Communist Party (CCP). In 1951, Tibet became formally integrated into the PRC; the flight of the Dalai Lama in 1959 to India consolidated CCP rule. Similarly, the East Turkestan Republic (ETR) experiment was effectively dissolved with the victory of the Communists, and became known as the province of Xinjiang—the “new frontier.” Integration of these two populations was not easy, with revolts against the CCP occurring in both provinces. Though the original uprisings may have been thwarted, that has not stopped either Tibetans or Uyghurs—the native ethnic group of Xinjiang—from continuing to resist the CCP. Ultimately, this paper argues that the protest methods employed by either population are heavily influenced by external geopolitical aid. That is to say, the type of resources that outside entities provide dictates the protest methods that emerge. Though the protest tools of Tibetans and Uyghurs diverge over time, their genesis can be similarly explained—both tend to occur whenever a political window of opportunity is opened. When and where these protests occur is significant. Therefore, this paper utilizes a process tracing methodological approach, analyzing various protest movements from 1949-2009. Within this timeline, the two populaces experience similar instances of political flux—particularly at the inception of the Communist Regime in 1949, the Cultural Revolution from 1966-76, and most recently in 2008-09.

81. Girls Rule: Infant Mortality, GNI, and Math Literacy
Beulah Agyemang-Barimah ’17
Sponsor: Dr. Therese Shelton, Mathematics and Computer Science Department

In this Senior Seminar Math Capstone project we analyze the math literacy rates of boys and girls based on three standardized international exams: Trends in International Mathematics and Science Study (TIMSS), Programme for International Student Assessment (PISA), and Latin American Laboratory for Assessment of the Quality of Education (LLECE) given in the years 2011, 2012, and 2013 respectively. We statistically analyze exam scores among the targeted grade levels, and we model cumulative performance at multiple proficiency levels. There is some evidence of a widening disparity between males and females in math proficiency performance as student age. Notably, boys perform better than girls only sometimes with a surprising exception in Panama. Overall, it was determined that in general the mean performance of both sexes increases with gross national income (GNI) index, and decreases with rises in infant mortality. This has potential further implications regarding the equality in education and in math education in particular of girls in nations of varying levels of development.

82. How To See Invisible People: Concepts of Identity and Representations of Syrian Refugees in German Media
Peri Kincaid ’18
Sponsor: Dr. Erika Berroth, Modern Languages and Literature Department (German)

Currently, the world is experiencing the largest flux of displaced people since World War II. The political climate includes public discourse on nation states and borders, integration and deportation of refugees, and a crisis in solidarity. Despite this discourse, refugees have continued to flow into Europe at historic rates. Media representations of people who seek asylum in Europe play a significant role in reactions to the challenges of immigration. My primary method is the analysis of different genres of self-representation chosen by refugees from Syria, a YouTube video blog and autobiography by Firas Alshater, and first-person narratives by Nujeen Mustafa and Nather Henafe Alali. I compare and contrast self-representations with those that feature refugees as numbers or statistics, and as the objects of feature articles. I argue that first person identity narratives in the media promote attitudes of empathy more effectively than third-person accounts portraying refugees as statistics. Analyzing specific self-representations of Syrian refugees in German media, I uncover how the dramatic increase in refugee population’s tests German and European identities. My focus on identity narratives produced by Syrian refugees opens insights on how to advance and assist intercultural understanding. Seeing refugees as humans with complex stories and identities instead of as a statistic is an important step toward integration. Choices in how the narratives of refugees are represented in popular media or in educational settings affect our attitudes towards refugees.

Legitimizing first person narratives over secondary statistics grants agency of self-representation to refugees and promotes empathy, care, and understanding across borders.

83. Touring in the Dark: Representations of Holocaust Tourism in the 2007 German Film Am Ende kommen Touristen (And Along Come Tourists)
Rosa Karen Castañeda Hernandez '17
Sponsor: Dr. Erika Berroth, Modern Languages and Literature Department (German)

Holocaust tourism has established itself as a popular form of dark tourism -- tourism directed to places that are identified with death and suffering. As the last eyewitnesses of the Holocaust are reaching the end of their lives, filmic representations of their experiences become both an archive for those experiences and a means of dissemination for how we could relate to those experiences --as a form of inter-generational homework on productive ways of remembering. In this paper I explore physical interactions and emotional exchanges between tourists and the Auschwitz concentration camp represented in the film *Am Ende kommen Touristen (2007)*. Through in depth film analysis, I will select the most compelling scenes from the film, where inter-generational memory work is negotiated, using current scholarship on dark tourism to inform my perspectives as I discuss specific cultural contexts. The film suggests how Holocaust sites of dark tourism are not merely meant for remembering victimizations, but to encourage individuals to interact with history in mindful ways that help us move forward. I propose a revision of the definition of the term "dark tourism" by demonstrating how the site's tourist features exist with the intention of developing empathy and of facilitating teaching and learning in order to move us towards more future-oriented processes of remembrance. As time passes, different generations in the film are shown to experience the site differently and we as spectators must, I argue, change the way we see dark tourism in ways that take those generational shifts into account.

84. "We're Not All the Same": Levels of Conservatism as Predictors for Latino Partisan Choice
Samantha Pentecost '19
Sponsor: Dr. Maria Lowe, Sociology and Anthropology Department

Which Latinos vote for Republican candidates and why? Though often considered a voting monolith for the Democratic Party, many Latinos vote for Republican candidates, defying this idea. Relying on secondary analysis of the 2012 National Survey of Latinos (N=1,765), this paper explores demographic and attitudinal predictors of Latino support for the 2012 Republican presidential candidate. Quantitative results indicate that attitudes towards same sex marriage, attitudes towards the Development, Relief, and Education for Alien Minors (DREAM) Act, and level of education differentially predict the level of support among Latino voters for Mitt Romney, the 2012 Republican presidential candidate. Specifically, I find that Latinos with less than a college degree, those of Cuban heritage, those who do not support the DREAM Act, and those who oppose gay marriage are more likely to voice support for Mitt Romney. I conclude this paper by discussing the significance of these findings in terms of both the existing literature as well as the national political scene.

85. Racialized Politics and the Confederate Flag: Why Society Can Never Be Color-Blind
Deidra McCall '18
Sponsor: Dr. Maria Lowe, Sociology and Anthropology Department

Using a quantitative approach, this paper explores some of the ways that politics continue to be racialized even while though the perception of colorblindness, which was especially pronounced during the Obama presidency, persists. The focal point of my analysis is American attitudes about the Confederate flag. Specifically, I explore which demographic and attitudinal factors help to predict respondents' attitudes about the 2015 removal of the Confederate flag from the South Carolina capitol grounds. My primary analytical strategy includes descriptive statistics and binomial logistic regression models of survey responses to the 2015 Pew Research Political Survey of 2,002 respondents. To explain my results, I employ a theoretical framework that combines scholarship in the areas of colorblind ideology and the racialization of patriotism. Preliminary findings indicate that controlling for other theoretically relevant demographic and attitudinal characteristics, white Evangelical Christians, those with a high school diploma or less, respondents who believe that racism is no longer a problem, and those who do not approve of the way that Barack Obama handled the job as president are much more likely to disapprove of the 2015 action in

South Carolina to remove the Confederate flag from the capitol grounds. I discuss how these findings can help us to better understand the results of the 2016 presidential election and develop a better appreciation of how far American society has come in terms of race relations and how much further it has to go to achieve racial equality and justice.

86. Vamos Caminando: A Story of Waters, Peoples, and Activism Along the Texas-Mexico Border
Ilka Vega ’17
Sponsor: Dr. Melissa Johnson, Sociology and Anthropology Department

Water issues along with other social and environmental concerns have long characterized the US-Mexico border. Government and non-governmental organizations alike craft policy and solutions to address these problems. Yet, most of the contemporary research used for policy lacks cultural contextualization, which is key to better understand the issues border residents face and the problem-solving approaches they employ. In the summer of 2016, while working with the non-governmental organization, Texas Impact, I conducted interviews and participant-observation in Laredo, Brownsville, and McAllen and their surrounding areas to learn more about how border residents experience and perceive issues of water in their communities. Residents reported concerns about quality vs. quantity of water, information availability, and shared their ideas about problem-solving strategies. While socioeconomic status was clearly tied to how residents talked about the problems they faced, the nuances of how people understood their situation extended beyond simple socioeconomic classification. In this paper, I explore how the cultural context of the border, or being simultaneously one thing and another, shapes how residents of this region understand and respond to the problems they face. Only through attention to these nuances can policy be crafted in a way that aligns with the realities, interests, and understandings of border residents.

87. In The Shadow of Vesuvius
Christopher Hernandez ’18
Sponsor: Dr. Thomas Howe, Art and Art History Department

Over the summer of 2016 I attended a study abroad program with Professor Howe is Castellamare De Stabiae in Italy. We spent three weeks working in excavated villas in Stabiae. We learned how to utilize several pieces of high tech archaeology surveying equipment in order to create high definition three-dimensional models of the room and highly articulated rendering of the preserved frescoes on the walls. Our work was submitted to the superintendency of the Vesuvian Institute for their program Restoring Ancient Stabiae. Our collective drawings and three-dimensional renderings were published as part of their archaeological season.

88. The Role of Epigenetic Regulator wdr82 in Kidney Formation and Function
Eris Tock ’17, Taylor Craven ’18
Sponsor: Dr. Airon Wills, Biology Department

The gene wdr82 is a highly conserved member of the histone-modifying SET 1/COMPASS complex. Mutations in wdr82 result in multiple defects in zebrafish, a vertebrate model organism with developmental mechanisms similar to those of humans. The facial deformation present in wdr82 mutants has been linked to a loss of positional identity in jaw cartilage segments by previous research. It was hypothesized, therefore, that the observed impairment in renal function might be the result of a similar loss of positional identity. This possibility was investigated through in situ hybridization of zebrafish embryos, utilizing an RNA probe tagged with a purple stain to highlight areas of specific gene expression. In this case, the targeted genes were wt1a, which is expressed in the glomerulus at the anterior end of the kidney, and cdh17, which is expressed in the entire latter part of the organ. Processed embryos were mounted and presence and correct positioning of the kidney along the anterior-posterior axis was ascertained by qualifying stain position in relation to striated muscles segments known as somites. Results showed no significant variation in the presence or location of the gross kidney structures between wdr82 mutants and their wildtype counterparts. However, this data is not sufficient to determine if spatial abnormalities are present in the segments within the kidney tubules. Currently, qPCR analysis to quantify changes in the expression of developmental markers is ongoing, and, in the future, further in situ hybridization will be used to examine the relative position of sub-tubule kidney elements.

89. Deregulation of Tight Junction Proteins in Endometrial Cancer Cell Lines
Sidart Pradeep ’17, Elliot Hershberg ’18
Sponsor: Dr. Maria Todd, Biology Department

Endometrial cancer is the most commonly occurring gynecological disease in the world yet little is known about the underlying molecular etiology. Our lab’s preliminary studies in breast cancer have indicated that tight junction (TJ) proteins may play a role in cancer metastasis. TJs are involved in cell-to-cell connectivity and regulation of paracellular transport. In this study, we examined the expression of the TJ proteins occludin, claudin-3, and claudin-4 in six endometrial cancer cell lines by immunoblot analysis. Four of the cell lines showed elevated levels of claudin-3 and two showed elevated levels of claudin-4. Notably, the majority of cell lines expressed at least one of the three occludin isoforms. Similar to the MCF-7 breast cancer cell line, the HEC-1A endometrial cancer cell line exhibited particularly high levels of claudin-3 and -4 and readily detectable levels of all three occludin isoforms. We transfected MCF-7 and HEC-1A cells with small interference RNA (siRNA) targeted to the occludin and claudin-3 genes, respectively. After 24 hours, we observed complete suppression of all three isoforms of occludin in the MCF-7 cells. After 48 hours, however, we observed suppression of only two of the three isoforms. Following transfection of the HEC-1A cells, we detected a modest suppression of claudin-3 relative to the controls. Future studies will involve optimization of siRNA-mediated TJ protein suppression, which will enable us to further characterize the effect of these proteins on cancer cell motility and invasion.

90. Innovating Molecular Art: Communicating the True Cost of Science Through Repurposed Materials
Shannon Walsh ’18, Hugo Cepeda ’18, Carissa Bishop ’17, Sofia Campos (Alumna)
Sponsor: Dr. Romi Burks, Biology Department

Declining costs associated with molecular biology facilitate more and more opportunities for scientists to utilize these tools to ask interesting questions. However, techniques such as Polymerase Chain Reaction (PCR) and UV visualization of agarose gels still leave behind a significant amount of material. This first prompted our lab to repurpose our agarose gels following gel electrophoresis in the form of gel art. Our future plans include creating additional art pieces with other by-products of molecular biology. When prescribing a value or cost to repurposed molecular art we found the cost of science held two different meanings. On the one hand, repurposed molecular art can be appraised for monetary value by estimating the initial cost of materials used in the piece. On the other hand, repurposed molecular art can be appraised for time, a priceless research tool. In addition to being cognizant of the time and costs that goes into their science, scientists also need to be able to communicate with the public. Together, science and art foster creativity so our interdisciplinary presentation uses molecular art to: 1) examine the intersection between the disciplines of art and science; 2) calculate the cost of science in terms of materials to better appreciate the time and money spent per experiment and 3) to explore different methods for creating repurposed, molecular art. This experiment in science education will prompt others to think, connect, and hopefully create their own repurposed, scientific art.

91. Serratia (unknown) Biochemical Investigation
Antonio Mendez ’20
Sponsor: Dr. Stacie Brown, Biology Department

While antibiotic resistance in clinical settings is a serious concern and an intense area of research, less is known about levels of antibiotic resistance in environmental settings. To survey antibiotic resistance in the environment, soil samples from the Southwestern University campus were analyzed for the presence of tetracycline resistant bacteria. One soil isolate taken from the practice football field was found to be resistant to 30 μg/ml tetracycline, and was notable for its bright red pigment and rugose colony morphology. To identify this unknown organism, the sample was cultured on a nutrient agar plate for biochemical identification tests, including: a catalase test, gram stain, MIC test, oxidase test, and motility test. After isolating the 16S rRNA sequence, it was determined that the unknown soil isolate belongs to the genus Serratia and is likely of the marcescens species. Interestingly, the organism’s rugose colony morphology and production of the red pigment at 37º C are traits that deviate from standard laboratory strains of S. marcescens. Future experiments will include genetic analyses and additional antibiotic resistance tests to further characterize this unique strain of Serratia.

92. The Anthropocene Gets an Album Cover
Carly Ammel ’18
Sponsor: Dr. Romi Burks, Biology Department

The Anthropocene’s album cover will illustrate all the crucial factors that created this time period by displaying key people, figures, and inventions. The root of the album cover will be based off The Beatle’s “Sgt. Pepper’s Lonely Hearts Club Band”. This album cover includes a wide variety of people or characters that The Beatles believed to be historical. The inspiration for this project came from the remake of this image with a 2016/Brexit theme. This was chosen to be the template because it is a recognizable and artistic display of people who deserve to be remembered. A combination of forty to fifty people and characters will be chosen for the image. This will be independent work using Photoshop, with the final album cover will be printed on a poster in color. With the poster, there will be side notes describing who the people are and why they are considered to be a contributor to the Anthropocene. When learning about the Anthropocene, it is crucial to realize that although the starting point may be given a specific date and time, it was not just one specific event that resulted in the Anthropocene, which is what this project aims to accomplish.

93. Pedagogies of Social Justice in/and the Anthropocene
Carly Ammel ’18, Keara Hudler ’18, Natalie Lesnick ’18, Mary-Kathryn Mitchell ’17, Esteban Woo Kee ’18
Sponsor: Dr. Romi Burks, Biology Department and Dr. Melissa Johnson, Sociology and Anthropology Department, Anthropocene Paideia Seminar

What are effective strategies for bringing a social justice perspective to bear on teaching about the Anthropocene? In this poster, we share content and pedagogy developed by student groups in a student-run upper-level integrative seminar on the Anthropocene. One group chose to teach fellow participants about the relationship between the historical development of colonialism and capitalism, and how 'nature' is conceptualized. They began their seminar by discussing the politics surrounding naming a "start date" for the Anthropocene and then used a variety of case studies to highlight how capitalism has led to physical/geological processes where humans who contribute the least to climate change and other Anthropocene processes (biodiversity loss, landform change, habitat destruction) are most impacted by it. Another group centered their session on a role-playing game in which each student was assigned certain characteristics that marked them as a different kind of migrant or refugee. Students were either able to enter the classroom or not, sit or not, have good seats or not, depending on those characteristics. This experience served as a vehicle to generate discussion for how to address the dire social and political effects climate change and related Anthropocene effects is creating. A third group included a hands-on lesson for how to engage politically. The seminar professors worked at the outset of the course to foster interest in these kinds of topics, and have aimed to develop inclusive pedagogy and grading techniques for the seminar.

94. Design of a Discovery Based Laboratory Activity: Synthesis of Cinnamate Derivatives
Saarah Cantu ’19
Sponsor: Dr. Carmen Velez, Chemistry and Biochemistry Department

The design of this discovery-based inquiry laboratory activity will engage students in active learning, developing critical thinking and problem solving skills, while drawing their own conclusions from their results. The synthesis of cinnamate esters was developed from the Verley- Doebner modification of the Knoevenagel condensation reaction. In this activity students will first analyze spectroscopic data consisting of 1H NMR, 13C NMR, infrared spectroscopy, and mass spectrometry to elucidate the chemical structure of a cinnamate ester. Second, students will design a synthetic route and perform the synthesis of the compound. After analysis and characterization the students will present their work in an oral presentation at the end of second semester chemistry laboratory. Through this activity students will practice identification of unknown compounds, discovery of synthetic routes, and development of an understanding of the day by day in a chemistry research laboratory.

95. Synthesis of Novel Anti-Carcinogenic Peptides
Ramish Nadeem ’19
Sponsor: Dr. Kerry Bruns, Chemistry and Biochemistry Department

Drawing on previous work with the anti-microbial peptide, Bovine Lactoferricin, this research project aimed to utilize Fmoc solid phase peptide synthesis techniques to develop two novel short-chain peptides with anti-carcinogenic properties. Previous literature examining selectively cytotoxic peptides derived from bovine lactoferricin evidenced that amphipathic, cationic peptides seemed to display selective cytotoxicity towards mammalian cell lines. The design of one of these peptides, designated here as wpep, closely mimics the biologically active portion of lactoferricin with slight modifications made to increase stability and allow facile synthesis, handling, and storage. The design of the alternative peptide, referred to here as rpep drew on coupling a remarkably short sequence of cell penetrating peptide derived from lactoferricin with a longer “cargo” peptide that had previously displayed selective cytotoxicity in a yeast cell line. This selective cytotoxicity appears to be mediated through a pathway distinct from the expected receptor mediated induction of apoptosis, potentially through disruption of mitochondrial membranes and subsequent induction of caspase mediated eventual cell death. The effects of the novel peptides designed in this research on virally transformed and untransformed murine fibroblasts are under exploration.

96. Titanium-Mediated Synthesis of Cyclobutanones
Renee Walker ’18, Jilliam Bradley ’18
Sponsor: Dr. Michael Gesinski, Chemistry and Biochemistry Department

Substituted cyclobutanes are important intermediates in the syntheses of many organic materials, including several pharmaceutical compounds such as the anti-HIV drug lobucavir. They also constitute the core of a wide range of naturally occurring compounds that exhibit a variety of biological activities. However, four-membered carbon rings have high levels of ring strain, which make them unstable and difficult to synthesize. In this study, a novel method for the formation of cyclobutane derivatives was developed using a modification of the Kulinkovich reaction, which was originally used to synthesize 1-alkylcyclopropanols from carboxylic esters. Tosylating or mesylating a cyanohydrin yielded a 1,2-dielectrophile which, when exposed to the conditions of the Kulinkovich reaction, underwent a 4-ex-tet cyclization to form a substituted cyclobutanone. A benzyl cyclobutanone was produced with up to 64% yield, and an aryl cyclobutanone was produced with up to 26% yield. The reaction conditions still require optimization; however, this procedure presents a promising technique to incorporate into future synthetic methods.

97. Gold (I)-Catalyzed Cyclizations: Formation of 1-H Isochromene Derivatives
Dakota Butler ’18, Parker Wilson ’18
Sponsor: Dr. Mike Gesinski, Chemistry and Biochemistry Department

1H-Isochromene derivatives are found in a variety of biologically active molecules and are therefore of interest to the pharmaceutical industry. These organic moieties have been successfully synthesized using a novel gold (I)-catalyzed cyclization. This reaction affords 1H-isochromenes in 41% yield from simple benzylic alcohols. This methodology has been applied to the implementation of gold-cleavable alcohol protecting group that generates a similar 1H-isochromene as a byproduct. The cyclization of a protected alcohol regenerates the alcohol with a 59% yield. These results present a promising approach to production of isochromene derivatives, which could lead to a greater understanding of their full biological potential.

98. Nitrogenous Based Metal Ligand Complexes
Tyler Adams ’18
Sponsor: Dr. Willis Weigand, Chemistry and Biochemistry Department

Metal Ligands have been proven to have many biological benefits including being anti-cancerous, anti-bacterial, and ant-fungal. The ligands that are being used have been proven to be effective in some of these areas. This research consists of utilizing nitrogen-based ligands and reacting them with copper, cobalt, and nickel salts and then determining what biological characteristics they exhibit. The general method of reaction is combining the metal salt and ligand together with a solvent to create a solution that is then heated to reflux and stirred. The solvent is removed afterwards via rotovap or filtration. A new method has recently been used in which the two reactants are dissolved separately in a solvent and then combined. The metal salt solution is heated and with stirring the ligand is added dropwise to form the metal complex. The solvent is removed in the same way as before. The second reaction method has been promising and an X-ray Crystallography structure has been made. In the reactions performed thus far, the precipitate obtained is normally oil but some solid has precipitated as well. The solid has been characterized by IR, NMR and X-ray Crystallography. Research is continuing with the goal of obtaining more compounds that can be crystallized so that an X-ray diffraction structure can be determined. Biological testing will begin after full crystallization. More research will be done to test the best way of obtaining a precipitate that can then be crystallized and further tested for biological benefits.

99. Synthesis and Characterization of Metal-Ligand Complexes using Copper, Cobalt, and Nickel Compounds and Thianaphthene-3-carboxaldehyde based Chalcones
Myriam Ibarra ’19
Sponsor: Dr. Willis Weigand, Chemistry and Biochemistry Department

Metal-ligand complexes such as cisplatin are used in the treatment of certain cancers while others exhibit antimicrobial properties. The purpose of this investigation is to synthesize different metal-ligand complexes by reacting copper, cobalt, and nickel with ligands that exhibit such anticarcinogenic and/or antimicrobial properties.

Through literature research a procedure was obtained for the synthesis of two Thianaphthene-3-carboxaldehyde based chalcones, which would theoretically exhibit antimicrobial and anticarcinogenic properties. The solubility of the metal compounds available and the chalcone crystals in different solvents was determined. The chalcone crystals were reacted with copper acetate, copper sulfate, and nickel acetate using the most favorable solvent(s). The formation of solids was observed. These are to be collected through vacuum filtration or extraction in order to obtain crystals, which will be characterized through X-ray diffraction, NMR spectroscopy, and IR spectroscopy and tested for antimicrobial and anticarcinogenic properties.

100. Thiadiazole and Thiosemicarbazone Ligand-Metal Complexes
Ryan Peraino ’18
Sponsor: Dr. Willis Weigand, Chemistry and Biochemistry Department

Metallic complexes have been used as drugs to treat various types of cancers. In this study, thiosemicarbazone and thiadiazole classes of organic compounds have been prepared. The ligands demonstrate anti-bacterial, and anti-cancerous characteristics before coordination with and metals. Metallic complexes of these compounds containing transition metals such as copper, cobalt and nickel may provide enhanced activity against cancer tumors or bacteria. Further research will involve synthesis of the metallic complex, along with attempts to grow crystals for X-ray crystallography. Anticancer and antibiotic testing will begin after characterization of the complexes is complete.

101. Synthesis and Characterization of a Novel Copper (II) Complex Coordinated to a Thiosemicarbazone Ligand
Margaret Rowand ’18
Sponsor: Dr. Willis Weigand, Chemistry and Biochemistry Department

Thiosemicarbazones are a class of Schiff-based ligands that have been gaining attention in recent years for potential pharmaceutical applications. These thiosemicarbazones have anti-cancerous, antibacterial, anti-fungal, and anti-viral characteristics, which often are enhanced by the coordination of the ligand to a transition metal. In this study, a water-soluble (bis) thiosemicarbazone ligand has been synthesized in a four-step synthesis, producing the dimethylammonium salt [Me2H2N][H2L], and characterized by melting point, 1H NMR, 13C NMR, and IR spectroscopy. This bis ligand was reacted in acetonitrile (MeCN) in a 3:1 molar ratio with copper (II) acetate, forming the complex CuL-, the ligand coordinated to a copper (II) ion. Characterization of the complex will include melting point and various spectroscopy, as the paramagnetism of the Cu (II) ion may interfere with the NMR. Work is continuing regarding the formation of crystals suitable for an x-ray diffraction study, including slow evaporation, supersaturation through binary solvent systems, gradual cooling, vapor diffusion, and solvent layering. Antimicrobial experiments will follow shortly to test if the attachment of the copper (II) ion to the ligand enhanced its properties.

102. H-DNA is More Mutagenic than B-DNA
Alison Riggs ’18, Neva Mebane ’17
Sponsor: Dr. Michael Douglas, Chemistry and Biochemistry Department

Normal B-DNA with specific DNA sequence profiles has the potential to form H-DNA or triplex DNA, that are potential sites of chromosomal instability leading to cancer and disease. The abundance of these H-DNA in the genome and its role in gene function and cancer is the focus of much current work (Vasquez, 2016). Our lab has started a systematic analysis of the behavior H-DNA compared to B-DNA under conditions of oxidative stress in the cell. The purpose of this investigation is to determine what the presence of a reactive oxygen species (ROS) caused by growth in the presence of H2O2 does to each of the DNA structure types. Using a genetic selection scheme that can uncover rare DNA structural changes and their genetic instability, we have first established the toxicity of growing cells in the presence of H2O2. We compared cells that were genetically identical except for the presence of H-DNA in one of the strains and normal B-DNA sequences in the other. We observed that both strains appear to be equally sensitive to H2O2 and display 50% survivors following exposure of growing cells to 2 mM H2O2 for 1 hour. In parallel studies we determined the rates of mutation of each strain in the absence or presence of 2mM H2O2. Our data show that H-DNA is much less stable than B-DNA and that H2O2 had an additional effect on the stability. These studies are being followed up to compare the DNA structures of mutants by DNA sequencing and the impact of oxidative damage.

103. The Intersectionality of the Women's March
Alison Riggs ’18
Sponsor: Dr. Alison Kafer, Representing Gender Paideia Seminar

The United States Constitution states that the right to protest is an inherent American right. Recently, that right was particularly demonstrated in streets across the entire world at the Women’s March, this past January 21st 2017. This research study aims to investigate the intersectionality of race and gender at the Women’s March. Through personal accounts, feminist literature, and organizations like black lives matter, I wish to look at why intersectionality is necessary at women’s marches and protests. I also will investigate media responses to black lives matter protests versus the response to the women’s march. This research will investigate the oppression imposed by the institutionalized patriarchy and institutionalized racism and how the women’s march aimed to oppose both of these, and where the shortcomings were in the goal of the women’s march. I will also analyze the historical importance of the largest protest in American history being composed of primarily women.

104. Zines as Feminist Activism: An Artistic and Accessible Means for the Spread of Knowledge, Change, and Self-
Expression
Lilly Dennis ’18
Sponsor: Dr. Alison Kafer, Representing Gender Paideia Seminar

Feminist studies courses and the knowledge gained in these settings often bring rise to the question: “Now what?” Now that we’ve learned about the ubiquitous injustices of the world, what can we do to bring change? How do we share our personal experiences, and the experiences of others in an accessible and affordable format? This study presents zines, self-published magazines, as a form of feminist activism—a strategy for those looking to address sexism and all other forms of oppression through a DIY process. These cheap-to-print compilations of stories, essays, images, and manifestos serve as an independent form of media that express a broader range of voices and experiences than the mainstream media. Tracing the initial emergence and following history of zines and their makers, this study emphasizes the importance of sharing one’s personal experiences as a form of political action, while asserting that alternative press is a key factor in fighting for social justice.

105. Girl Power: The Underrepresentation of Women in U.S. Politics
Emilie Fisher ’18
Sponsor: Dr. Alison Kafer, Representing Gender Paideia Seminar

Studies have found that women running in U.S. elections perform just as well as their male counterparts. No differences emerge in women and men’s grassroots support, fundraising efforts, vote totals, or electoral success. So, the question remains of why women are so underrepresented in U.S. politics. Through my research on the election process, from deciding to run to getting elected, I hope to uncover some aspect of the process that proves not to be conducive to female participation. I will analyze the effects of a recent surge in high-profile women in politics, such as Nancy Pelosi, Hillary Clinton, and Sarah Palin, and how their presence has seemingly increased the gender gap in political ambition while others assume it would’ve decreased the number in some way. It seems as though the bulk of research will be found in the decision making period of the candidacy process and whether or not women are more or less likely to even enter the race. This has a lot to do with gender norms as well as the way we educate young women about their career ambitions. Many more factors contribute and lead to the ultimate conclusion that despite the success rate of women who run in elections, we are still suffering from major female underrepresentation.

106. Gender at Austin State Hospital
Kaalah Manongdo, ’17
Sponsor: Dr. Alison Kafer, Feminist Studies Program

After discussing gender and the U.S. prison system in my Representing Gender Seminar, I became interested in how gender operated and influenced mental health facilities. Research has been done in this area before, but I am

interested in looking at concrete examples by examining the local psychiatric hospital- Austin State Hospital. My poster will include excerpts from interviews and information provided by the hospital itself as well as my own observations about the ways in which gender influences the patient's admission and experience in the hospital. The facility has been operating for over 150 years, and has changed its methods significantly as the mental health industry and psychiatric field has evolved. I will conduct interviews with a couple of employees- either in person or on the phone- and ask them questions about the role of gender in the facility. I will also look at research that has been done on other facilities and compare it to what is reported by Austin State Hospital employees.

107. What is Really Holding Women Back from Being Top Executives? Through the Eyes of One of the Most Influential Women
Austin Smith ’17
Sponsor: Dr. Alison Kafer, Representing Gender Paideia Seminar

Pairing my Paideia cluster of Representing Gender, with my interests as a business major, I want to look further into what is holding women back from more proportionally representing top executive roles at major companies. One perspective I especially wanted to look at this question from is from Sheryl Sandberg, the COO of Facebook. Sandberg has written a book about women, work and the willingness to lead and this will be the main source of information for this presentation. Sandberg is also well noted for her Ted Talk video about having too few women leaders, and is very outspoken about this topic. Also included in the presentation will be research from different academic articles exploring the gender gap in executive roles with large companies. Hopefully the results will provide multiple perspectives on how these dynamics can work to be changed so in the future, there will be more equal representation between men and women within executive boards. Increased diversity in representation hopefully ends up increasing the diversity of ideas management teams have to foster future growth.

108. How Gender Inequality and Socioeconomic Status Fuel Human Sex Trafficking of Women in Texas
Mauro Garcia ’18
Sponsor: Dr. Alison Kafer and Dr. Elaine Craddock, Representing Gender Paideia Seminar

Paideia Approximately 27 million people worldwide are currently enslaved in the sex trafficking industry. 600,000-800,000 sex slaves are trafficked internationally, where 80% are found to be female. Of the 350 law enforcement agencies that exist in Texas, only 4 are federally funded for investigating human sex trafficking. The effects of gender inequality and socioeconomic status will be investigated in order to validate its correlation to the sexual enslavement of women. This problem will be focused in Texas through the use of literature and contextual analysis of FBI statistics. Gender inequality contributes to women having less valued roles in society. The gender wage gap also contributes to men as being perceived as the money maker and women as dependents. This contributes to single women resorting to other means in order to support their family and may lead to sex trafficking. The sex trafficking industry can be viewed on a supply and demand scale, where the supply must be cut off. This can be achieved by addressing and fixing the problems of gender inequality and raising the socioeconomic status of women and children in order to prevent them from being susceptible to the human sex trafficking market. Creating programs that promote gender equality and provide shelters for lower class citizens would drastically prevent and decline the amount of women and children being placed in the sex trafficking system.

109. Criminalization of Immigrants in America
Valeria Leija ’18
Sponsor: Dr. Alison Kafer and Dr. Elaine Craddock, Representing Gender Paideia Seminar

As a Mexican American with an immigrant family, I am very close to the stories of hope and lack of. I come from a family that cares very much about each other’s outcome, that’s why when one decided to come to America for a more economically stable life most others followed suit. It wasn’t a quest to take over land; it was a migration to a land that was perceived to have more opportunity and safety. This research project will serve as a window into what’s going on inside immigrant detention centers in Arizona, especially the treatment of women detainees. I will also include a brief overview of immigration laws in the United States, such as the Patriot Act, but mostly on immigration legislation in Arizona. Research articles online and accounts from immigrants will serve as a tool to help me delve into a struggle that to this day keeps families apart. The outcome will serve as knowledge for those

who read it and maybe give incentive to keep learning. This is just one aspect about our reality that is worth informing the public about.

110. Transitioning is Troubling
Molly Cardenas ’18
Sponsor: Dr. Elaine Craddock, Representing Gender Paideia Seminar

An individual’s way of life becomes most threatened, ironically, when their identity is perceived as threatening dominant cultural norms, or as disrupting the status quo. Because transgender identities problematize traditional, hegemonic ways of being, mainstream American society reacts in often oppressive, harmful, or exploitative ways. Whether in schools or in prisons, in the media or in the healthcare system, even in bathrooms, transgender bodies are punished, abused, or neglected entirely as a result of being non normative, as well as for problematizing society’s definition of what constitutes a normative identity. I will explore each of these avenues of oppression over the course of my presentation based on the research I’ve gathered from peer-reviewed works of various queer, transgender, and feminist scholars. Based on my findings, I’ve come to the conclusion that because transgender identities force the public to question notions of gender, notions that before seemed like incontrovertible social facts, transgender bodies become the targets of frustration, aggression, and misunderstanding. They remind society that our seemingly stable systems of identification and categorization are deeply problematic and that all identities, including our own, are much more fluid than we’re comfortable believing. Trans bodies are mistreated not only because they threaten society’s traditional formulation of gender identities, but also because they cause us to question how we understand and represent our own gender identities.

111. Cleanliness in Public Bathrooms: Who Cleans Them and Why Should We Care?
Riley Daniels ’17
Sponsor: Dr. Elaine Craddock, Representing Gender Paideia Seminar

In the past year, fourteen state legislative sessions have sparked national debate about who should have access to public restroom facilities. This discussion has provoked debate in multiple areas including civil rights, economic prosperity, and the social dynamic of our public school systems. While these discussions are important, I believe another vital aspect of any public facility is being neglected—who cleans it? By calling attention to the different levels of discrimination that workers in bathroom facilities are subjected to, and connecting discrimination against workers with discrimination against people who use the restrooms, I hope to raise important social justice issues concerning public facilities. My presentation will focus on the stigmas against people who clean public restrooms and potential ways to enhance their status. In addition, I will concentrate on how our understanding of cleanliness in the bathroom and our interaction with workers has changed with the introduction of automatic appliances.

112. How are Sports Following Normative Gender Roles?
Jennifer London ’17
Sponsor: Dr. Elaine Craddock, Religion Department

I want to do my research on how sports normative gender roles. The sports world’s expectations for women are very high; for example, women must be great at the sport they are participating in and they must also look beautiful doing it. Gabby Douglas won the gold medal in the 2012 Olympics for gymnastics, but the main focus of the media and the viewers was her appearance, therefore her accomplishments were ignored because her hair would not stay in place. Douglas’s feelings were hurt from the comments that were placed on social media about her hair. Another situation in the sports world is the image women should portray while participating in sports; for instance, in basketball women are not allowed to show the same amount of aggressiveness as the men are allowed. The images the media wants to portray to the viewers are calming, loving, and nurturing women. The women who refuse to conform to the sports world’s ideal woman become outcasts, which it could lead to social isolation, depression and suicide. My objective is to express how sports normative gender roles and to highlight how women have tried and even succeeded in breaking beyond the image of the ideal woman in sports.

113. Infertility: Questioning Stigmatized Gender Roles
Elly Vela ’18
Sponsor: Dr. Elaine Craddock, Representing Gender Paideia Seminar

The purpose of this paper is to question the reasoning behind the differing roles between males and females concerning lack of fertility when trying to conceive a child. The main claim of this paper is to give attention to the issue of women being expected to produce children although when this expectation is not fulfilled they are deemed biologically defective. This paper will also focus on this issue of men’s masculinity being called into question when trying to conceive a child and not being successful. I will explore this by determining the gendered boundaries that have been placed by society and enforced by institutions. Although some readers may object that these issues are not as prevalent as they were in the past, I would answer that they are still prevalent if not more due to the emphasis society places on the concept of fulfillment through children. Once I have established the parameters surrounding these issues I will have the ability to explain in depth the stigma often associated with the men and women who are unable to produce.

114. The Implications of Being a Transgender Person in the Workforce
Jack Anthony Moore ’18
Sponsor: Dr. Elaine Craddock, Representing Gender Paideia Seminar

Employment is an interesting topic to examine within the realm of social equality. Employment rates along with distribution of wealth suggest a hegemonic power – white males – that not only get hired more frequently but also hold higher-paying positions. Among the diverse army of those seeking a job, transgender people often face a tougher battle than most others. Many employers simply do not consider trans people as viable candidates. Some trans people will try and conceal their true gender, but those who are caught are oftentimes fired immediately. Title VII, which prohibits employers from discriminating based on sex, race, nationality, or religion does not protect those who are transgender. For this reason, companies are not required to see trans people as equals, and trans people can be unfairly denied work simply due to their genetic makeup. This project will discuss how transgender people currently affect the workforce as well as possible solutions to end discrimination in the employment process.

115. Personal Connections and Memories Related to Place
Piper Sisemore ’18, P.J. Quinters ’18, Madison Edwards ’18, Josh Dale ’18
Sponsor: Dr. Laura Senio Blair, Situating Place II Paideia Seminar

Personal connections and memories can greatly impact a person’s relationship to place. Typically, if a positive experience is associated with a particular place, the connection to and memory of the place is greater. The same can be said for the corally. In our research, we expect to find that very correlation as we focus on high school experiences. Place as it associates with secondary education will be our focus because there are often many mixed emotions. We plan to work collaboratively to see if our theory holds true. The results of our study will be significant because it will show how people’s personal connections and memories will have a direct impact on their idea of a certain place. Aside from the raw emotions that high schools can foster, we would like to evaluate and look deeper into the different memories and connections that individuals make about the concept of high school as a place. The key question we will focus on will be: How and why do artifacts and representations shape individual and collective perceptions and experiences of place? Resources that we can use to help us explore the idea of personal connections to a place and the way they affect the memory of that place include the following.

116. Where Am I in This?: The Effects of Gender and Racial Stereotypes in Children's Literature on the Early Elementary Student
Kelli McLaughlin ’18
Sponsor: Dr. Alison Kafer, Representing Gender Paideia Seminar

I plan to explore and analyze the effects of gender and race stereotypes and representation (or lack thereof) in children’s literature in the elementary classroom across content areas (math, science, language arts). I would like to specifically look at the impact the existence of positive minority gender (female) and race (non-white) characters in children’s literature can have on racial and gender minority students. I would like to see if the effects of this are

consistent across, between, and within content areas starting with language arts and leading into math and science. My focus will likely be in the early elementary grades, kindergarten through third.

117. Hands-on Science Lessons
Sarah Norys ’18, Anna Faust ’18, Marissa Irvin ’18, Kelli McLaughlin ’18, Haley Moffett ’18, Mary Rouhiainen’18, Denise Sandoval ’18
Sponsor: Dr. Michael Kamen, Education Department

Hands-on science lessons developed by students in Teaching Science will be displayed and explained. The lessons were developed following the Investigation-Colloquium Method. This instructional model draws heavily on the work of Lev Vygotsky theories about the connection between language and thought and the Zone of Proximal Development. They were then written in the 5E format for compatibility with presentations at the conference. These lessons were presented to teachers at the Science Teachers Association of Texas annual conference. The 5E model organizes lessons into five sections: Engage--these experiences mentally engage the students with an event or question, Explore--students work with one another to explore ideas through hands-on activities, Explain--students explain their understanding of the concepts and processes they are learning, Elaborate--these activities challenge students to apply what they have learned and extend their knowledge and skills, and Evaluate--students assess their own knowledge, skills and abilities. Topics include aerodynamics with paper airplanes, oil spills, fizzy pop, circuit house, Oobleck, magnetic slime, and liquid layering.

118. Educational Technology Tools for Learning, Problem Solving, Management, and Meeting Special Needs
Sarah Buchanan ’20, Mary Rouhiainen ’18, Sarah Norys ’18
Sponsor: Dr. Michael Kamen, Education Department

SU Pre-service-teachers (Education majors) present their favorite educational technology tools for learning, problem solving, and classroom management. These were presented to teachers and school IT specialists at the Texas Computer Education Association annual conference. The technology tools are presented with pros and cons for use in K-12 classroom settings. The work of Alan November was influential in organizing sections. He is an advocate of the use of technology to empower students and make learning more authentic and purposeful. Technology tools selected include websites to shorten URLs, YouTube video editing, Class Dojo, BirdHouse, Teach Kit, and Class Grade, g(Math), MyScript Calculator, virtual Reality/simulation applications, Anatomy 4D, Speech Notes, text to speech reader, Voice Dream, Chatterpix kids, Yakit, and Canva. Demonstrations will be provided.

119. Imaginary Play and Stem Learning
Mary Rouhiainen ’18
Sponsor: Dr. Michael Kamen, Education Department

Imaginary play is often reported as an important element in children’s social and cognitive development. Yet, many early grade classrooms provide fewer opportunities for imaginary (pretend and dramatic) play. One sees few classrooms, even at the kindergarten level with unit blocks or a center for dramatic play available for free play. Vygotsky discussed how pretend play allows a child to behave “beyond his average age, above his daily behavior; in play it is as though he were a head taller than himself,” in essence creating a new zone of proximal development. In this study four 7-8 year old children were given an opportunity to play together with a variety of materials. The researchers set up a number of activity areas that were intended to prompt various degrees and types of imaginary play to support math and science learning. Contextual connections between the children’s imaginary play, children’s perceptions of themselves as scientists, and science concepts are described in detail with emergent themes suggesting ways for classroom teachers to enhance science learning through careful selection of materials for free play and intentional interactions with children during their imaginary play.

120. Latin: The Perfect Paideia Language
Daniel Merritt ’20, Allison Chappelle ’17, Caroline Collins ’20, Conner Joyce ’19, Jessica Peterson ’20, Sarah Peterson ’20, Joshua Pate ’20
Sponsor: Dr. Halford Haskell, Classics Program

Latin is present in our daily lives, albeit difficult to see at times. As students of this great and influential language, we have seen its presence in our modern world and in the departments we have here on campus. We often find ourselves connecting this great and ancient language to other topics during class, experiencing what we call "Fulgentia Paideia" or "Paideia Flashes". This year, for the symposium, we would like to demonstrate Latin's connections to our modern world in various subjects. Latin's influence is found everywhere, from the obvious presence in classics and history, to its not so obvious presence in pop-culture, music, and even politics. We, as a class, would like to share our Paideia flashes with you in an effort to both promote this magnificent language as a "Paideia Language" and to show its connections to our current world. While each student will present a separate example all on the same poster. All of our examples will demonstrate the paideia potential of Latin and its effect on our own understanding of other studies.

121. Social Media as a Channel for Consumer Interactions
Kara Lawson '16
Sponsor: Dr. Debika Sihi, Economics and Business Department

Social media has provided a new channel through which business leaders can share information about their organizations and themselves. It can be leveraged to enhance direct interactions between current and potential consumers of a business. This is especially important for marketing managers who not only disseminate information about their companies and brands, but also gather consumer feedback and sentiment. This project explores marketing managers' motivations and concerns in utilizing social media as a formal communications channel. The researchers gain insights from marketers across a variety of industries. The second objective of this project is to understand the nature of information shared by marketers through social media channels. Social media data from a widely used platform is content analyzed. The researchers identify similarities and differences in the content shared by marketers across industries and by types of consumer markets served. In addition, they offer recommendations for best practices in using social media as a channel for consumer interactions.

122. NDAA and the 1033 Program
Danyale C. Kellogg '19
Sponsor: Dr. David Gaines, English Department

The National Defense Authorization Act for Fiscal Year 1997 (NDAA), signed into law by President Bill Clinton, created a new provision as part of the Defense Logistics Agency Disposition Services, which allowed for the transfer of military surplus equipment to civilian law enforcement agencies. This program, known as the 1033 Program, remains in effect and has even expanded to providing military surplus equipment to county and municipal governments, and even local school districts. In its nearly twenty years of implementation, the 1033 Program has racked up a series of criticisms from media, lawmakers, and even the U.S. Office of the Inspector General in a 2006 report which alleged that fraud, waste and abuse were rampant in the program. Further concerns have risen regarding whether or not this program has facilitated the militarization of civilian police by placing weapons of war in the streets of suburban America. The purpose of this research project is to collect notable incidences of abuse, questionable decision making, and wastefulness that have come about under the 1033 Program, explain the current and potential benefits of this program, and ultimately make a conjecture about the future of this program in the ever-changing world of national policies.

123. Circular Districting: Quantifying Gerrymandering in Texas
Savannah Medley '17
Sponsor: M. Anwar Sounny-Slitine, Environmental Studies Program

This study aims to calculate the extent of gerrymandering within United States congressional districts by using GIS mapping technology. For the purposes of this presentation, the research will focus on Texas, as Texas provides a diverse amount of districts. Gerrymandering, or the manipulation of boundaries to favor partisanship, usually leads to the creation of odd-looking districts that regardless of proportional population sizes, are seen as bias in many political science circles. A result of gerrymandering is deeming districts "safe" by the member of congress, creating circumstances where incumbents are reelected multiple times and therefore can migrate to partisan extremes, often

isolating constituents who are members of the opposite political party, and creating a government that is more focused on party politics than policies for the people. While there is no perfect district, circularity represents the purest and simplest shape for a congressional district, and therefore divergence from circularity will be used as the metric for gerrymandering by measuring the area and perimeter of existing congressional districts and their divergence from perfect circularity. Furthermore, this study aims to conclude that the more gerrymandered a district is, the higher score on the Cook Party Voting Index (CPVI), or the index measuring how strongly a congressional district leans toward the Republican or Democratic Party. The results of this study can be used to analyze potential damaging and oppressive effects of gerrymandering, such as racism, sexism, and income bias in politics.

124. The Dark Side of the Light: Correlating Light Pollution and Population Density Through GIS
Crystal Webster ’18
Sponsor: M. Anwar Sounny-Slitine, Environmental Studies Program

The nighttime view of the earth's cities from space can be dazzling, but these images also indicate a large amount of light pollution being emitted into the night sky. This sky-glow has numerous negative effects on humans, animals and ecosystems. The state of Texas is home to 5 of the top 11 fastest growing cities in the nation. This gives rise to questions over how much light pollution Texas is emitting and how population density is affecting light pollution throughout the state. Additionally, if a correlation could be found, perhaps outliers could be found as well leading to finding a method in reduction of light pollution overall. This study aims to determine how population density relates to light pollution giving quantifiable numerical results. By using Geographical Information Systems (GIS), two data layers will be obtained, population density and total light production in order to extrapolate a correlation between population and light pollution highlighting areas with both good and bad pollution control.

125. Places to Eat in Georgetown Texas: A GIS Analysis of Food Deserts and Restaurant Placements
Haley Nicola ’17
Sponsor: M. Anwar Sounny-Slitine, Environmental Studies Program

In Georgetown, Texas going out to get a burger at a fast food chain can be easier, cheaper, and faster than going to buy groceries in order to make a nutritious meal. In central Georgetown, there are a wide variety of selections to choose from when going out to purchase food, whether it be fast food, a restaurant, or the grocery store. There tends to be an assortment of similar food places in parts of central Georgetown more than others. For example, there are many sit-down restaurants that tend to be collected together in Wolf Ranch malls, and grocery stores such as Target and H-E-B circling Interstate 35 and University Avenue. This is problematic for people who do not have transportation, do not have the money to travel to get food, or do not have the time for traffic to drive farther away from their home to get better food. It costs more money to eat healthy, but does it also cost more time to travel the distance depending on where you are in central Georgetown for better quality food? This project uses GIS to analyze the correlation between the locations of restaurants, such as fast food and sit-down restaurants, and grocery stores in central Georgetown, Texas.

126. Current Ecolab Projects 2017
Daniel Buffington ’17, Hailey Johnson ’17, Garrett West ’17, Zach Brown ’17, Dori Cresanta ’17, Anja Thomsen ’17
Sponsor: Dr. Joshua Long, Environmental Studies Program

Southwestern University recently began the Ecolab Project, an environmental education and conservation initiative that takes place on university-owned land. Ecolab is guided by student leadership and work, and is becoming a valuable asset for the University, offering students the opportunity to gain invaluable experience in environmental fieldwork. The first independent Ecolab class is now being offered (Spring 2017). However, in its current state, Ecolab faces several environmental, structural, and curricular challenges restraining the full potential of the site to develop the environmental fieldwork skills of students and foster hands-on collaborative learning. In order to remedy these issues, the Spring 2017 Environmental Studies Capstone Class proposes ongoing curricular based projects including: sustainability, conservation, and restoration that will take place in several stages. This is already occurring as classes involved with Ecolab conduct chemical water quality analysis, trail construction, trash clean up, invasive species surveys, GIS-based analysis, and other projects. Wildlife management and species distribution

maps for Ecolab are being developed, and accessibility of the site will be improved through the construction of a quarter mile long hiking path around the perimeter of the creek system in Ecolab. With the implementation of these projects, we hope to establish Ecolab as a site for research, education, community engagement, and conservation.

127. Southwestern University is Branching Out: Achieving Tree Campus USA Certification
Alexandra Morris ’17, Collen Nair ’17, Vallery Rusu ’17, Olivia Ruane ’17, Rebecca Huteson ’17
Sponsor: Dr. Joshua Long, Environmental Studies Program

Tree Campus USA is a program administered by the National Arbor Day Foundation to help American colleges and universities establish and sustain healthy forests. Our Environmental Studies Capstone group is working to achieve Tree Campus USA certification for Southwestern University. Until now, the Southwestern campus has not maintained an official campus tree care policy and maintenance plan, which is one of the certification requirements. The standards that will be outlined in the tree care plan will help maintain the health of the trees as well as the well-being of the campus community. Overall, there are five requirements that need to be met as specified by the Arbor Day Foundation in order to receive certification. These standards include: creating a campus tree advisory committee; establishing a tree care plan; producing a tree program with dedicated annual expenditures; promoting an Arbor Day observance; and completing a community service learning project. In working to achieve these standards, we are coordinating with physical plant as well as faculty, administration, student government, and local community members. In addition to meeting the five standards, we are creating an online tree inventory for Southwestern University, which will not only be helpful for groundskeepers, but also future classes. This poster illustrates our progress, educates the audience about tree sustainability, and raises awareness about upcoming campus events. By acquiring this certification, we will continue to establish a sustainable and healthy environment at Southwestern University and the surrounding community.

128. Pre-Eexercise Carbohydrate Consumption for the Average Exerciser
Austin Robinson ’17, Julie Han ’17
Sponsor: Dr. Brittney Crim, Kinesiology Department

There is a high level of interest in how macronutrients impact sport performance outcomes. Studies have examined the use of carbohydrates prior to exercise in order to increase performance. Unfortunately, there is a gap in the literature surrounding the benefits of macronutrient intake for the average exerciser. The average, adult exerciser has little scientifically-based guidance about whether they should eat prior to exercise. In addition, a pre-exercise snack may increase daily caloric intake and negatively impact weight management. The purpose of this study was to identify if a carbohydrate snack prior to an average exercise bout at moderate intensity impacts the performance of the participant. Upon recruitment, subjects completed 4 trials. Subjects first completed a VO2 max assessment and then were randomly assigned to complete the remaining 3 trials. Total calories burned, average revolutions per minute, average rating of perceived exertion (RPE), total distance cycled, and average heart rate were all evaluated. Total RPE was the only measure to find significance. Participants perceived exercise intensity to be less with complex or simple carbohydrate consumption compared to no carbohydrate consumption. When comparing total calories burned between trials, there was no significant difference between trials. However, complex and simple carbohydrate trials burned more calories than no carbohydrate consumption. Although total distance traveled did not reach significance between trials, participants also biked farther during complex and simple carbohydrate supplementation compared to control trials.

129. Effect of Block Design on Swimming Relay Start Performance
Shelby Hall ’17, Nathan Townsend ’17
Sponsor: Dr. Scott McLean, Kinesiology Department

Competitive starting blocks used in swimming often incorporate a wedge for the rear foot to push against during flat starts. In most competitions, this wedge cannot be removed so relay starts must be performed with the wedge in place. The effect of this wedge on relay start performance is not well understood. The purpose of this study is to evaluate the effect of a wedge in relay start performance. Eight collegiate swimmers (177.69 + 8.73 cm, 74.7 + 9.11 kg, 19.59 + 0.59 years) completed eight maximal effort relay starts, four with the wedge in place and four without. Two synchronized cameras captured movements above and below water. A 16-point model of the body was used to

determine center of mass position for above water movements. Wrist and hip points were used to track underwater movements of the body. Exchange time (0.24 ±0.11 s) , takeoff angle (-3.46 ±5.45°), and time to 7 m (2.13 ±0.42 s) were not different ($p>0.05$) when using the wedge as compared to not using the wedge (0.24 ±0.10 s, -2.50 ±5.07°, 2.20 ±0.38s, respectively). However, takeoff velocity (4.26 +0.19 m/s) without the wedge was significantly faster than with the wedge on the block (4.16 +0.21) ($p<0.05$). This difference was characterized by a moderate effect size (Cohen $d = 0.46$).

130. The Gap Between Autism and Gender
Shelby Stegemann ’18
Sponsor: Dr. Alison Kafer, Feminist Studies Program

Autism research and treatment plans are geared heavily towards males with autism, leaving females with autism often overlooked and underrepresented. The purpose of this study is to highlight the differences both physiologically and behaviorally between females and males with autism in order to emphasize the importance of creating gender specific treatment plans for people with autism. Several articles were synthesized that dealt with the intersection of gender and disability, both from a biological standpoint (looking specifically at neural mechanisms between males and females with autism) and a behavioral standpoint (looking at social reward processing between males and females with autism). Often times, the world of autism is male-centered, with many studies only having male participants, as females have a lower prevalence of autism rates. This paper argues that there are several evidence gaps between males and females with autism and it will also serve to bridge the gap and propose attainable goals for gender specific treatment plans for people who have autism.

131. Prison Systems
Hannah Wood ’18
Sponsor: Dr. Elaine Craddock, Religion Department

My name is Hannah Wood and I am a junior English major. I’m taking a Representing Gender Paideia class taught by Dr. Craddock and Dr. Kafer. The class covers society’s views on things like bathrooms, Native Americans, and the prison system. Just recently, we were talking about America’s prison systems and we were asked what we would do to make things better. My best answer was that the problems were so ingrained into our society in such subtle ways that a thorough plague that forces us all to start over was our best option. This is, of course, a terrible idea. When I gave the matter more thought, I realized that this might not be a totally unsolvable problem. The way the media portrays criminals both in fiction and reality, the racism that’s been entrenched in our society for hundreds of years, and the tendency to not care about how prisoners are treated because they’re “less than human” or “deserve less than everyone else” are all examples of problems that would need to be addressed to solve America’s prison system. However, I believe that this problem is like a Rubix cube and if we’re careful and solve things in a certain order, everything will work out. I’ve never actually solved a Rubix cube though, so we’ll see how this goes.

132. Gender in the Classroom
Hailey David ’18
Sponsor: Dr. Elaine Craddock, Religion Department

This study will focus on how gender arises in the classroom. What factors influence which students are placed into special education, advanced placement, and STEM courses. My own observations from the classrooms I have worked in, and evidence from other researchers will be used. How race plays into the placements will be looked at as well. Emphasis will be placed on mathematics classrooms, and how the gender of the teacher may or may not affect male and female performance in the classroom. Investigation of female mathematics performance has been linked to elementary school teacher’s reactions and feelings about mathematics. Research on standardized testing, which point out gender and race before the test is taken, typically has shown that non-white and female students perform lower than white male students. Research has also looked at how mentioning gender before a test affects female students, but not male. This study intends to look at how gendered language in the mathematics classroom affects certain students. The study also will observe how teacher’s perception of students affects student placement, and therefore student achievement.

133. Kinematic Comparison of Dolphin Kicking Performed in a Prone and Supine Body Position
Emma Albin ’17, Justin Broussard ’17; Mickey Scharborough ’18, Peter Robinson ’19; Taylor Adams ’18, Erika Dubros ’19
Sponsor: Dr. Scott McLean, Kinesiology Department

Underwater dolphin kicking has become an essential element in competitive swimming but little research has been performed to provide an understanding of this movement. PURPOSE: To examine hip and knee kinematics of prone and supine dolphin kicking as they relate to speed. METHODS: Six collegiate swimmers (1.77±0.07 m, 72.4±7.6 kg, 19.8±1.0 yrs) completed six 10 m maximal effort underwater kicking trials; three trials in a prone position and three trials in a supine position. An underwater camera was used to record each trial at 60 Hz. Twelve body landmarks were digitized from the video recordings to determine whole body center of mass (COM) location and hip and knee joint angles. Linear velocity of the COM was computed using the first central difference method. Hip and knee joint ranges of motion (ROM) were compared between body positions using a 2x2 (joint x body position) repeated measures ANOVA. Kick rate (KR) and horizontal velocity of the center of mass were compared between body positions using a two-tailed dependent t-test. RESULTS: Neither horizontal velocity ($t(4)=0.308$, $p=0.774$) nor kicking rate ($t(4)=0.371$, $p=0.730$) were different between body positions. ROM was significantly greater in the knee than the hip ($F(1,4)=110.967$, $p<0.001$, $\eta^2=0.965$). ROM was not affected by body position ($F(1,4)=1.068$, $p=0.36$, $\eta^2=0.211$). ROM did not interact between joint and body position ($F(1,4)=1.461$, $p=0.818$, $\eta^2=0.015$). CONCLUSION: Despite some recent suggestions that a supine dolphin kick may be more effective than a prone dolphin kick, no kinematic difference were observed in this sample of swimmers.

134. Finding Nash Equilibria in Doodle Polls
Austin Moninger ’20
Sponsor: Dr. Barbara Anthony, Mathematics and Computer Science Department

Online Doodle polls allow for the selection of a ‘good’ meeting time, with participants indicating their availability for a selection of times provided by the poll creator, essentially by voting yes or no to each time slot. Yet it has been shown that a single participant can greatly impact the quality of the selected time, as measured by the total social welfare, either positively or negatively. We seek Nash equilibria: informally, there is a certain appeal when all participants look at the overall responses and cannot change their reported availability to better their personal outcome based on what other individuals have indicated. We implement Java code that aids in checking for Nash equilibria while maintaining that responses must be sincere, ensuring that no one says no to a time slot that is more desirable than one to which they said yes. A particular challenge involves the numerous possibilities for ties, as two time slots that have the same number of votes may in fact have markedly different social welfare.

135. Improving Legacy Code: A Scavenger Hunt in Software Engineering
Shannon Wylie ’17, Emma Kathryn Groves ’17, Michael Patterson ’17, Valerie Vacek ’17, Robert Wagner-Krankel ’17
Sponsor: Dr. Barbara Anthony, Mathematics and Computer Science Department

As part of the 2017 Computer Science Capstone, we continued development of a scavenger hunt web application begun in 2015. The final product of the 2015 Computer Science Capstone group gave users the ability to create accounts as well as the ability to create, join and participate in hunts on the application. The existing application provided a solid foundation for us to implement additional features the original Capstone class wished to include. We developed functionality for a leaderboard, QR code generator and scanner, password reset, an admin account, private hunts, and an upgraded user interface. This added functionality allowed for more competitive and intuitive game play for users. We continued development on the application using Ruby with the Rails framework, in order to create and modify mobile webpages. We also utilized Cloud9, an open source development environment, to facilitate collaboration on and testing of the application. The goal of this application is for various offices and student organizations to create on campus scavenger hunts. For example, the admissions office could utilize the application on tours to familiarize prospective students with Southwestern University's campus. Other groups on campus, such as social clubs like fraternities and sororities, could compete in scavenger hunts against each other.

This scavenger hunt application has wide-reaching recreational uses, and we believe our additional features work to make the experience dynamic and more enjoyable for users.

136. Developing an Interactive Webpage to Visualize Course Connections
Michael Glover ’18, Alex Rollins ’17, Alex Le ’17, Ryan Beeman ’17, Jeremy Rice ’17, Reid Cumbest ’17
Sponsor: Dr. Barbara Anthony, Mathematics and Computer Science Department

Making connections between courses provides an interdisciplinary view of education so that students can integrate knowledge between disciplines and apply it to their own fields of study. For our Computer Science Capstone in Software Engineering, we visualize Paideia Connections that Southwestern University students make by using a graph where nodes represent courses and edges represent connections between courses. Nodes are color-coded based on their discipline to assist users in visualizing how disciplines are related to one another. The number of connections reported between a pair of courses determines the width of the edge between them. We use the JavaScript graphics library, D3, for the creation and design of the graph. To display the graph and allow Southwestern students to add their own connections, we create a publicly viewable interactive webpage. We use a combination of PHP and HTML to create the webpage and use CSS for styling it. We execute the PHP on a virtual machine in Google Cloud’s Compute Engine where we use MySQL to store and manipulate user and course connection data. We hope that this project will encourage students to recognize connections between courses and learn from other perspectives that may be unfamiliar but still valuable.

137. Balancing Selection Pressures, Multiple Objectives, and Neural Modularity to Coevolve Cooperative Agent Behavior
Alex Rollins ’17
Sponsor: Dr. Jacob Schrum, Mathematics and Computer Science Department

Previous research using evolutionary computation in Multi-Agent Systems indicates that assigning fitness based on team vs. individual behavior has a strong impact on the ability of evolved teams of artificial agents to exhibit teamwork in challenging tasks. However, such research only made use of single-objective evolution. In contrast, when a multiobjective evolutionary algorithm is used, populations can be subject to individual-level objectives, team-level objectives, or combinations of the two. This poster explores the performance of cooperatively coevolved teams of agents controlled by artificial neural networks subject to these types of objectives. Specifically, predator agents are evolved to capture scripted prey agents in a torus-shaped grid world. Because of the tension between individual and team behaviors, multiple modes of behavior can be useful, and thus the effect of modular neural networks is also explored. Results demonstrate that fitness rewarding individual behavior is superior to fitness rewarding team behavior, despite being applied to a cooperative task. However, the use of networks with multiple modules allows predators to discover intelligent behavior, regardless of which type of objectives are used.

138. SU Compass and Pirate Bike Tracking
Yash Gandhi ’18, Vale Cantu ’18, Reid Cumbest ’17, Bobby Garza ’19, Maranda Kahl ’18, Kristen McCrary ’18, Alex Rollins ’17, Clay Stehling ’19
Sponsor: Dr. Chad Stolper, Mathematics and Computer Science Department

Pirate Bikes are an integral part of the campus community. One of the greatest difficulties associated with the bikes is the process of finding a bike to use. The SU Compass application will allow members of the community to access information about menu items in the McCombs Commons, operating hours for different facilities on campus, browse campus events, interact with a map of campus, and locate pirate bikes. SU Compass hopes to provide pirate bike tracking functionality for mobile phones to decrease the time it takes to find a bike. To accomplish this, the location of the pirate bike must be known, sent to a user, and processed by a local application. These steps can be accomplished in numerous ways with varying costs and effectiveness. This group aims to test and compare the results from a few possible configurations. The anticipated configurations are a wired GPS locater using an Arduino and a GPS Shield, a Bluetooth version using a UART, a GPS chip, and a nanoboard, and a third configuration would be a long range radio transmitter using a long range (LoRa) radio, a GPS chip, and a nanoboard.

139. Existence, Uniqueness, and Cost-Optimizing Results of Mathematical Trusses
Kristen McCrary ’18, William Soller ’17
Sponsor: Dr. John Ross, Mathematics and Computer Science Department

Mathematical trusses are abstract geometric objects, which are applied to model or design various physical structures. Truss research typically involves questions of construction (existence and uniqueness of truss structures) as well as optimization (minimizing the cost of the truss). In this work, we present necessary and sufficient conditions for existence and uniqueness of certain restricted trusses (called grid trusses), as well as arguments for non-uniqueness in other grid trusses. We also apply calculus of variations techniques to explore the cost-reducing effect of cutting corners on four-beam trusses. This work extends known results on three-beam corner trusses.

140. Green Math: Models of Greenhouse Gases
Penny Phan ’18, Morgan Engle ’18
Sponsor: Dr. Therese Shelton, Mathematics and Computer Science Department

Human activities produce greenhouse gasses that contribute to global warming. We present mathematical models of CO2 equivalents, focusing on fossil fuels data in four countries that currently account for 50% of emissions. We also differentiate agricultural practices across diverse socio-economic regions of the world with parameter values for emissions from the enteric fermentation of livestock. We compare both total and per capita emissions. Our methods include regression analysis, parametric functions, and calculus. We formulate several projections that incorporate reduction goals from international climate meetings.

141. Wages Over the Ages
Katie Smithson ’17
Sponsor: Dr. Therese Shelton, Mathematics and Computer Science Department

Wages and labor force participation in the United States are modeled over time across different demographics using time series, regression, and statistical analyses. These demographics include various job sectors of the labor force, race, age, marital status, and education level.

142. Methods to the Madness: Modeling College Basketball’s Championship Tournament
Benjamin Stiver ’17
Sponsor: Dr. Therese Shelton, Mathematics and Computer Science Department

The NCAA Basketball Tournament involves 68 of the most successful teams in Division I Men’s college basketball. At the conclusion of each season, this tournament captures the attention of the nation with its mesmerizing storylines and results. We will present and explore two mathematical models, the Massey and Colley Methods, and use their rating systems to predict how successful teams will be in the tournament based on their season’s performance. The Colley Method designs a model that gives a team a rating that incorporates not just the percentage of games a team has won, but accounts for the opponents as well. In other words, the method intends to assign ratings to each team that is appropriate for its strength of schedule. The Massey method differs from the Colley method by its consideration of the score differential of games between teams in a given model. Though there is no one best way to predict outcomes, these methods provide a way to apply computational logic in predicting the outcome of tournament games.

143. Musical Interventions: A Classical Music Soundscape with a "Pop Music" Twist
Emily Booher ’18
Sponsor: Dr. David Asbury, Music Department

My project is a giant soundscape, inviting listeners to embrace new sonic textures within the already existing confines of classical music. For this project I have produced a classical string recording session using a professional string quartet, and I will take their recording and manipulate it through the use of studio technology. Classically trained musicians don’t always get to explore other genres, and are often given strict rules for how to musically convey a piece. Often times they are afraid to explore new genres because they don’t feel like they can make a

connection between something that isn't traditional. In an attempt to elevate classical music through the use of this technology, I will be breaking the stigma that "popular" music or music that has been electronically tampered with is not music. Music is a living entity, something that will always change over time, but whose roots will always follow it. On the contrary, many millennials today pay no mind to classical music at all, yet classical music is what defines a lot of music they stream today. I want to breathe life into classical pieces that are otherwise perceived as stagnant, and "out of date" while convincing those of an earlier generation that music can always be enhanced, and still remain an art piece. Though it isn't an exact art, and precision is something every musician (no matter what genre) strives for with their music, it is something that can involve many different mediums of sound manipulation, as well as a lot of passion for the notes themselves.

144. Extreme Precipitation: Changes in Rain Frequency from 1895-2015 in Central Texas
Victoria Gore '18
Sponsor: Dr. Becca Edwards, Physics Department

Trends of precipitation events have been examined using different methods to show how the trend of extreme rainfall events has changed over the last century in Austin. Over the course of the twentieth century, the United States has seen an increase in yearly precipitation, especially in regards to extreme daily precipitation events. However, the models created during this research project show no significant change in the trend of extreme rainfall events in Austin. In order to show this, eleven different locations were used within a 100 mile radius of downtown Austin. These stations collectively covered the time period from 1895 through 2015. By finding a precipitation threshold for each station for multiple time periods and applying a declustering process, then fitting a Generalized Pareto distribution to the values above the threshold, return period curves were created for each site and time period that provide an estimate of the extreme and heavy end of the precipitation spectrum. These return period curves show no clear change in extreme precipitation events within Austin over the time periods examined.

145. Developing Roverine: A Robot to Measure Soil Quality
Susana Beltrán '18, Diana Beltrán '18, Jiawen Zhang '17, Madelyn Akers '18
Sponsor: Dr. Steve Alexander, Physics Department

The overuse of fertilizer is a prevalent issue in the agricultural industry. Not knowing the exact contents of soil is the main reason why this occurs. Some farmers have chemical tests taken, which is time consuming and expensive. Other farmers simply have a perception of the condition of the soil they utilize. This obliviousness to the chemical composition of the agricultural soil has both environmental and economic consequences. To solve this problem, we developed a rover that autonomously obtains information about the examined soil. Roverine is controlled by several Arduino microcontrollers with code developed in the lab. This robot was constructed in an open, cart-like design to allow space for its motors, a large battery, and the electronics that instruct it. The rover uses a GPS-compass system to navigate and a garden probe to measure soil quality. This self-sufficient rover can accurately find a location specified by the user and measure and record the soil quality at that coordinate. If adopted, Roverine could reduce environmental contamination and productively optimize crop yields.

146. High Temperature Heat Pump / Thermal Battery Cell
Stephan Meyer '17
Sponsor: Dr. Steve Alexander, Physics Department

A thermal battery that can efficiently store heat energy for long periods of time could be used to supply hot air to a Stirling engine and thus generate electricity when needed. Thermal batteries require a substance with a high specific heat to store large amounts of heat energy without decomposition. Similarly, high-quality insulation is needed to maintain high temperatures inside the battery for long periods of time. There are two technical problems that earlier thermal batteries have encountered. One, the stainless steel shot particulate was too small. The size of the particulate is important because if it is too small then air cannot efficiently travel between the particulate, which limits the thermal conductivity of the cell. Additionally, previous thermal batteries lacked a pump that could circulate air at the target temperature of 1200 degrees Fahrenheit. The goal of this project is to design a high temperature pump that can be used to operate and test a high temperature thermal battery.

147. Gauging the Political Efficacy of those from Border Communities
Camille Martin ’19
Sponsor: Dr. Emily Sydnor, Political Science Department

In this research, I hypothesize that if an individual has been raised in a border community, then they are more likely to be aware of current political discourse regarding immigration because these policies have potential to directly impact them or a person that they know. Literature that pertains to this hypothesis previously suggests that people’s political knowledge and/or behavior is shaped by their social milieu. This hypothesis will be tested by comparing results of an identical survey given to two different populations, those from border communities and those who are not from these communities. I also expect that if an individual was raised in a border town, then the individual will be more likely to be politically engaged in some way other than voting (such as educating through door to door platforms or protesting) to express individual beliefs and ideology largely influenced by border identity.

148. Examining the Relationship Between Attachment, Psychopathic Traits, and Sexual Fantasy
Madison Tillery ’17, Parker Kell ’17, Jennifer McAtee ’18, Hannah Wicklund ’17, Eric Blumenschein ’17, Victoria Garza ’17
Sponsor: Dr. Bryan Neighbors, Psychology Department

In forensic psychology, paraphilic sexual fantasies (both atypical and extreme) are believed to motivate deviant sexual behavior, yet no conclusive theory concerning the etiology of these paraphilic fantasies exists. While paraphilic sexual fantasies are commonly experienced, anecdotal reports suggest that they are rarely acted upon. Recent research has demonstrated a correlation between the type and frequency of paraphilic fantasies experienced and levels of attachment security. Research on paraphilic sexual behavior has indicated that psychopathic personality traits correlate positively with the rates of incarceration for sexual crimes, recidivism, and paraphilic fantasies. In addition, a link between attachment insecurity and psychopathy has been established; avoidantly attached individuals are more likely to develop traits associated with primary psychopathy and anxiously attached individuals are more likely to develop traits associated with secondary psychopathy. Therefore, the current study hypothesized that attachment avoidance and anxiety would positively correlate with paraphilic sexual fantasies while being mediated by levels of primary and secondary psychopathy. Utilizing Amazon’s Mechanical Turk Program, a self-report questionnaire was completed through Google Forms by 338 adults in the U.S. assessing their attachment security, frequency of paraphilic fantasies, and levels of psychopathic traits. Using multiple regression, attachment avoidance was found to significantly correlate with paraphilic fantasies ($p < .042$), but not when controlling for primary psychopathy ($p < .60$) - supporting mediation. Attachment anxiety was found to significantly correlate with paraphilic fantasies ($p < .005$), but not when controlling for secondary psychopathy ($p < .280$) - again supporting mediation.

149. An Acute, Non-Therapeutic Dose of Methylphenidate Disrupts Partner Preference in Female Rats
Alexa Gomez ’17
Sponsor: Dr. Fay Guarraci, Psychology Department

The present study was designed to test the effects of an acute, high dose of methylphenidate (MPH; trademarked as Ritalin) on sexual behavior in female Long-Evans rats. In Experiment 1, naturally cycling subjects in estrus were tested for partner preference 20 min after receiving an i.p. injection of MPH 10.0 mg/kg (n=8) or saline (n=7). During the partner-preference test, female subjects were given the choice to interact with a sexually active male stimulus or a sexually receptive female stimulus. Physical contact was limited by placing the stimulus animals behind a wire mesh during the no-contact phase of the test, whereas physical contact was not limited during the contact phase. Female subjects that received MPH spent significantly less time with the male stimulus than the saline-treated subjects during both phases (no-contact and contact) of the partner-preference test. This acute dose of MPH did not affect visits to the female stimulus; however, MPH-treated subjects made fewer visits to the male stimulus than the saline-treated subjects during the contact phase of the partner-preference test. Consistent with previous findings, MPH increased line crossings when subjects were tested in an open field immediately after the partner-preference test. In Experiment 2, female subjects were ovariectomized (OVX), primed with estradiol benzoate and progesterone, and tested for partner preference 20 min after receiving an injection of MPH 10.0 mg/kg (n=8) or saline (n=8). Similar to the results of Experiment 1, OVX hormone-primed subjects that received MPH

spent significantly less time with the male stimulus than the saline-treated subjects during both phases of the partner-preference test. Although MPH-treated subjects were sexually receptive, they displayed fewer proceptive behaviors (i.e., hops and darts) than saline-treated subjects. Two-weeks later, the subjects from Experiment 2 were tested in an open field 20 min after receiving an injection of MPH 10.0 mg/kg or saline (counterbalancing previous MPH exposure). Once again MPH increased locomotor activity. In conclusion, the effects of MPH were equally as robust in naturally cycling subjects as the effects in the more commonly used OVX-hormone primed subjects. The results of the present study suggest that an acute, non-therapeutic dose of MPH disrupts approach and interest in a male stimulus during a test of partner preference. This avoidance of the male stimulus may be the result of a decrease in the incentive value of a sexual partner.

150. Feminism and Attractiveness: Evidence that Feminist Speech Boosts Attractiveness in Females and Lowers Attractiveness in Males
Julie Swets ’18
Sponsor: Dr. Laura Hennefield, Psychology Department

Perceptions of attractiveness have biological and social underpinnings. The present study tested whether endorsing one social viewpoint -- feminism -- affects how attractive one is perceived to be. In a 2x2 mixed-subjects design, 24 participants listened to audio-recordings while viewing a photograph of the person said to be speaking. Across two trials, participants heard a male and female present either feminist ideas or ideas neutral to feminism (humanistic ideas) and rated the attractiveness of each. A significant interaction was found between gender and content: The female feminist was rated more attractive than the female neutral speaker, whereas the male neutral speaker was rated more attractive than the male feminist. These results suggest that displaying feminist ideals leads to females being viewed as more attractive, but males being viewed as less attractive. Future researchers should investigate how differences in attractiveness resulting from endorsing feminism affect mating strategies and interpersonal compatibility.

151. Blogging a Way Out: A Study of Depression and Tumblr Usage
Sarah Butterworth ’19, Allison Cook ’18, Rachel Adams ’19
Sponsor: Dr. Traci Giuliano, Psychology Department

Social media use seems to be ubiquitous in our current society. Indeed, 71% of adults on the Internet use at least one social media platform, and many use these platforms as a way of connecting with a community (Cavazos-Rehg et al., 2016; Duggan & Smith, 2014). Social media may offer an avenue for people dealing with depression to foster a beneficial sense of community (Pantic, 2014). As such, the goal of the current study was to examine the relationship between depression and usage of the social networking site, Tumblr. A sample of 98 predominately white college students (53 men, 45 women) completed an anonymous self-report questionnaire that assessed individuals’ depression and hours of social media usage per day. Consistent with predictions, the more depressed people were, the more hours they spent on Tumblr, $r(88) = .20$, $p = .027$. Higher depression scores also correlated with a higher perceived enjoyment of Tumblr, $r(71) = .23$, $p = .028$. Interestingly, our results indicated that depression was a predictor of Facebook usage, $r(94) = .22$, $p = .029$, and Instagram usage, $r(93) = .23$, $p = .027$, but not the usage of YouTube, $r(90) = .14$, ns, or Pinterest, $r(89) = .14$, ns. Our findings support the idea that people seek community in particular social networking sites that permit more personal sharing and interaction through avenues such as commenting. In short, people with depression may efficiently seek help through certain social media communities.

152. Emoji Manners: Perceptions of Students and Teachers as a Function of Emoji Use in Emails
Allison Cook ’18, Daniella Orces ’19, Rachel Allen ’19, Winston Cook ’19
Sponsor: Dr. Traci Giuliano, Psychology Department

One critique of text messaging and online communication is that it leaves out the emotion of face-to-face communication, which in turn can lead the text-based message to be interpreted in different ways. As an attempt to rectify problems stemming from a lack of emotional cues, emojis are often used in online communication. The correct interpretation of messages is important in many contexts, but can be especially vital in work or school settings where communication can be easily misinterpreted. However, there is little research on how the use of emojis in academic emails influences the perceptions of students and teachers. To address this gap, the current

study explored the perceptions of emojis used in an email sent from either a teacher or a student. A 2 (Type of Sender: Student or Teacher) x 2 (Emoji Use in Email: Present or Absent) between-subjects experiment was conducted in which 78 undergraduate students (38 women, 40 men) read an email sent to a student and were asked to rate their perceptions of the sender and the email. Contrary to predictions, both students and teachers were perceived as more likeable if they used emojis in an email than if they did not use emojis. However, both students and teachers were perceived as less appropriate if they sent emojis in an email than if they did not use emojis. These results suggest that there is a challenge in balancing likeability and appropriateness in an academic context.

153. Is He Flirting with Me?: How Gender of a Sender Influences Emoji Interpretation
Sarah Butterworth '19, Justin White '18, Lizette Cantu '19, Kyle Fraser '18
Sponsor: Dr. Traci Giuliano, Psychology Department

Emojis are prevalent additions to modern-day communication that help enhance and relay a given message's emotional content (Derks, Bos, & von Grumbkow, 2008). However, there is often ambiguity concerning the perceived meaning and intent of different emojis (Miller, Thebault-Spieker, Chang, Johnson, Terveen, & Hecht, 2016). The present study sought to determine perceptions of a message's sender as a function of gender and emoji use in text messaging. As a part of a 2 x 2 between-groups experimental design, a sample of 80 (39 men, 40 women, 1 unreported) predominately White college students completed a questionnaire assessing perceptions of appropriateness, as well as likability and promiscuity, of the sender of a hypothetical text message that differed both in gender of the text message sender and the affectionateness of the emoji used in the text message. Consistent with predictions, senders of texts containing affectionate emojis were perceived as more appropriate, more likable, and less promiscuous when texts were sent from women than when they were sent from men. However, senders of texts with non-affectionate emojis were seen as equally appropriate, equally promiscuous–and surprisingly, less likable– when the texts were sent from women than when they were sent from men. Taken together, our results indicate that gender and emoji choice can interact to create either positive or negative perceptions of a sender, and therefore, in order to communicate efficiently, people should consider how emoji choice could impact the reception of their message.

154. Which Strategies Do People Use to Introduce Sexual Novelty into Their Relationships?
Aaron Garcia '17
Sponsor: Dr. Traci Giuliano, Psychology Department

The current study sought to better understand how individuals might successfully introduce sexual novelty into their relationships, and thus increase long-term relationship satisfaction. Azjen's (1991) Theory of Planned Behavior (TPB) postulates that attitudes towards a behavior, social norms, and perceived efficacy each contribute to intention to engage in that behavior, which subsequently predicts future behavior. Thus, we hypothesized that participants would be more likely to report using a novelty-initiation strategy that they had a positive attitude toward, found socially acceptable, and perceived as easy to use. Participants (n = 166), all of whom had been in a committed relationship for 6 months or longer, completed a survey that included descriptions of 9 novelty-initiation strategies (i.e., directly asking, hinting, pressuring, reciprocity, direct initiation, using alcohol, using small requests, describing social norms, and mutual participation). Specifically, they rated their attitudes toward, past experience with, and intention to use each strategy in the future. As predicted, both liking of a strategy and its perceived efficacy (i.e., ease of use) positively predicted willingness to use a strategy. However, perceptions of the social acceptability of a strategy did not predict likelihood of use. Overall, participants most frequently reported using the directly asking novelty-initiation strategy in relationships. Taken together, our results suggest that initiating sexual novelty may be unexpectedly complex. Indeed, there is likely no single best strategy for all individuals. Nevertheless, we hope that our findings can help individuals in long-term relationships to combat sexual boredom by incorporating novelty into their sexual routines.

155. The Battle Against Bedroom Boredom: Sexual Novelty and Sexual Satisfaction in Relationships
Aaron Garcia '17
Sponsor: Dr. Traci Giuliano, Psychology Department

Previous research speculates that sexual novelty may reinstate the sexual arousal of individuals in long-term sexual relationships (e.g., Humphreys & Newby, 2010). Thus, it seems plausible that couples who engage in "fresh" sexual activities may be more likely to avoid sexual boredom. To test this hypothesis, we investigated the relationship between sexual novelty and sexual satisfaction in long-term, committed relationships. Participants completed an online survey that assessed their sexual satisfaction, relationship satisfaction, and levels of sexual novelty in their current relationship. As predicted, we found a significant positive relationship between novel sexual activity and sexual satisfaction. Moreover, sexual novelty was found to uniquely contribute (i.e., after controlling for relationship satisfaction) to sexual satisfaction. Our results substantiate the notion that sexual novelty is an important component of sexual satisfaction. Taken together, our findings contribute to the broader understanding of sexual satisfaction and highlight the importance of sexual novelty in relationships.

156. Development and Validation of a Brief Measure of Sexual Novelty in Relationships
Sarah Matthews '17, Kayleigh Thomas '18, Marissa Rosa '18, Brooke Swift '18, Mattie Mills '17, Aaron Garcia '17, Skylar Smith '16, Nicki Ahearn '16, Casey Niblett '16
Sponsor: Dr. Traci Giuliano, Psychology Department

As an essential component to combating sexual boredom and keeping sex fulfilling and exciting, sexual novelty is a relational characteristic that warrants considerable empirical attention; however, there is relatively little research on the role that sexual novelty plays in long-term, committed relationships. As such, we sought to develop a brief, reliable measure of sexual novelty to stimulate additional research in this area. Two samples of participants were recruited through Amazon's Mechanical Turk to complete an online survey about their sexual behavior in relationships. All participants had been in committed romantic relationships for six months or longer. The first sample consisted of 166 participants (M age = 37.2) who completed the initial 10-item Sexual Novelty Scale (SNS) along with other, related measures. The second sample included 352 participants (M age = 34.8) who completed the shortened 5-item SNS (e.g., "Sexual experimentation is an important part of our relationship") as part of a larger study; 244 of these participants completed the 5-item SNS again approximately two weeks later. Across the two samples, the unidimensional Sexual Novelty Scale (SNS) demonstrated high internal consistency and test-retest reliability, as well as convergent and divergent validity. Our results indicate that the 5-item Sexual Novelty Scale (SNS) is a brief, reliable, and valid measure of the extent to which partners in committed romantic relationships engage in sexually novel behavior.

157. Not Cool, Dude: Perceptions of Solicited vs. Unsolicited Sext Messages from Men and Women
Sarah Matthews '17, Kayleigh Thomas '18, Maddie Straup '18, Martin Martinez '18
Sponsor: Dr. Traci Giuliano, Psychology Department

As a burgeoning new field, research on sexting has addressed the gendered experiences of receiving sext messages (Burkett, 2014; Dir et al., 2013; Jacobs & Wet, 2011). However, previous research has failed to address whether ideas of masculinity and gender roles influence how others perceive sext messages as a function of different characteristics, such as gender of the sender and solicitation of the sext message. To address this gap, the present study used a two-way between-subjects experimental design to determine participants' perceptions of several sexting scenarios. Specifically, 80 undergraduates (40 women, 40 men) at a predominantly White liberal arts university in Texas read a vignette in which either a female or a male target sent a solicited or an unsolicited sext message to an opposite-sex acquaintance. After reading the vignette, the participants reported their perceptions of the situation and the sender of the sext message. As predicted, women who sent unsolicited sext messages were rated as more appropriate than were men who sent unsolicited sext messages. Interestingly, however, men who sent solicited sext messages were perceived as more appropriate than were women who sent solicited sext messages. These findings suggest that aggressive masculinity in the form of a man sending an unsolicited sext message to a woman may be more likely to be judged as a form of sexual harassment. By contrast, cultural ideals of masculinity seem to dictate that men should react positively to sexual advances from women, regardless of whether such advances are solicited or not.

158. Encouraging Erotic Variety: The Effects of Persuasion on Attitudes Toward Sexual Novelty
Marissa Rosa '18, Sarah Matthews '17, Kayleigh Thomas '18, Brooke Swift '18, Mattie Mills '17
Sponsor: Dr. Traci Giuliano, Psychology Department

Engaging in sexual novelty is important to ensure happy and healthy relationships. Thus, the current study sought to examine whether attitudes and behaviors toward sexual novelty could be influenced by the introduction of additional information about sexual novelty. As part of a larger study, 352 participants (204 female, 146 male, 2 unreported; M age = 34.8) in committed relationships of 6 months or longer were recruited online through Amazon's Mechanical Turk to complete a "sexual relationships survey"; 244 of them completed a follow-up survey two weeks later. As part of a one-way between-subjects design, participants were randomly assigned to a control group or to one of four experimental conditions in which they read different versions of information about sexual novelty; these manipulations were based on persuasion techniques that (1) included a fear appeal, (2) described a narrative account (story), (3) encouraged plan-making, or (4) provided initiation strategies. Following the manipulation, items on the initial survey measured participants' attitudes toward sexual novelty, and items on the follow-up survey assessed attitudes and behaviors toward sexual novelty. Interestingly, providing people with specific strategies for initiating sexual novelty (vs. using fear appeals, narrative accounts, or plan-making) most effectively altered attitudes and behaviors toward sexual novelty. Our findings indicate that certain persuasive tactics are effective at altering perceptions of sexual novelty and increasing novel intimate behavior between relationship partners.

159. More Than Missionary: Predictors and Correlates of Sexual Novelty in Committed Relationships
Kayleigh Thomas '18, Marissa Rosa '18, Brooke Swift '18, Mattie Mills '17, Sarah Matthews '17
Sponsor: Dr. Traci Giuliano, Psychology Department

Research has shown that novelty increases relationship satisfaction in romantic relationships (Aron et al., 2000); however, there is a dearth of research examining sexual novelty in long term, committed relationships. As such, the current study sought to identify correlates and predictors of sexual novelty. As part of a larger study, 352 adults, all of whom had been in a relationship for six months or longer, participated in an online study investigating "sexual relationships". In addition to the level of sexual novelty in participants' current relationship, we measured various relationship characteristics, motivational factors, and behaviors. Perhaps not surprisingly, the longer participants had been in their relationship (and the longer the couple had been sexually active), the less sexual novelty they reported; participants in longer relationships also reported less desire for sexual novelty, less willingness to initiate novelty, and less willingness to comply with novelty initiated by a partner. However, partners who reported more egalitarianism in, and commitment toward, their relationship reported higher levels of sexual novelty and more willingness to initiate novelty. Furthermore, partners who reported more commitment toward their relationship were more willing to comply with sexual novelty. Finally, several behaviors were also positively correlated with sexual novelty: relationships with higher levels of sexual novelty reported higher levels of sexual frequency, pornography usage, and sexual fantasies. In conclusion, we have identified predictors and correlates of sexual novelty and hope that our results stimulate future research that will augment our understanding of the role that sexual novelty plays in relationship satisfaction.

160. LOL, ILY: The Effects of Textspeak and Gender on Dating Profile Perceptions
Marissa Rosa '18, Brooke Swift '18, Helena Lorenz '18
Sponsor: Dr. Traci Giuliano, Psychology Department

The present study examined the effects of textspeak and gender on the perceived attractiveness of a fictitious Tinder profile. An experimental packet, which investigated perceptions of online dating, was distributed to 96 undergraduate students (48 women, 45 men, 3 unreported) at a predominantly White liberal arts college in Texas. Specifically, participants viewed a screenshot of either a male or female Tinder profile that included an About Me section which was either written in standard English (e.g., "I love to write") or textspeak (e.g., "i luv 2 write"). A main effect of textspeak was predicted, such that profiles with standard English would be perceived as more attractive than would profiles with textspeak. In addition, an interaction between textspeak and target gender was expected; that is, it was hypothesized that female targets who used textspeak in their About me would be perceived as equally attractive as female targets who used standard English. By contrast, we predicted that male targets who used textspeak in their about me would be perceived as less attractive than male targets who used standard English. Although there was not a significant interaction between textspeak and target gender on perceptions of profile attractiveness, there was a marginally significant main effect of textspeak. That is, people

perceived profiles written in standard English as somewhat more attractive than profiles written in textspeak. Thus, social media users should be conscientious of the messages they share with others, not only of the content, but also of the grammar that they use.

161. Criminalizing the Crazy: Mental Health, Gender, and the Criminal Justice System
Marissa Rosa ’18
Sponsor: Dr. Elaine Craddock, Religion Department

The US prison population has increased by over 500% within the past 40 years (Carson & Anderson, 2016). Previous research has argued that this rise in imprisonments is a result of the prison industrial complex and its harmful cycle of exploitation. Interestingly, approximately three quarters of women, and one half of men, in prisons have mental health problems. Despite these statistics, there is a dearth of dialogues on the effects of gender and mental health on people’s experiences within the criminal justice system. It seems reasonable that this particularly vulnerable population is being used to make a profit and satisfy the needs of the prisons. However, corporations are the only beneficiaries of these institutions. The individuals who inhabit prisons do not benefit because rehabilitation is not taken into consideration when sentencing occurs (Goralski, 2015); thus, prisons do not serve as reformative centers for anyone, much less for populations who need treatment and counseling services. As such, I plan to explore the intersection of gender and mental health within prisons. Specifically, I hope to identify the role of gender and mental health in an individual’s experience in the criminal justice system (e.g., behavior upon arrest, sentencing, mental healthcare in prisons).

162. Native Alaskan Experiences
Audrey Neal ’17
Sponsor: Dr. Elaine Craddock, Religion Department

Native Americans have, historically, had ideas about gender that differ from the white communities around them. However due to the U.S. governments control of Native American and Native Alaskan lands, the Native communities have problems with trying to enforce laws on their land. Federal, state, and local laws all have a say in what and how Native Americans legislate their own territories. Where a crime takes place also is a decisive factor in whether or not Native Alaskans can decide what happened to the perpetrator of the crime. This lack of control of what happens in their own territory strips them of their sovereignty and ability to protect their people. This paper will examine non-Native legislation of Native Alaskan lands through studies and journals, as well as Native Alaskan construction of gender and Native laws concerning gendered violence. Examining Native Alaskans’ lack of sovereignty and its repercussions on their people may allow others to begin to focus on more concrete moves to achieve fuller Native autonomy.

163. Bougie Betches: Bourgeois Feminist Rhetoric in the Age of Hillary Clinton
Elizabeth Wright ’18
Sponsor: Dr. Elaine Craddock, Religion Department

In the 2016 Presidential election, Democratic candidate Hillary Rodham Clinton was poised to break the highest “glass ceiling” in American society. When Republican Donald Trump received the necessary Electoral College votes, it was evident that hashtag ‘I’m With Her’ wasn’t enough. Various scholars assume that America was unprepared for the first female president. However, these assessments fail to consider the nature of the Clinton campaign, the rise of identity politics since the 2008 election, and the pitfalls of white liberal feminism. This paper will examine the relationship between bourgeois feminist rhetoric and Hillary Clinton’s second failed attempt at the White House. “Bourgeois feminism” will be defined as a brand of female empowerment that seeks to catapult women into the highest ranks of capitalist society while ignoring the intersectional nature of the gendered struggle. It pits itself as an inclusive feminist fight, yet is frequently elitist, ablest, and imperialist. Through a game theory analysis of conservatism, feminism, institutionalism, and liberalism, this project will offer insight into the errors of faux feminist politics and determine the necessary steps needed to have the first female president.

164. “Everything is Real, Especially Our Fictions”: Mythology, Comic Books, and DC Comics’ Rebirth
Kevin Gregory ’17
Sponsor: Dr. Laura Hobgood, Religion Department

The idea of mythology, or as T.H. Gaster put it once, “any presentation of the actual in terms of the ideal,” permeates our lives in very specific ways. One cannot live their day without being reminded of the myths present in their family, community, nation, religion, and life in general. In this study I analyze the ways in which the comic book medium is mythological and tells these mythologies unapologetically. In doing so, I laid out a working framework for defining mythology based on the work Mircea Eliade, Claude Lévi-Strauss, Joseph Campbell, and Wendy Doniger. From there I delved deeply into the history of comics before finally taking a look at DC Comics’ newest publishing initiative, Rebirth, as a perfect example of the mythology of superheroes and analyzed the one-shot that began the initiative, DC Universe: Rebirth Special #1. In Rebirth, DC Comics made a return to hope, optimism, legacy, and love, ideas that enveloped their stories and made characters like Superman, Batman, and Wonder Woman cultural heroes and icons. In recent years many of these aspects have gone to the wayside thanks to dark and gritty approaches to heroes based on works like Alan Moore’s Watchmen. I concluded my capstone with the idea that our myths matter since we live in this world of stories, or as Grant Morrison, a comic book writer put it, “We live in the stories we tell ourselves.” Therefore, everything is real, especially our fictions, so we have to choose them wisely.

165. Commercializing Christ: Jesus, The Son of Gaud, at the Holy Land Experience
Michelle Hershberger ’17
Sponsor: Dr. Laura Hobgood, Religion Department

Though “religion” and “amusement” are not commonly associated terms, Orlando’s Holy Land Experience (HLE) combines the two with its Bible based amusement park. Located in the theme park capital of the world and possessing many features of a traditional theme park, including costumed characters, theatrical productions, and grandiose displays, the HLE considers itself to be a competitor in the amusement park market. Unlike other amusement parks, the HLE features healings, baptisms, and communion, along with other distinctly religious rituals and practices, with Biblical characters, most notably Jesus himself. Using frameworks of sacred space, material culture, and simulation alongside my own experience as a visitor to the park, I analyzed how HLE carried out its self-proclaimed purpose of education, inspiration, and history to deliver an authentic Bible based experience to visitors. What happens when you condense 4,000 years of distinctive and complex histories into a Bible based amusement park? How do Christian evangelism, representations of Jewish history, and commercialism interact to create a theological amusement park? How can the lines between the real and the imagined be understood in this context? I argue the HLE uses space within the park, attractions, productions, and character actors to present a specific, targeted, and particularly nuanced narrative about Christianity and the life of Jesus to visitors. I suggest the experience is powerful and transformative for many visitors because of the way the HLE places park-goers in the narrative, giving a direct and physical dimension to the belief system represented.

166. Are You Going to Eat That?: An Analysis of Food and Eating In United States Reform Judaism
Eleanor Siff ’17
Sponsor: Dr. Laura Hobgood, Religion Department

My research focuses on how food practices are informed in U.S. Reform Judaism. While many people think Reform Judaism has lost more traditional aspects of Jewish practices, many people in the Reform tradition are making an effort to reclaim Jewish traditions and practices and find out what they are asking of them in modern times. I look at ancient Jewish practices and modern Jewish communities to see how ancient traditions are being reinvented and reinterpreted to have meaning in modern times. To do this I investigated ancient Jewish texts and rabbinical writings to find various food-based traditions in these texts. Then I examined Reform communities in the U.S. to see how they interpret these texts and reinvent them. For example, the Bal Taschit ethic, which implies environmental responsibility and stewardship on practitioners of Judaism, has been reimagined. Contemporary Reform Jews, for instance, shop locally, visit farmers markets, and include sustainable food in their diets, viewing these practices as religiously required.

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