

Southwestern University
19th Annual



**RESEARCH &
CREATIVE
WORKS
SYMPOSIUM**

April 10, 2018

PROGRAM

2018
RESEARCH AND CREATIVE WORKS
SYMPOSIUM
Southwestern University
Georgetown, Texas

Project Coordinator
Christine C. Vasquez
Office of the Dean of the Faculty

Southwestern University

OFFICE OF THE PRESIDENT


April 10, 2018

Welcome to Southwestern University's 19th Research & Creative Works Symposium, featuring the work of students from across the University's many fields of study.

Since its inception in 2000, this event has showcased student learning and celebrated the University's commitment to student inquiry and signature work. The Symposium highlights the creativity, intelligence, hard work, and collaborations of our students. As you will see, Southwestern students, mentored by the University's outstanding faculty, are prepared to take on their world and meaningfully contribute to it.

This year's Symposium features 244 presenters, mentored by 50 faculty and staff from across the University's departments and programs. These students will give poster, panel, and oral presentations, show art and other creative work, share the results of capstone research, and discuss experiential learning projects. I invite you to sample widely from this rich breadth of work, and I hope you will enjoy it. I know it will educate, challenge, and inspire you.

Sincerely yours,



Edward Burger
President and Professor

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

Table of Contents

SCHEDULE AT A GLANCE	6
MAP OF ACTIVITIES.....	7
PANEL ABSTRACTS	8
CREATIVE WORKS AND EXHIBITION ABSTRACTS	13
ORAL ABSTRACTS	18
EXPERIENTIAL LEARNING POSTER ABSTRACTS.....	40
POSTER ABSTRACTS.....	47
INDEX.....	61

SCHEDULE AT A GLANCE

MONDAY, APRIL 9, 2018

4:00-6:00 pm Registration Alma Thomas Fine Arts Center

TUESDAY, APRIL 10, 2018

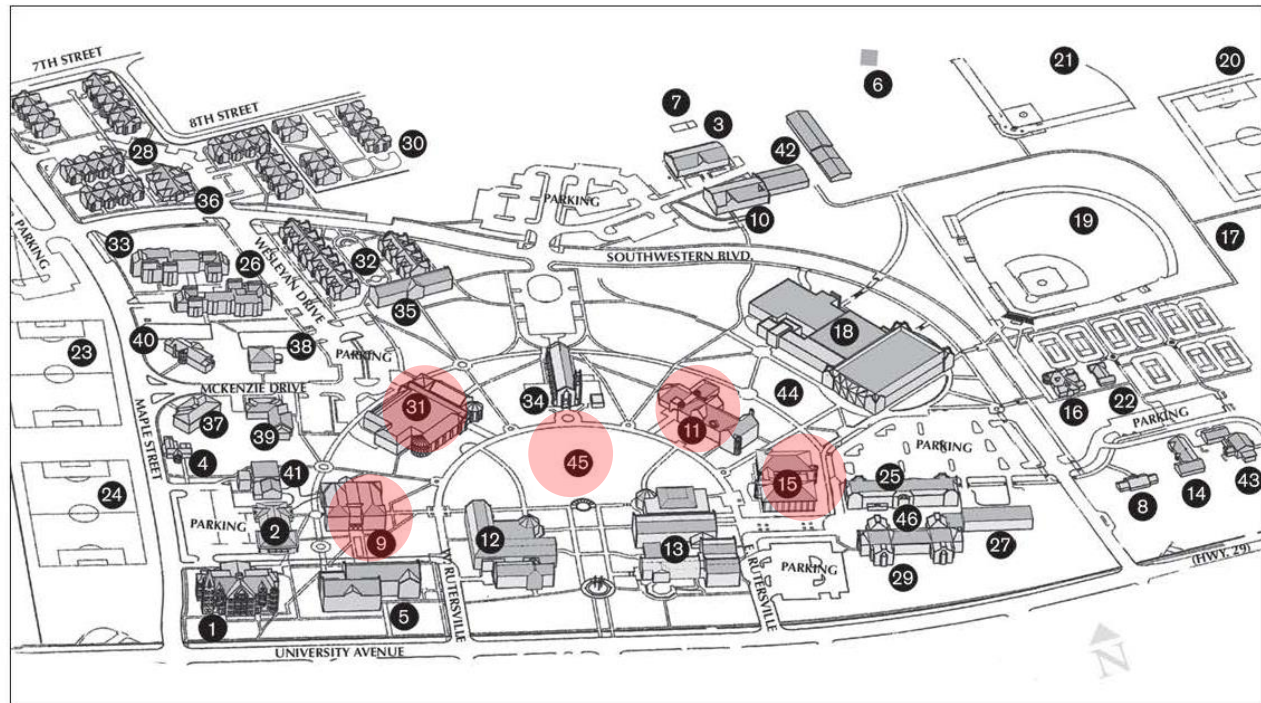
9:00-2:00 pm	Information and Volunteer Check-in Table	Bishops Lounge
9:45-10:00 am	Introduction and Welcoming Remarks Dr. Julie Sievers, Director of Teaching, Learning, and Scholarship	Roy H. Cullen Academic Mall
10:00-11:00 am	Dr. Edward Burger, President of Southwestern University Creative Works and Exhibition	Alma Thomas Fine Arts Center
	Performance	Caldwell-Carvey Foyer
10:00-12:00 pm	Panel Presentations	Lynda McCombs Ballroom, Marsha Shields Ballroom, & Mood-Bridwell Atrium
	Experiential Learning Symposium: To Make Meaning and Make a Difference	Charles & Elizabeth Prothro Center for Lifelong Learning
12:00-1:00 pm	Lunch Break	Commons Dining Hall
1:00-2:00 pm	Panel Presentations	Mood-Bridwell Atrium
1:15-4:00 pm	Oral Presentations	FW Olin Building - Classrooms
	Short Poem Recitations	FW Olin Building - Lobby
4:00-5:00 pm	Poster Presentations	Bishops Lounge
5:00-5:30 pm	Celebration (<i>refreshments served</i>)	Bishops Lounge

MAP OF ACTIVITIES



SOUTHWESTERN UNIVERSITY

CAMPUS MAP



ACADEMICS & ADMINISTRATION

1. Roy and Lillie Cullen Building
2. The Wilhelmina Cullen Admission Center
3. Rufus Franklin Edwards Studio Arts Building
4. Campus Police
5. Fondren-Jones Science Center
6. Fountainwood Observatory
7. Greenhouse and Community Garden
8. McCook-Crain Building
9. **Mood-Bridwell Hall**
10. Joe S. Mundy Hall
11. **E.W. Olin Building**
12. A. Frank Smith, Jr. Library Center
13. Alma Thomas Fine Arts Center
14. Kyle E. White Building
15. **The Charles and Elizabeth Prothro Center for Lifelong Learning**

ATHLETICS & RECREATION

16. Julie Puett Howry Center
17. Athletic Field House
18. Corbin J. Robertson Center
19. Rockwell Baseball Field
20. Soccer Fields
21. Taylor-Sanders Softball Field
22. Marvin D. Henderson, Sr. Tennis Courts
23. Robert K. Moses, Jr. Field
24. Snyder Athletic Field

RESIDENCE & STUDENT LIFE

25. Brown-Cody Residence Hall
26. Herman Brown Residence Hall
27. Ernest L. Kurth Residence Hall
28. Grogan & Betty Lord Residence Hall
29. J.E. & L.E. Mabree Residence Hall
30. Dorothy Manning Lord Residential Center (includes Community Room)
31. **Red & Charline McCombs Campus Center**

32. Charline Hamblin McCombs Residential Hall
33. Moody-Shearn Residence Hall
34. Lois Perkins Chapel
35. Martin Ruter Residence Hall
36. Sharon Lord Caskey Community Center (including Sorority Chapter Rooms)

FRATERNITIES

37. Kappa Alpha House
38. Kappa Sigma House
39. Phi Delta Theta House
40. Pi Kappa Alpha House

PHYSICAL PLANT

41. Central Plant
42. Physical Plant & Warehouse

OTHER

43. Turner-Fleming House
44. J. N. R. Score Quadrangle
45. **Roy H. Cullen Academic Mall**
46. Laura Kuykendall Garden

11/15/17

PANEL abstracts

1. **Football and Italy: Reflections on Intercultural Learning**
Landry Bray '19 , Tyler Adams '18, Grayson Beck '18 , Niklis Kelly '18, Tate Schorr '20, Braydyn Gillham '20, and Dr. Erika Berroth
Sponsor: Dr. Erika Berroth, Modern Languages and Literatures Department (German)
10:30-11:00 am – McCombs Campus Center, Lynda Ballroom

In the summer of 2017, Southwestern's Football program offered a short term embedded experience abroad for student-athletes. The program combined athletic training, competitions, and cultural learning at different sites in Italy with pre-departure and re-entry academic components. Participants completed critical/analytical work, creative writing and visual representation assignments, reflections, and digital story telling projects, all of which were informed by their research and experiential learning. Presenters on the panel now offer their reflections on the kinds of experiences and tasks that resulted in their most memorable and valuable intercultural learning experiences. Intercultural learning involves building knowledge, skills, and attitudes that help us understand ourselves as agents in and products of our own cultures of origin, and that enable us to understand and interact with people from other cultures. Developing intercultural knowledge and competence are foundational to seeing ourselves as members of a world community, to knowing that we share our future with others, and to acting accordingly. Participants on this panel will highlight the challenges and benefits of intercultural learning through their experiences before, during, and after the Italy program.

2. **Contemporary German Cinema: Challenges for Intercultural Learning**
Anastasia Barrera '19, Aidan Buck '19, Christian Hansell '19, Claire Harding '20, Andrew Jezisek '21, Grant Jones '18, Weston Kimbro '19, Peri Kincaid '18, Bryan Lu '18, Wil Mekelburg '20, Ryan Moriarty '18
Sponsor: Dr. Erika Berroth, Modern Languages and Literatures Department (German)
11:00-11:30 am – McCombs Campus Center, Lynda Ballroom

German Film Studies offer strong interdisciplinary links. Studies of cinema in contemporary Germany culture reflect both the range and diversity of Germany's culture, history and society, and the diversity of approaches to making meaning of films. Students in our German Film class increase their language proficiencies integrated with intercultural skills and a deep understanding of key issues and developments in Germany's past and present. Students completing research projects on German cinema offer insights from their viewing and research experiences on a range of films, reflecting on intercultural learning facilitated by the genre. Topics include representations of ability, gender, animals, age, race, ethnicities, health, war, education, power structures, prejudice, and social justice. The focus is on two directors and their work: films by Caroline Link, director of *Beyond Silence* (1996), and *Nowhere in Africa* (2001); and Fatih Akin, director of *In July* (2000) and recently of *In the Fade* (2017). Contributors to the panel introduce important insights about individual films, the value of studying culture through film, the interdisciplinary nature of approaches to film studies, and the enjoyment of learning through a medium that engages affect and intellect.

3. **Life Together at Southwestern: An Interfaith Perspective**
Emma Walsh '18, Susan Wright '19, Zeynep Guven '19, Leanne Johnson '20 and Dr. Banafsheh Madaninejad
Sponsor: Rev. Megan Danner, Office of Spiritual and Religious Life
11:30-12:00 pm – McCombs Campus Center, Lynda Ballroom

During this presentation, the panelists will discuss what an interfaith community can and should look like. All presenters attended an Interfaith Leadership Conference over the summer, and will be using that experience to discuss how Southwestern can grow, and what Southwestern has done to be more inviting to the multitude of spiritual and world-views on campus.

4. Who Runs the World? Women!

Valeria De La Garza '19, Daniella Orces '19, and Kylie Hunt '18

Sponsor: Dr. Catherine Bourland Ross, Modern Languages and Literatures Department (Spanish)

10:30-11:00 am – McCombs Campus Center, Marsha Shields Ballroom

While historically immigration has been the domain of men, in the past few decades, women have added their massive numbers to this global movement across international borders. This presentation will explore the reasoning for women's immigration into Spain with a focus on Ecuadorian and Moroccan women. We decided to analyze these two countries due to their contrasting statistics of female immigration based on the cultural differences. We will analyze statistics specific to women who immigrate from Ecuador and Morocco, examining job opportunities available to them. We found this specifically interesting given their position within their native country in contrast to the job opportunities and cultural freedom offered to them in Spain. In order to better establish this contrast, we will provide a general overview of the reasons that women emigrate from their native country. Then we will discuss the particular situations of Morocco and Ecuador. We will suggest possible studies that explore further advances in female employment and support in Morocco and Ecuador.

5. Fortress Europe: Spain as Gatekeeper of the European Union

Abby Toppins '18, Andrew Landon '18, and Lizette Cantu '19

Sponsor: Dr. Catherine Bourland Ross, Modern Languages and Literatures Department (Spanish)

11:00-11:30 am – McCombs Campus Center, Marsha Shields Ballroom

As a gatekeeper to European entry, Spain is tasked with the responsibility of controlling Europe's borders due to its accessibility from Africa by sea and by land. After years of isolation under Francisco Franco's regime, modern Spain has attempted to integrate into the European Union, utilizing its role as border security as a means of becoming relevant in the EU. As part of the EU, however, Spain attracts immigrants hoping to gain the protection provided by entry into Europe. In order to attain this security, thousands undertake treacherous voyages that claim many lives annually, resulting in empathetic portrayals of immigrants in Spanish media. Alternatively, this illegal entry provides a perceived security risk to European citizens, which leads to negative representations of African immigrants in the Spanish media. Through our presentation of this issue, we will analyze Spain's role as "Fortress Europe" in order to evaluate media representations of those who manage to cross the border.

6. The Experiences of Moroccan Immigrant Students in Spain

Violeta Bueno '19, Karla Perez '19, and Sean Carroll '18

Sponsor: Dr. Catherine Bourland Ross, Modern Languages and Literatures Department (Spanish)

11:30-12:00 am – McCombs Campus Center, Marsha Shields Ballroom

For immigrant children in Spain, school serves as the space not only for education but also for cultural awareness and integration into Spanish society. In this presentation, we will examine the experiences of Moroccan immigrant students in the educational system of Spain, looking at variables such as gender, religion and language. These students often struggle with a smooth integration into their new society. The youth of the students contributes to the sense of confusion that they feel in formulating their identities. They are pulled between the practices of their family and those of their peers, whose attitudes are crucial to making the students feel welcome or not. We find that young Moroccan girls are exposed to greater discrimination, which in turn interferes with their integration in Spanish society. In conclusion, we will offer various suggestions for further studies for the improvement of the immigrant experience in the educational system in Spain.

7. Gun Control and the Golden Rule: An Analysis of Former President Ronald Reagan's Support of the Brady Bill

Rachel Arco '18

Sponsor: Dr. Tim O'Neill, Political Science Department

11:00 or 1:00 pm (TBA) - Mood-Bridwell Atrium

In trying to understand Ronald Reagan's decision to support gun control, this paper asks how was Ronald Reagan's advocacy for gun control in order to decrease gun violence after his assassination attempt in accordance to Thomas Nagel's ethical version of the golden rule? The golden rule is the timeless ethical principle of 'do unto others as you

would have them done unto you.' In March of 1981, President Ronald Reagan survived an assassination attempt by a man who had illegally purchased a gun out of a Texas pawn shop. One of the others shot was his Press Secretary James Brady, who became the name behind the "The Brady Handgun Violence Prevention Act," or "Brady Bill," signed into law in 1993. It required waiting periods for persons trying to purchase firearms and more rigorous background checks. After his presidency, President Reagan advocated for the bill and was a major proponent in getting it passed. This may seem counterintuitive because, in the years since his presidency, Ronald Reagan has become somewhat of a 'poster child' for the right. As such, it seems that perhaps his personal experience with gun violence was a leading factor in his changed perspective on gun control laws. While deaths attributed to gun violence have decreased in the past decades, the occurrence of mass shootings is at a steep incline. It is relevant therefore to understand how and why political officials are making decisions about gun control that affect the safety and rights of those they govern.

8. George H.W. Bush's Run of the "Mill" Liberation of Kuwait
Oscar Barbour '18
Sponsor: Dr. Tim O'Neill, Political Science Department
11:00 or 1:00 pm (TBA) - Mood-Bridwell Atrium

The question that I wish to address in this project is as follows: To what extent did George H.W. Bush's choice of historical analogy cause his decision to liberate Kuwait? I will test whether Bush's decision to liberate Kuwait was primarily influenced by Western leaders' previous experiences during World War II with authoritarian aggressors, which culminated in the prohibition of unprovoked acts of aggression against any nation via United Nations Charter Resolution 678. In order to understand the similarities in the ethical principles which were invoked in both cases, I will be analyzing Bush's justifications for his decisions from the perspective of John Stuart Mill's ethic of utilitarianism. This project will be a historical political analysis, derived from Neustadt and May's "Thinking in Time: the Uses of History for Decision-Makers", analyzing the extent to which Bush's reliance on the historical analogy of World War II guided his diplomatic and military tactics in the gulf war conflict. The data collected will be a case study including primary and secondary accounts of Bush's decision-making process from peer-reviewed sources, and they will be analyzed using John Stuart Mill's philosophical text, "Utilitarianism". This study could potentially be important to future decision-makers in wartime against hostile or irrational regime leaders. In an international political landscape that seems to constantly include regime leaders posing international threats, empirical insight into this decision-making process may become increasingly more relevant.

9. Imposing Administrative Ethics from the Federal Government to College Administrations in 2011 Title IX Policy Changes
Natalie DeCesare '19
Sponsor: Dr. Tim O'Neill, Political Science Department
11:00 or 1:00 pm (TBA) - Mood-Bridwell Atrium

When the safety and climate of campuses become framed by federal policies, it becomes important to assess how the ethics of a decision are crafted by the political decision maker, and how those ethics are implemented with consequences into another institution. Was the head of the USED Office of Civil Rights Russlynn Ali's decision to change how college administrations address Title IX policy on campus through the 2011 Dear Colleague Letter justified under Dennis Thompson's administrative ethics? The USED Office of Civil Rights is one of those organizations that can be held to this ethical approach with Russlynn Ali as the subject, for she released the 2011 DCL through institutional data and pressure; a piece of compliance invested in the ethics of sexual assault on college campuses. Institutionalism compares and contrasts with administrative ethics based on how you react to your environmental normative, and it is also an appropriate methodology to frame my case study since the study examines college administrations as institutions responding to the Office of Civil Rights as an institution. My case study will implement the DCL Compliance Instrument to study Southwestern University's adherence to the recommended and required sections of the DCL. This case study will help answer if Russlynn Ali's decision did make changes to the SU administration, how effective did the administration comply, and what were the administrative ethics of these changes.

10. Mutti Merkel
Martin Lopez '18
Sponsor: Dr. Tim O'Neill, Political Science Department
11:00 or 1:00 pm (TBA) - Mood-Bridwell Atrium

Analyzing German Chancellor Angela Merkel's decision to open Germany's borders to refugees through the critical lens of Virginia Held's ethics of politics and care would demonstrate that this decision was one mostly influenced by her leadership style while the European Union or the demographic issues should be understood as intervening factors. Using professors of Political Science Richard E. Neustadt and Ernest R. May's methods of historical analysis for investigating Germany Chancellor Angela Merkel's leadership style, the handling of the wave migrations by the European Union, and Germany's demographic natural population growth deficiency, I will explore how Chancellor Merkel's decision to open Germany's borders could be understood as simply addressing her country's demographic issues. The research will further our understanding of Angela Merkel's leadership as Germany's Chancellor, and serve as a possible reference point for approaches in the event that a liberal representative democracy is experiencing negative natural population growth rates, mass migrations and integration issues. The results of this study will help us understand the events leading to the 31st of August where Angela Merkel gave her famous *Wir Schaffen Das* speech, shortly after the German government announced that it would suspend the Dublin Procedure for Syrian Refugees, as Europe faced itself with tackling the responsibilities of mass migrations of African and Middle Eastern refugees caused by regional political instability following the Arab Spring of 2011.

11. A Bribe? A Lie? And A Chancellor, Oh My: Can Political Corruption Only be Determined by The Law?
Salome Owino '18
Sponsor: Dr. Tim O'Neill, Political Science Department
11:00 or 1:00 pm (TBA) - Mood-Bridwell Atrium

The Christian Democratic Union (CDU) donation scandal involved the then German Chancellor and CDU Chairman Helmut Kohl in the late 1990s. The problem started when the CDU party accepted money without properly booking the information and when the discrepancy was brought to light an investigation begun and the then German Chancellor and chairman of the CDU Helmut Kohl was placed on trial that was quickly dismissed. Therefore, we must question whether or not former Chancellor Helmut Kohl was politically corrupt considering his trial was dismissed. This paper argues that as the leader of a liberal representative democracy, when former Chancellor Kohl refused to release the identity of the donors, he violated the German people's legal and ethical right to transparency in election funding. I will be researching my topic by use the historical analogy methodology by Neustadt and May, because this scandal is not considered a problem to Germans but a concern, that an effective leader could knowingly deceive citizens with little reason. Within this paper I will also apply this case study to a deontologist author, Immanuel Kant, who would place a restrictive definition on former Chancellor Kohl's actions as a leader of Germany and of a political party. The research evidence will come from trusted news outlets, the speeches Mr. Kohl did in response to the breaking of the scandal, and previous research done by others on this subject and subjects similar to this scandal.

12. Was the Surge Justified?
Aaron Woodall '18
Sponsor: Dr. Tim O'Neill, Political Science Department
11:00 or 1:00 pm (TBA) - Mood-Bridwell Atrium

Was President Bush's decision to escalate the Iraq War in 2007 in conformity with the dictates of just war doctrine? Utilizing the theoretical framework of Michael Walzer's eight-point articulation of just war theory, I will assess whether the costs associated with increasing U.S. troop levels were justified by the offsetting benefits accrued to the Iraqi people and the U.S. coalition derived from greater regional stability. In this way my research is an exercise in public policy analysis, but with a distinctively ethical lens. To assess the authentic 'jus ad bellum' of the "Surge," I rely heavily on primary source documentation and statements from the Bush administration, but I look to secondary source scholarship to inform my evaluation of the conduct and effect of increasing U.S. force levels. The findings of this inquiry may serve to inform future applications of just war criteria to strategic shifts within conflicts.

13. Why Did We Miss the Blinking Light?
Sydney Cardenas '18
Sponsor: Dr. Tim O'Neill, Political Science Department
11:00 or 1:00 pm (TBA) - Mood-Bridwell Atrium

Did the distractions of a presidential transition and other pressing international affairs of the first George W. Bush term cause National Security Advisor, Condoleezza Rice, to not put a prospect threat of September 11 attacks from Al Qaeda as a higher priority? Utilizing John Stuart Mill's theory of Utilitarianism, I am analyzing Condoleezza Rice's cost-benefit reasoning for the greatest quality of happiness to the greatest number of people. I am using the Historical Policy Analysis to analyze how the timelines surrounding the catastrophic events of 9/11 help form a reasonable understanding of why Rice's decision evolved. Drawing upon post-9/11 research done regarding the Bush Administration and the Clinton Administration, I am examining the role that Condoleezza Rice—and those affiliated with her—played in the decisions surrounding September 11, 2001. I believe the intelligence transition crossed over from the Clinton administration as well as the information given to Rice during her time as the National Security Advisor was not sufficient enough to cause her to prioritize the Al Qaeda threats.

14. Why Japanese Prime Minister Takeshita Noboru and Italian Prime Minister Silvio Berlusconi Prefer to Use Criminal Organizations to Help Them Either Win Party Victory in National Election or Provide Personal Safety
Weidong Wu '18
Sponsor: Dr. Tim O'Neill, Political Science Department
11:00 or 1:00 pm (TBA) - Mood-Bridwell Atrium

This essay contributes to understanding why Japanese Prime Minister Takeshita Noboru and Italian Prime Minister Silvio Berlusconi prefer to use criminal organizations to help them either win party victory in national election or provide personal safety. In order to do so, this essay will use comparative case study and most dissimilar system to investigate different background of Mafia and Yakuza and their influence on economies and public security and prove that public officials and criminal organizations is not only about money but also for meeting some more advanced origins, such as the nature of organized crimes and their blurred boundaries between law to allow them to solve problems which could not be done by the character as a public official. Furthermore, this essay intends to use utilitarianism which developed by John S Mill to understand whether both Takeshita and Berlusconi's choice match the greatest quantity and quality of happiness for the greatest number.

CREATIVE WORKS AND EXHIBITION

abstracts

15. Southwestern University Andean Music Ensemble 2018 Research and Creative Works Symposium Performance
Matthew Gonzales '18 and Ellie Felts '21
Sponsor: Ms. Adrienne Inglis, Music Department
10:00 am – Caldwell-Carvey Foyer

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 play sikus (panpipes), bombo (goatskin drum) and guitar, where the sikuris (sikus players) play in the traditional hoquet style, indicating each sikuri only has the ability to play half of the notes of the musical scale. Whereas guitar may not be included in traditional 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, Professor Inglis.

16. Lock n' Hammock
Anai Ford '21
Sponsor: Dr. Rebecca Edwards, Physics Department
10:00 am - Alma Thomas Fine Arts Center

Imagine it's 72 degrees and sunny with moderate winds, the perfect day. All that comes to mind is lying outside in a hammock while enjoying the weather or taking advantage of my time and getting some homework done. However, sometimes it can be hard to find somewhere to hang a hammock. The trees never seem to be close enough or there are simply no trees to hang a hammock on. With Lock n' Hammock, my goal is to create a safe and an easy to set up hammock swing. All you have to do is lock the legs in place and enjoy your hammock time. The hammock swing will have the ability to fold up for easy storage and be easily portable. Even though it will be made from wood, it will be weather resistant for long term use. This hammock is ideal for the college student with minimal storage in a dorm or an apartment resident. It will be compact enough to fit on a balcony on an apartment building. Lock n' Hammock wants to make sure you can enjoy a nice day outside without the hassle of tying a hammock up.

17. Facial Recognition Robot through Raspberry Pi and Arduino
Yash Gandhi '18
Sponsor: Dr. Steven Alexander, Physics Department
10:00 am - Alma Thomas Fine Arts Center

Computer vision techniques have been implemented into a multitude of applications within the last decade alone and will continue to be adapted into future technologies. We seek to determine the effects of applying computer vision techniques to simple robotics and attempt to create a programmable personal robot with facial recognition capabilities. I tested multiple vision techniques with a dataset of faces that I collected to determine which would provide the fastest training period along with the most stable accuracy in testing. After testing, I combined a convolutional neural network and an already trained Haar feature-based cascade classifier to detect and label faces through a Raspberry Pi computer. I used a serial communication between the Pi and an Arduino microcontroller to control the robotic motors as well as a visual output through Arduino's C++ based IDE. This framework for small, programmable, vision capable robotics has a multitude of applications in not only personal and home use, but with further use in the medical field, planetary exploration, search and rescue, and other delicate or dangerous task.

18. Kinetic Sand Table
Christine Gutierrez '20, Claire Harding '20, and Alexander Hoffman '20
Sponsor: Dr. Steven Alexander, Physics Department
10:00 am - Alma Thomas Fine Arts Center

The goal of this project is to cross the barriers between art and technology. We aim to make a coffee-sized table with a magnetic ball sitting atop a layer of sand that can produce different forms of art on the surface. The magnetic ball will be controlled by a strong magnet underneath the table. The different patterns and designs will be made by a mechanical system hidden underneath the table so that it appears that the table is making the designs on its own. We are basing our project on Bruce Shapiro's kinetic sand table, but we are reverse-engineering the table to understand it from both an artistic and an engineering perspective. We are going to test different methods of controlling the marble, anywhere from purely mechanically driven to electronically driven. An electronically driven device would be more complex as far as programming goes, and the marble would be controlled by magnets on an X and Y-axis programmed with different designs. This method would require testing and we would be finding our ideal balance between the mechanism itself and the art it produces. We are also considering a way to show the gears or moving parts within the table, as there is an art within moving mechanical parts. This project will be considered a success if we are able to program the robotic arm under the table in such a way that the marble makes an artistic design in the sand.

19. The Swiss Army Knife of Furniture
Emma Harting '21 and Leslie Henry '21
Sponsor: Dr. Rebecca Edwards, Physics Department
10:00 am - Alma Thomas Fine Arts Center

As college students, we must condense and maximize the space in the residential areas. Before people move in their personal items the provided desk, desk chair, and dresser makes the space already feel small and overwhelmingly crowded. We are proposing to maximize the space in smaller living situations by creating an all-in-one desk and chair with optimal storage space. With a budget of \$100, we will consider the various materials and design schemes to build the most cost-effective and stylish design that will provide more storage space while looking sleek and clean. At the end of the project, we will have an all-in-one desk, chair, and storage unit that will offer people an affordable and space-saving addition to their living space. As we continue the project, we will consider adding more features, such as a pull out extension to the desk that when not in use, will maximize the living space in the surrounding area. With a successful design and plan, we can take this idea of multipurpose furniture and elevate it to the next level.

20. Exploring the Feasibility of a Connected Medication Dispenser
Cameron Henkel '21
Sponsor: Dr. Barbara Anthony, Mathematics and Computer Science Department
10:00 am - Alma Thomas Fine Arts Center

As the elderly population grows and at-home care rises, the need for more efficient and automated processes will increase. One aspect of care that technology is equipped to deal with already is medication administration. While there have been attempts in recent years to create a commercially available medication dispenser, none have succeeded. This project sought to explore whether this was due to technical restrictions and gauge the pricing of such a product. Using off-the-shelf development hardware and rapid prototyping techniques involving 3D printing and laser cutting, we were able to design and tweak a functional prototype in a few months. The adaptive nature of using off-the-shelf components allowed for a much more flexible platform than a custom one. The general electronics can stay the same between similar models, but variables like the size and capacity of different medications can be adjusted easily. The final prototype cost came in under \$250 which is considerably less than similar upcoming products (ranging in price from \$600-\$1000). In this way the project has revealed that there is room in the market for much more competitively priced products. By building a platform for organizing user data we are able to track medication use and notify caretakers if a user misses a dosage. The main differentiating factor between this project and upcoming market offerings is that it interfaces with smart home assistants like Amazon Alexa and Google Home to facilitate natural language control.

21. Modeling and Visualizing Non-Linear Dynamics in Virtual Reality
Bryan Hollingsworth '20
Sponsor: Dr. Steven Alexander, Physics Department
10:00 am - Alma Thomas Fine Arts Center

As the market size of virtual and augmented reality technologies has continued to grow, the explorations and research into uses for them have not. For example, to understand non-linear dynamical systems, mapped out values in two-dimensional space are commonly used to predict the behavior of the system. In the case of Virtual Reality, spaces beyond two-dimensional mappings can be visualized, allowing complete three-dimensional systems to be viewed in their entirety, or even using three-dimensional mappings of higher dimensional systems. With the use of commercially available game engines, a few simple examples of two and three dimensional non-linear dynamical systems were modeled quickly and easily. With many of the heavy calculations already being performed on the GPU, these models were calculated and displayed in real time. As more systems were explored, ideas for applications beyond non-linear dynamics emerged. From mathematics in higher dimensions and physics concepts, to ecosystems and the internal workings of the biological entities that inhabit them, virtual and augmented reality allows for an immersive experience, for either a single user or even an entire classroom.

22. The Chladni Plate: a Visual Union of Physics and Art
Alexander Newell '19
Sponsor: Dr. Steven Alexander, Physics Department
10:00 am - Alma Thomas Fine Arts Center

Someone told me once that art is the decoration of space while music is the decoration of time. However, sound is overlooked as being a single dimensional frequency, often imagined by a sine function. The reality is that sound is a beautiful geometry of intertwining amplitudes, interfering with each other constructively or destructively, traveling away from the source in all dimensions. We would be blown away by the intricacy if we could only see the symphony of waves around us. While for now this might be impossible, it is possible to sneak a peek of a cross section. A Chladni plate uses a speaker to vibrate a rigid surface at different frequencies. The rigid surface, usually a glass or metal flat plate, resonates with the speaker and produces an invisible map of wave patterns through the material. For us to be able to see this harmonic design we need something that will move around the plate to seek the points on the plate that are still. This effect is called a standing wave, and sand is the perfect instrument to see them. This allows us to visualize the geometric patterns of sound. My project is to design an effective series of Chladni plates to allow people to perceive sound waves in a whole new light.

23. The Wave
Angelina Palacios '19
Sponsor: Prof. Mary Visser, Art and Art History Department
10:00 am - Alma Thomas Fine Arts Center

This work is a part of a larger body of work in a series about the beauty inherent in destructive forces whether they are natural or man-made. I wanted to capture that feeling in a sculptural form. Especially given that such forms in nature are made by gathering many small elements together to create a massive force. I decided to use metal which is very unlike a liquid material or organic in any way to demonstrate the massive movement. To make the metal move like a fluid material such as water, I cut the metal into small triangular shapes of variable sizes and placement. To give it the volume and weight I decided to bend the triangles at various points within the totality of the work. I examine many variations of placements of the triangles in order to capture the physical force of a large wave. I wanted people to experience what others have experienced when coming face to face with such destructive forces. Those who have realized such intensity and fear when meeting such natural forces can be overwhelmed by the real experience and I wanted them to appreciate the power and beauty that can be found in what we normally view as destruction. I used the color red on the metal shapes instead of blue that would be normally associated with water, because the color red does intensify the quality of fear and deconstruction in something moving at such great speeds is now on fire.

24. Sneak Peek
Marissa Shipp '19
Sponsor: Prof. Mary Visser, Art and Art History Department
10:00 am - Alma Thomas Fine Arts Center

This work was not named for its content necessarily but for what I plan to do in the coming future with works like it. I and others will reflect back on it as my humble beginnings of exploring and sharing a new world of digital art. The process of creating and displaying 4D sculpture and animation gives creative uniqueness and depth that 2D and 3D cannot reach because of this cutting edge art form's ability to stimulate senses beyond the visual to new extremes. By integrating multiple digital mediums, 3D becomes 4D and is able to create an experience for the viewer that inspires and changes perspectives with higher impact. By studying what strengths animation and audio have in terms of motion, atmosphere and how they augment each other, I was able to create immersive environments that move and come alive. Additionally, I explored ways of displaying these videos that would further strengthen the experience for the audience and the solution was projection because of the options for size and location. 4D transmedia is a newer art field that has great potential to be applied to many different disciplines and practical life. Going beyond computer screens and theaters into new immersive environments that can be explored and experienced will change how people perceive art and the world around them.

25. Breedesizer: Evolving Original Sounds with Neural Networks
Isabel Tweraser '19
Sponsor: Dr. Jacob Schrum, Mathematics and Computer Science Department
10:00 am - Alma Thomas Fine Arts Center

Evolutionary computation is a machine learning method generally applied to optimization problems, but it can also be used in many creative applications. Through the evolution of Compositional Pattern Producing Networks (CPPNs), evolutionary computation has the power to create interesting 2D pictures (Picbreeder), and 3D shapes (Endless Forms). These CPPNs are a type of artificial neural network that have arbitrary topologies and whose activation functions are chosen from a variety of functions that help create interesting patterns. In addition, novel sounds can be generated by amplitude waves created by interactively evolved CPPNs. Our research recreates a program called Breedesizer that generates tones that act as different "instruments" that can be played back at different pitches and set to the tune of recognizable songs. Users can interact with the program and generate interesting timbres without prior knowledge of music or sound technology. This program acts as an example of the creative applications of evolutionary computation.

26. Collective Identity in Art
Zoe Watts '19
Sponsor: Prof. Mary Visser, Art and Art History Department
10:00 am - Alma Thomas Fine Arts Center

In my work, I tackle identity, intersectionality, and race in America from the perspective of an adoptee through the combined use of Western and traditional Chinese aesthetic elements; and in an effort to become more aware of how and where my identity fits into the American experience, I've created an accumulation of perspectives in order to visualize how an individual can be a part of a culture by definition, but feel significantly separated from it; in the form of large metal structures that contain snapshots and objects from my experiences and memory. This project is just one of the parts in a series of works about identity. The series is being created for the purpose of my Senior Capstone, as well as my own personal drive to create something meaningful. I intend for it to be collaborative, because one of the things I have always been curious about is the way in which our shared experiences create narratives that drive and inspire generations. Through a series of interviews, a narrative will be constructed and printed on large scrolls that will be draped and suspended around the piece. The scrolls will be printed in both English and Mandarin Chinese and tell the story of cross cultural identity. My goal is to collect narratives from adoptees from China, currently living in America.

27. Portable Ergonomic Computer Interface
Aris Wells '20
Sponsor: Dr. Rebecca Edwards, Physics Department
10:00 am - Alma Thomas Fine Arts Center

While the continued developments in computational power have made capable and portable computers readily available, and the principles human-machine interface shifted significantly from text entry to mouse navigation and gesture navigation, the tools people use to interact with computers remain largely unchanged. In the past, particularly in the late 80s and 90s, a number of alternatives to the standard keyboard and mouse appeared in response to a perceived epidemic of RSI injuries. Despite their innovations, all but a handful faded into obscurity in favor of the conventional familiarity, lower cost, and portability of conventional systems. I plan to create a keyboard with an integrated pointing device (in the form of a trackpoint, touchpad, or trackball) that builds from past ergonomic advancements, but uses modern fabrication techniques to be more compact and readily adjustable than its predecessors. My system, like those that came before has little hope of displacing existing methods on a large scale, but I hope it will offer a meaningful alternative for safe and efficient computer usage that is both portable and easily adjusted to individual needs.

28. Small Scale Wind Tunnel
Kin Williamson '20
Sponsor: Dr. Rebecca Edwards, Physics Department
10:00 am - Alma Thomas Fine Arts Center

I created something which would be useful to future engineers at Southwestern University, yet cost-effective enough to where a school with a limited budget such as ours may wish to implement it. I came to decide that a small-scale wind tunnel would be ideal for those wishing to study an array of aerodynamic effects on a multitude of objects. The challenge is designing something which will give useful data while not being an engineering feat in itself to build at the campus. To create this, I envision a closed loop system in which an electric fan recirculates air through a chamber. Some way of incorporating the venturi effect would also help maximize the potential wind speed from this system. Instead of the traditional smoke, a luminous dye substance (something even like spray paint) can briefly be atomized into the stream before coming into contact with the object. The more dye which coats any area on the object, the higher the pressure in that area is, making it easy to see where the general airflow is going. In tandem with a slow-motion camera, this would eliminate the need for a complex smoke stream system. This entire unit would be able to fit inside a room, but initial prototypes could be made even smaller. As for the results and conclusion, it is impossible to come to any until the tests are performed.

29. Past Illuminating Present in A Bright Room
Olivia Wise '18
Sponsor: Dr. Sergio Costola, Theatre Department
10:00 am - Alma Thomas Fine Arts Center

A lifelong activist, Tony Kushner (playwright of the Pulitzer Prize-winning *Angels in America*) uses the enlightenment of the past in his plays to challenge audiences' perspectives of present conditions and encourage them toward progressive action. For our Capstone project the Theatre Department senior class is focusing on his lesser-known play, *A Bright Room Called Day*, as our final main stage production and as an activist challenge for our community. As production dramaturg, I dig into the play's text and context to provide insight for the director, designers, and cast throughout the production process; the goal of my research is to challenge and expand their understanding of the play's world, its purpose, and its possibilities, thus broadening their range of creative choice. My job also entails priming our audience for deeper engagement with the play by highlighting key concepts, historical background and playwright information in the form of a compelling lobby display. For *A Bright Room Called Day*, I am delving into subjects such as: Weimar Era politics and the rise of the Nazi Party; Epic and expressionist theatre; Reagan Era politics; and today's divisive society and problematic passiveness. My mission in presenting this research is to encourage critical thinking among the creators and the spectators of our production, pushing them to ask the questions: Why was this play written? How is its performance significant today? What role do/can I play in it?

ORAL abstracts

30. A Poem Begins as a Lump in the Throat: Schools as Muse and Memory
2018 Foundations and Curriculum of American Schools Class: Allison Bienvenu '21, Jaelyn Bouton '19, Melina Boutris '21, Allison Bradford '21, Landry Bray '19, Egeenee Daniels '19, Veronica Espinosa '19, Paige Greenan '20, Rehgan Hartsell '21, Cameron Henkel '21, Brooke Hughes '20, Brandon Jennings '21, Andrew Jezisek '21, Robert Lord '21, Summer Rodgers '20, Katie Rydell '21, Alex Shafer '21, Mackenzie Spence '21, Timothy Ward '21, Miranda Wolk '19, Jessica Price '20, Henry Furler '20, and Mariana Quetzeri '21
Sponsor: Dr. Stephen Marble, Education Department
1:15 pm – Olin Lobby

In this oral session, 23 students enrolled in Foundations and Curriculum in American Schools will read short poems they have created to capture their emotions and memories of schools and learning. These poets step back in time to see anew important moments from their lives that have shaped their present. Some funny, some sad, always surprising, each individual poem represents an emotional journey by the poet into his/her understanding of how their experiences in schools have influenced their character and development. Individual poems tell stories of bravery and fear, gain and loss, bullying and kindness. Taken together the set of poems evokes the powerful and lasting influences that our many hours of schooling have had on the poets' personal, physical and emotional lives.

31. Coco Chanel: Refashioning the French Gender Standards of Women
Krista Everson '18
Sponsor: Dr. Melissa Byrnes, History Department
1:15 pm – Olin 207

Without a doubt Coco Chanel changed the world of fashion forever. And yet, many people in society only see this woman as the lady who either created the Little Black Dress, the infamous Coco No. 9 perfume, or that she supposedly conspired with the Nazi's during WWII. After that, society gets distracted by the current Chanel Empire and the bright flashing lights of the many glamorous runway shows. But who truly was Chanel? What brought her to such wealth and fame? And why did her career take off in the first place? My project will ultimately show viewers that Chanel is more than a brand, but instead an individual woman who changed the course of women's rights in France

32. Women Worthies and Unworthies: Elizabeth I and the Court of Requests, 1558-1603
Haylee Knight '18
Sponsor: Dr. Jessica Hower, History Department
1:30 pm – Olin 207

Taking as its point of departure historian Joan Kelly Gadol's seminal question of "Did Women have a Renaissance?" this paper explores the reign of Elizabeth I of England (1558-1603) and how it affected the lives of women of lower status. It approaches this topic through a political and judicial institution, the Court of Requests, asking whether the existence of a female monarch (who also served as nominal head of the court) had any substantial effect on women's access to this body and, if not, whether that might be used as a critique of Elizabeth I, her perceptions of female power, and Renaissance humanist intellectual outlook. Thus far, lower status women during this period have been largely ignored by historians as there are very few ways to gain insight into their lives. This project seeks to fill that gap. To do so, I adopt a feminist approach that seeks to reintroduce these women into the early modern narrative via surviving records from the Court of Requests, a "poor man's court," which deal with women as both plaintiffs and defendants. While this is still an ongoing project, the research up to this point suggests that Elizabeth's effect was minimal and unintentional and thus indicative of the limits of her power as well as of her humanist education.

33. AIDS Activism and the Revolution of Gay Rights
Stephen Woo Kee '18
Sponsor: Dr. Jessica Hower, History Department
1:45 pm – Olin 207

The AIDS Coalition to Unleash Power (ACT UP) introduced a revolutionary potential to queer politics that has largely been forgotten by everyday people and historians of social movements in the US. This project addresses the lacuna of queer politics within the historical discipline and analyzes ACT UP from a framework of memory studies by drawing primarily from oral histories. Initiated in 2002, the ACT UP Oral History Project has interviewed activists from the original, largest, and most influential chapter of the organization: ACT UP/New York. The fight against AIDS introduced a radical critique of structural oppression in the US. At a time when conservatism was experiencing a renaissance and the Democratic Party was becoming increasingly neoliberal, ACT UP sought to confront AIDS as a social problem. While some activists advocated for issues like universal healthcare, others were primarily concerned with working alongside government officials to disseminate AIDS treatment drugs. Scholars have argued that these differences in priority led to conflict and an unsustainable organizational model as evidenced by its dissolution after only three years of existence. I use oral histories in order to gain a more complete picture of how activists remember their own political impact. A crucial aspect of this research is an analysis of the interviews of ACT UP members who left in 1991 to form the Treatment Action Group, a lobbying organization with the explicit mission of working with government entities to access treatment drugs.

34. Of Fools and Kings: A Way into the Tudor Court
Isabel Mandelbaum '19
Sponsor: Dr. Jessica Hower, History Department
2:00 pm – Olin 207

The word 'fool' may be a modern day insult, but in 16th century England, the term implied a legitimate profession and craft. Also known as jesters, fools performed physical and verbal humor for audiences. Over the reigns of the five Tudor monarchs, all of whom kept fools, the position of fool evolved from entertainment to a vital member of the court. Specific fools, such as Will Somer, who served Henry VIII, stand out in the historical record because they were prominent figures of their time. Their inclusion in written sources and art reflects their significance. For this project, I drew from the existing secondary source literature on the fool tradition in England and the world. I also searched the Letters and Papers of Henry VIII for contemporary mentions of fools, especially by name. This research yielded fascinating results. In spite of low birth, several fools achieved privileges previously unthinkable. These fools were able to comment on, influence, and candidly discuss current events, all in their joking, rhyming verse. Because of this singular relationship with the monarchy, these fools are a fascinating window into the Tudor courts and culture. They provide insight into every area of politics and identity. At the close of the Tudor period, the practice of foolery had completely transformed from its lesser role in the medieval period, and those who practiced it were flourishing and considered genuine artists. Fools had earned respect through their work in the courts for the Tudor monarchs.

35. Reactions to the Armenian Genocide and The Holocaust, Compared
Emma Walsh '18
Sponsor: Dr. Melissa Byrnes, History Department
2:15 pm – Olin 207

On August 24, 1941, months after Germany attacked Soviet Russia, while recounting the cruelties and mass executions coming in the wake of German military forces, British Prime Minister Winston Churchill declared through a radio broadcast "we are in the presence of a crime without a name." Except, less than thirty years prior to his statement, the world had been in similar uproar over the fate of the Armenians in the Ottoman Empire. Despite nearly 1.5 million deaths, the Armenians were rarely counted as a casualty in the wake of World War I. In the first part of this project, I analyze the involvement of Britain, the United States, and Germany during and after the Armenian Genocide. My research has established that regardless of the policies coming from the Ottoman Empire, the powers of the West decided very early that Germany was their primary threat and that defeating the Germans would be the most effective way to bring justice to the Armenians. In continuation, I analyze the Nuremberg Trials

and the United Nations Convention on Genocide, and research how the Armenian Genocide was (or was not) used to establish precedent for crimes against humanity. The argument against intervention on behalf of the Armenians during World War II mirrored that used by the U.K and U.S during World War II-- defeat Germany and save the Armenians, and Jews, respectively.

36. Anne Boleyn: Bewitching Us Since 1536
Krista Everson '18
Sponsor: Dr. Jessica Hower, History Department
2:30 pm – Olin 207

Lady, Lover, Queen, Whore, and even Witch. All names given to the most famous wife of King Henry VIII by far, Anne Boleyn. Anne has captivated not only historians for centuries, but also the general public. Some hold her as the Adulteress, or the Concubine (Norah Lofts) while others, give her the title of Martyr or hidden face behind the Reformation (John Foxe). Many of these titles can be linked to the time in which they were produced, for example, the positive image of Anne established under the reign of her daughter, Elizabeth I. However, as time went on, the memory of Anne and the history of her many names begin to change in ways not yet fully studied. My research on Anne has led me to focus on the name of Witch, given to Anne during her life and how this title has been adapted and has been the topic of fascination among society. I hope to answer the following: why was Anne called a witch and by whom? In what eras did this label come to the forefront? And how has society, even today, used this idea of Anne as a witch? How do they depict her witchcraft? By answering these questions, my project will be adding to the field of History and Memory because it will introduce and provide evidence as to how the memory of Anne has changed over time. However, it will also address why society has chosen to keep this name to describe Anne. Many studies done by the top Anne historians, David Starkey, Eric Ives, Retha Warnicke and G.W. Bernard, have followed Anne's rise to queenship and fall, but what happened to Anne and her legacy after the chopping block? My study of Anne thus far has led me to understand her personal history. For example, I have had studied art featuring Anne and how contemporaries and Elizabethans depicted her. I have also looked specifically into the matter of Anne's own agency. However, what happened later? Specifically why did the memory of Anne as witch live on? History reveals that Anne was never accused or executed for witchcraft. My source base includes Henry's own writings as well as those of foreign ambassadors. I also use iconography from paintings of Anne within my essay which always show her as dark. My research will continue into Elizabethan accounts of Anne's witchcraft. And, most importantly, my research breaches into times including the witch panics of the seventeenth century, including Salem. Finally, my research will end with historical analyses of Anne as well as pop culture depictions of Anne as a witch during my own lifetime such as *The Other Boleyn Girl* movie and book by Philippa Gregory, books by Alison Weir, *The Tudors* television show, *Harry Potter*, and even how Anne has been depicted in historical places such as Hampton Court and the Tower of London. I am prepared to combine my studies of Tudor England, women's role from Medieval through Renaissance times, and finally my studies within the realms of witches.

37. Breakthroughs in the Bedroom: What Role Could MDMA Play in Treating the Comorbid Sexual Disorders of PTSD?
Rachel Sherinian '18
Sponsor: Dr. Fay Guarraci, Animal Behavior Program
2:45 pm – Olin 207

Approximately 24 million Americans suffer from post-traumatic stress disorder (PTSD), and women are nearly twice as likely as men to develop the disorder. Sexual trauma, such as assault or abuse, is one of the leading causes of PTSD and can understandably lead to sexual dysfunction. However, the rate of comorbid sexual disorders among patients with PTSD is high, regardless of the source of trauma. In 2017, thanks to highly successful clinical trials, 3,4-methylenedioxymethamphetamine (MDMA) was designated a "breakthrough therapy" for the treatment of PTSD by the United States Federal Drug Administration (FDA), in an effort to expedite its approval for use in guided therapy sessions. Sometimes referred to as "molly" or "ecstasy," MDMA is a popular psychedelic drug with prosocial, hallucinogenic, and stimulant properties. Research has shown that MDMA produces several acute sexual side-effects, and women appear to self-report vastly different MDMA-related sexual experiences than those reported by men. Scientific inquiry on the subject of female sexuality and MDMA is hampered by a lack of research

and the overall difficulty of obtaining quantitative sexual measurements in human participants. The present review explores potential future directions for MDMA research as it applies to animal models of female sexual motivation.

38. Elaborating the Mutagenic Response of an Agent Disseminating Antibiotic Resistance
Antonio Mendez '20, Athena Pinero '20, and Chandler Hyatt '19
Sponsor: Dr. Martín Gonzalez, Biology Department
3:00 pm – Olin 207

Triggered by the SOS response, the activation of the error-prone polymerase RuvA'2B functions as a last resort for cell survival during severe DNA damage. Located on the highly mobile conjugative transposon ICE391, the mutagenic nature of this polymerase can accelerate the spread of antibiotic resistance among gram-negative and gram-positive bacteria. The mechanisms activating these low fidelity polymerases in the SOS response are widely accepted; however, the factors regulating the mutagenesis of RuvA'2B within ICE391 remain undiscovered. To identify these regulatory mechanisms, fragments of ICE391 were cloned into pRW290: a plasmid lacking regulatory regions, which encodes the *rumAB* operon and spectinomycin resistance. Following cloning, *Escherichia coli* was transformed with the resulting plasmids, and mutagenesis assays were performed to identify regulators on ICE391 affecting the rate of RuvA'2B-mediated mutagenesis. Regions reducing and augmenting the mutagenic character of this error-prone polymerase have been located. Future work will continue mutagenesis assays and deletion analysis in order to isolate the regulators on ICE391.

39. Following the Curve: Environmental DNA Accumulation and Degradation Rates Utilizing Apple Snails
Madison Granier '19
Sponsor: Dr. Romi Burks, Biology Department
3:15 pm – Olin 207

Environmental DNA (eDNA) represents extra-organismal DNA that individuals release into their environment. Conservation efforts have recently documented more sensitive, cost effective results from eDNA rather than traditional survey methods. Improved understanding of the origin, state, transport, and fate of eDNA provides insight into its utility and limitations, thereby improving confidence in conservation studies. We quantified eDNA production by the freshwater apple snail (*Pomacea maculata*) and investigated how abiotic factors influenced eDNA accumulation and 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. After this time, we removed the snails and allowed DNA degradation to occur 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). We detected eDNA in all treatments for at least 24 hours after snail removal. In addition, eDNA had greater accumulation and a faster degradation rate at higher temperatures. Low salt tended to increase eDNA quantity, especially at warmer temperatures, but failed to notably influence degradation. Overall, this research will continue to add valuable insight into the ecology, persistence, and the ultimate fate of eDNA. These results provide a foundation for further investigations of factors that influence eDNA accumulation and degradation.

40. Unraveling the Mystery: Species Determination and Distribution Patterns of Two Asian Mystery Snail Species (*Cipangopaludina japonica* and *C. chinensis*)
Shannon Walsh '18
Sponsor: Dr. Romi Burks, Biology Department
3:30 pm – Olin 207

Successful aquatic invasive species often have close relatives that have also established reproducing populations in non-native ranges. *Cipangopaludina chinensis* and *C. japonica*, commonly referred to as Asian mystery snails, have spread throughout North America since their introduction in the 1890s. Their spread poses a threat to native species through competition for resources, alterations to their new ecosystems, and transmission of parasites to humans. These two Asian mystery snails remain difficult to distinguish with only morphological characteristics due to similar life histories and occupying ecologically equivalent niches. According to the United States Geological Survey's Nonindigenous Aquatic Species Database (2017), *C. chinensis* appears more widespread than *C. japonica*,

with 36 and 19 states containing established populations, respectively. However, our laboratory recently (2015) happened upon an undocumented occurrence of *C. japonica* in Texas, in a locale separated extensively from existing recordings of *C. chinensis* found in Texas. Previous introductions of mystery snails may be misidentified using only morphological characteristics. Therefore, this research focuses on studying documented populations of *C. chinensis* to discover if any *C. japonica* individuals occur within collections. This project will use genetic analyses to amplify cytochrome c oxidase subunit I (COI), a common barcoding gene for genetic sequencing, for ~200 Asian mystery snails found primarily in the Midwest USA. After confirming identity with phylogenetics, we will create a haplotype map to identify if multiple haplotypes of *C. chinensis* and *C. japonica* occur in the collections and to indicate if the spread of these invasives happened from multiple introductions into the United States.

41. Prolonging the Time of Fluorescence for Cy3-Alkyne and Cy5-Alkyne Using ROXS

Ian Orantes-Orellana '19, and Lauren Gillespie '19

Sponsor: Dr. David Cooper, Chemistry and Biochemistry Department

1:15 pm – Olin 209

Fluorescent dyes, such as Cy3-Alkyne and Cy5-Alkyne, are commonly used in a variety of biological techniques, such as fluorescent tagging and single molecule spectroscopy. However, the fluorescence signal of these dyes decay over time when the fluorophore is repeatedly excited, causing the dye to undergo a permanent loss of fluorescence known as photobleaching. Photoprotection systems, such as the reducing and oxidizing system (ROXS), can be used to prevent the fluorophore from photobleaching. ROXS uses the methyl viologen and ascorbic acid redox pair to provide a faster pathway for the electron to travel from the excited triplet state back to the ground state, limiting the exposure time of the highly reactive triplet state of fluorophores. In conjunction with a bulk fluorescence screening process, varying ratios of ROXS to Cy3-Alkyne and Cy5-Alkyne were tested to determine the optimum concentration ratio of photoprotection system to fluorophores in order to maximize the fluorescence time. These results allow for the determination of optimal fluorescence performance, and provide a method for which other photoprotection systems can be rapidly screened and vetted.

42. A Quantitative Analysis of Various Commercially Available Acai Berry Supplements

Triston Beadle '18

Sponsor: Dr. Emily Niemeyer, Chemistry and Biochemistry Department

1:30 pm – Olin 209

Acai (*Euterpe oleraceae*) is a palm plant that is native to South America that produces deep purple colored berry fruits. The acai berry has been called a “superfood” due to its potent antioxidant properties and high concentrations of anthocyanins. Anthocyanins are a class of water-soluble flavonoids that are responsible for the vibrant red-blue coloration of many berries; these compounds are strong antioxidants with health promoting effects in the human diet. In this study, we analyzed the antioxidant properties and anthocyanin content in sixteen commercially available brands of acai nutritional supplements. Total phenolic content was analyzed by the Folin-Ciocalteu assay, total anthocyanins were quantified using a kuromanin chloride calibration curve, specific anthocyanin concentrations were calculated using high performance liquid chromatography, antioxidant capacities samples were determined using a modified ferric reducing antioxidant power (FRAP) assay. Our results show substantial variations in all quantified characteristics for example total phenolic content ranged from 0.328 to 17.79188507 mg of gallic acid equivalence per gram of supplement. This presentation will discuss differences in the aforementioned characteristics in reference to the style of supplement (liquid concentrate, powder or capsule).

43. Synthesis and Characterization of a Copper (II) Ethylene Amine Complex by an Improved Reaction Methodology

Tyler Adams '18

Sponsor: Dr. Emily Niemeyer, Chemistry and Biochemistry Department

1:45 pm – Olin 209

This research involves the synthesis of copper (II) ethylene amine complexes using an improved synthetic method which provides for simplified isolation of the product and easier crystal growth. Past research has shown many of these complexes exhibit biological activity such as anti-fungal, anti-bacterial, and anti-cancer. Metal ethylene amine

ligand complexes with biological activity have been synthesized using 2 different methods. The two competing methods are a one pot synthesis vs a tandem dropwise reaction. This research uses the latter. A metal salt is first dissolved in acetone with heating and, with stirring, the ligand, dissolved in acetonitrile, is added dropwise to form the metal complex. X-ray quality crystals were produced overnight by reducing the temperature of the reaction mixture to -20°C . The percent yield is similar to that of the one pot synthesis and the product of interest is easier to isolate. This research covers syntheses using commercially available nitrogen based ligands, such as ethylene amines, reacted with copper, cobalt, and nickel salts. One product, a copper complex of pentamethyldiethylenetriamine has been characterized by IR and X-ray diffraction. Additional complexes have been synthesized by the tandem dropwise reaction, characterized, and further biological testing is planned.

44. Synthesis and Characterization of New Thiadiazole Sulfonamide Ligands Reacted With Copper (II) Salts
Ryan Peraino '18
Sponsor: Dr. Emily Niemeyer, Chemistry and Biochemistry Department
2:00 pm – Olin 209

Many pharmacological activities, such as antibacterial, anti-cancer, anti-inflammatory, and antifungal properties have been exhibited by 1,3,4-thiadiazole sulfonamide ligands. When coordinated with a copper (II) ion, some thiadiazole sulfonamide ligands have shown high levels of deoxyribonucleic acid (DNA) cleavage and anti-tumor properties. The compounds 1,3,4-thiadiazole-5-amino-2-thiol, and 1,3,4-thiadiazole-2-amino-5-methyl were each reacted with three sulfonyl chlorides in an attempt to create six different thiadiazole sulfonamide ligands. The three sulfonyl chlorides chosen were imidazole-4-sulfonyl chloride, 1-methylimidazole-4-sulfonyl chloride, and 5-methylthiophene-2-sulfonyl chloride. New thiadiazole sulfonamide ligands were formed, 1,3,4-thiadiazole-2-thiol-5-imidazolesulfonamide, 1,3,4-thiadiazole-2-thiol-5-methylimidazolesulfonamide and 1,3,4-thiadiazole-2-thiol-5-methylthiophenesulfonamide. These three compounds were characterized by melting point, ^1H NMR spectroscopy and IR spectroscopy. The new compounds were reacted with copper (II) sulfate pentahydrate and slow evaporation has led to isolation of potential thiadiazole sulfonamide ligands complexes with copper (II). Coordination with copper (II), cobalt (II) and nickel (II) transition metals may enhance the efficacy of the new thiadiazole sulfonamide ligand's pharmacological activities. Research continues in an effort to produce x-ray quality crystals of the copper complex. Cobalt (II) and nickel (II) reactions are planned along with biological testing of the copper (II) complex.

45. Synthesis and Characterization of a Novel Copper (II) Thiosemicarbazone Complex
Margaret Roward '18
Sponsor: Dr. Willis Weigand, Chemistry and Biochemistry Department
2:15 pm – Olin 209

Thiosemicarbazones are a class of Schiff-base ligands that have been gaining attention in recent years for potential pharmaceutical applications. These thiosemicarbazones have anticancer, antibacterial, antifungal, and antiviral 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 $[\text{Me}_2\text{H}_2\text{N}][\text{H}_2\text{L}]$, and characterized by melting point, ^1H NMR, ^{13}C NMR, and IR spectroscopy. This bidentate ligand was reacted in acetonitrile in a 3:1 molar ratio with copper (II) acetate, forming a paramagnetic anionic copper (II) complex. Characterization of the complex includes melting point, infrared spectroscopy, and NMR spectroscopy. Distinct stretching in the IR spectrum and slight chemical shift changes in the ^1H NMR spectrum of the complex indicate a modified ligand complex. Additionally, IR spectra do not indicate substantial changes in the complex as compared to the ligand. Work continues on forming crystals suitable for an X-ray diffraction study. Future work planned for the complex is the testing for antimicrobial activity, as the complexation of the copper (II) ion may enhance the ligand's biological properties.

46. H-DNA Sequences are More Mutagenic Than B-DNA Sequences Under Oxidative Stress
Alison Riggs '18
Sponsor: Dr. Maha Zewail-Foote, Chemistry and Biochemistry Department
2:30 pm – Olin 209

DNA sequences with polypurine-polypyrimidine mirror repeat sequences have the potential to form non-B DNA structures such as three-stranded H-DNA. These non-B DNA structure-forming sequences are abundant in the human genome and are potential sites of chromosomal instability leading to Burkitt's lymphoma, Friedrich's Ataxia, and other diseases. Additionally, oxidative stress, which results in the formation of reactive oxygen species (ROS), has been shown to increase DNA mutation frequency. Both oxidative DNA damage and H-DNA-forming sequences induce genetic instability. Here, we determined the mutation frequency of H-DNA compared to B-DNA under conditions of oxidative stress. We used a yeast model system containing a yeast artificial chromosome (YAC) with either an H-DNA-forming sequence or the control B-DNA sequence. We revealed that H-DNA was more susceptible to DNA damage-induced mutagenesis under oxidative stress compared to B-DNA. These results provide the first insight into the effects of oxidative stress on non-B DNA structure-induced genetic instability.

47. Protein Palmitoylation States in Virally Transformed and Normal Embryonic Mouse Fibroblasts
Grant Gideon '18
Sponsor: Dr. Kerry Bruns, Chemistry and Biochemistry Department
2:45 pm – Olin 209

Palmitoylation is an important post-translational modification of cysteine residues within proteins that alters their cellular distributions and functions. Published studies have reported elevated levels of palmitoylated proteins involved in regulation of important cellular processes in some cells from cancerous tumors. In this study, an acyl-biotin exchange assay was used to compare the palmitoylation states of proteins in virally transformed mouse embryonic fibroblasts relative to normal cells as a control. An essential part of this procedure requires the blocking of all free sulfhydryl groups in the native cellular proteins by treatment with N-Ethylmaleimide (NEM). In preliminary trials, the negative controls used to assess the initial blocking step have not been distinguishable from the positive test samples. Current efforts to optimize the initial blocking of sulfhydryl groups using the NEM blocking reagent include increasing the temperature at which the reaction is conducted and the use of protein denaturants to expose reactive sulfhydryl groups.

48. Hypoxia-Inducible Factor 1Alpha levels in Normal and Virally Transformed Cells
Matthew Pagano '18
Sponsor: Dr. Kerry Bruns, Chemistry and Biochemistry Department
3:00 pm – Olin 209

Hypoxia-Inducible Factors (HIF) are dimer proteins found in the nucleus and cytosol of cells. The two halves of the HIF dimer combine as a result of a hypoxic or environment lacking oxygen. Once combined, the dimers function as transcription factors and act to increase the rate at which certain genes are transcribed to help the cells adapt to hypoxic conditions. HIF-1Beta exists in cells at all times and serves other functions, but under normal oxygenated conditions, HIF-1Alpha is degraded by being targeted to the proteasome. The focus of this project is to observe changes in the cellular levels of HIF-1Alpha in normal (3T3) and virally transformed (KBalb) mouse fibroblast cells when exposed to hypoxic conditions relative to cells grown under normally oxygenated conditions. To mimic hypoxia, the 3T3 and KBalb cells are exposed to cobalt (II) chloride at a low concentration and are incubated in a humidified atmosphere containing 5% carbon dioxide. The cobalt (II) ion increases the reactive oxygen species within the cells, inducing the mitochondria to respond as though it were in a hypoxic environment. The levels of HIF-1A in the treated and untreated cells are analyzed through gel electrophoresis of cellular proteins and western blot analysis. Preliminary trials indicate increases in levels of HIF-1A in treated KBalb cells compared to untreated KBalb cells. Additionally, there are observed decreases in degraded HIF-1A in treated 3T3 cells compared to untreated cells. Further study is ongoing to support or refute the preliminary findings.

49. Gold(I)-Catalyzed Cyclizations: Formation of 1-H Isochromene Derivatives
Dakota Butler '18
Sponsor: Dr. Michael Gesinski, Chemistry and Biochemistry Department
3:15 pm – Olin 209

1H-Isochromene derivatives are found in a variety of biologically active molecules and are therefore of interest to the pharmaceutical industry. Previous research shows that gold(I) catalyzed cyclizations have successfully produced

1H-isochromene derivatives from ortho-alkynylbenzaldehydes. However, conversion from ortho-alkynylbenzalcohols does not yield regioselective products. In current research, these organic moieties have been successfully synthesized using a novel gold(I)-catalyzed cyclization. This reaction affords 1H-isochromenes in (%) yield from simple benzylic alcohols. The results present a promising approach to production of isochromene derivatives, which could lead to a greater understanding of their full biological potential.

50. Application of a Novel Au(I)-Cleavable Alcohol Protecting Group
Parker Wilson '18
Sponsor: Dr. Michael Gesinski, Chemistry and Biochemistry Department
3:30 pm – Olin 209

A novel protecting group for alcohol was produced through Sonogashira Cross-Coupling and the resulting group was tested for effectivity and selectivity. The protecting group was utilized to protect multiple alcohol species. The group is removed by way of a gold(I)-catalyzed cyclization. Alkyne-metallo complexes are essential to this cyclization and contribute to the efficiency of this protection/deprotection pathway. Through this cyclization, the original alcohol is returned as well as a 1H-isochormene. The cyclization of a protected alcohol regenerates the alcohol with a 59% yield. These results present a promising novel protecting group to be added to the available tools for chemists. Additionally a new approach to production of isochromene derivatives can be seen effectively, which could lead to a greater understanding of their full biochemical potential.

51. The Ability of Summer Camps: Breaking Down the Culture of Disability
Veronica Pardo '18
Sponsor: Dr. Brenda Sendejo, Sociology and Anthropology Department
1:15 pm – Olin 222

This research examines the social construction of disability among children and teens with intellectual or developmental disabilities within the context of a summer rowing camp program. Ethnographic research was conducted with Texas Rowing for All (TRFA), a non-profit organization that teaches children and teens with a wide range of disabilities to learn how to row. Campers are taught the importance of water safety, providing the knowledge they need to confidently navigate the water with the aid of a volunteer guide. By working alongside the campers, coaches and volunteers, TRFA camps work together to maintain a positive and fun environment for the children with disabilities, helping the athletes to achieve their athletic goals. Recent literature shows that such positive affirmation techniques used among children with disabilities in summer camp programs prove effective in instilling positive self-esteem in children, leading them to accomplish personal desired goals. Drawing on data including over 100 hours of extensive participant observation, interviews, and testimonies, this paper will explore how summer camps such as TRFA challenge the social construction of disability and cultural assumptions around the inabilities of disabled children. In this paper I will share findings that suggest with positive reinforcement and the necessary equipment or adjustment of instruction in a goal-oriented setting, children with disabilities can flourish in a physically demanding environment, gain valuable athletic and life skills, and achieve success in summer camp settings that foster community and build self-esteem.

52. Connecting to the Land: The Impacts of Immigration and Colonization on Australian Immigrants
Camila Rivadeneyra '18
Sponsor: Dr. Brenda Sendejo, Sociology and Anthropology Department
1:30 pm – Olin 222

Scholars suggest that people develop relationships to the places they inhabit. This can take many forms, such as an affinity for pro-environmental action and building a supportive network of people living nearby (Rodgers and Bragg, 2015). However, what is less understood is the connection to place that occurs—or not—in the experiences of recent immigrants. This paper draws on research conducted during my participation in a sustainability and environmental action study abroad program in Australia and my work with Dharma Karta, a non-profit organization focused on empowering immigrant communities through environmental education programs. Research methods included participant observation and in-depth interviews on the topics of environmental issues and connection to the land, surveys on participant knowledge about climate change, and auto ethnography. By analyzing data drawn from

immigrants with 8 different national backgrounds, I investigated how first or second generation Australians establish a connection to nature in a land that is not their own. The purpose of my study is to identify if and how immigrants make connections to land, and the extent to which this relationship fosters a sense of caring towards the new environment they inhabit. I will discuss findings that indicate that immigrants to Australia create a connection to their host country through environmental education from those who are indigenous to the land they inhabit, a strong sense of community, and reliance on spirituality.

53. “This Is Our Home”: An Autoethnography of the Effects of Resource Extraction Industries in Rural South Texas
Shine Trabucco '18
Sponsor: Dr. Brenda Sendejo, Sociology and Anthropology Department
1:45 pm – Olin 222

This project is concerned with how the prevalence of resource extraction industries impact health and culture in predominantly Hispanic agricultural counties in South Texas. Drawing on data collected from oral history, in-depth qualitative interviews, autoethnography, participant observation, archival research and map analysis conducted for my anthropology capstone research, this paper examines the impacts of the oil companies and uranium mining in 2 South Texas counties, seeking to know why these are the most dense areas of resource extraction in Texas and how resource extraction impacts the health of the people in these communities. The use of autoethnography in this research draws on my personal experiences living in the affected areas, which offers a nuanced lense into this topic, one not typically used within the field of cultural anthropology. Data suggests a correlation between health issues and an increase in oil field activity in the area. This research will illuminate how resource extractions have far reaching implications beyond their impacts on the natural environment; they affect the environments and the everyday lives of families and children living and working in rural areas. This research contributes to the literature on environmental injustices around resource extractions in rural areas.

54. Race and Contested Spaces in a Liberal Predominantly White Planned Urban Community
Dakota Cortez '19
Sponsor: Dr. Maria Lowe, Sociology and Anthropology Department
2:00 pm – Olin 222

Our qualitative study examines the relationship between race, public spaces, and community boundaries in a liberal, predominantly white, upper middle class neighborhood that we call “Rockford.” Rockford is a relatively new planned mixed-use urban community in Austin, Texas. Rockford was built in 2007 and it offers many attractive public amenities, including parks, two swimming pools, a hike and bike trail, and a lake. These spaces were designed for everyone in the city to enjoy, and in fact, they regularly attract a mixture of residents (predominantly white, upper middle class individuals) and visitors (people from a wide variety of racial and economic backgrounds), at times, making them some of the most racially diverse public places in Austin. These places have also become racially contested public spaces. Residents often attempt to mark and maintain community boundaries and this primarily occurs on the neighborhood's social media sites. Our analysis explores these dynamics.

55. Abortion Provision as High Risk Activism: What Motivates Providers?
Sophia Galewsky '18
Sponsor: Dr. Maria Lowe, Sociology and Anthropology Department
2:15 pm – Olin 222

The current paper explores if ob/gyn doctors who provide abortions as a part of their practice view their work as a form of activism and what motivates them to participate in this highly stigmatized form of activism. Abortion provision is framed specifically as a form of high risk/ high cost activism and the motivations of these physicians is interpreted using social movements theory. Relying on in-depth semi-structured phone interviews conducted between June and December 2017, the findings suggest that these physicians are motivated to participate in this form of activism through a sense of professional duty or responsibility and many attempt to mitigate the emotional risk and stigma of their work through limiting discussions of their work with individuals outside of their profession. This paper adds to existing literature on abortion provision and high risk activism as it examines how abortion

providers deal with various forms of risk associated with their work and draws connections between abortion provision and other social movements.

56. Post Sandy Hook: Protectorship and Adaptive Femininity Among White Female Elementary Teachers
Mary Jalufka '18
Sponsor: Dr. Maria Lowe, Sociology and Anthropology Department
2:30 pm – Olin 222

The purpose of this study is to explore the ways that femininity influences how female elementary school teachers both perceive and maintain campus safety post Sandy Hook. In conjunction with hegemonic masculinity and hegemonic femininity theories, this research reveals that white female educators, acting within a female-dominated campus environment, adapt their concepts of femininity to assume the role of feminine protectorship, a role that is stereotypically assumed to be masculine. Through eight interviews conducted between April and October 2017, this study finds that as a result of the massacre at Sandy Hook and numerous subsequent school shootings, female primary school educators are more aware of the threat of danger on their campuses and are more cognizant of their role as protector as a result. Existing scholarship regarding protectorship focuses exclusively on men, never considering feminine protectorship. In addition, no known studies consider the effect of Sandy Hook and other school shootings on elementary educators themselves. Addressing this gap, my study adds to gender hegemony theories by considering the effects of the contemporary context of campus violence, documenting the ways in which women within the female-dominated occupation of elementary educator reconfigure their conceptualizations of femininity and protectorship in the workplace.

57. “Am I Still Latino Enough?” The Construction of Latino Identity Among Hispanics Who Don’t Speak Spanish
Esteffany Luna '18
Sponsor: Dr. Maria Lowe, Sociology and Anthropology Department
2:45 pm – Olin 222

This study investigates the role that speaking Spanish, or in this case, not speaking Spanish, plays in the formation of ethnic identity among young Latinos living in the United States. The sociological scholarship indicates that language is a main identity marker in Latino identity formation. However, what happens when Latinos are not fluent in Spanish? How do they develop their Latino identity? This research explores the ways young Latinos negotiate their inability to speak Spanish with their ethnic identity, especially when at least one of their parents speaks Spanish fluently. Relying on eleven interviews conducted from April to October 2017, this paper finds three general trends. Respondents still connect with their Latino identity but do so using a variety of markers besides speaking Spanish. Their perceptions of the importance of speaking Spanish to their own Latinx identity differ from the ways their older family members view it. Still, they believe that learning Spanish is important enough to the Latinx culture that the majority say they will make sure their children learn Spanish. This paper adds to existing literature by challenging set ideas about Spanish and what characteristics can be considered “authentic” that a Latino should possess. It also identifies the complicated ways in which speaking Spanish is important for Latinos to maintain their Latinness in the United States today.

58. “We’re Not Wasting Coffee Grounds”: How Southwestern University Students Respond to Peers’ Resource Consumption and Waste Disposal Varied by Social Class
Madeline Carrola '19
Sponsor: Dr. Sandi Nenga, Sociology and Anthropology Department
3:00 pm – Olin 222

Building off of past research concerning class-based differences in language use and entitlement versus constraint, the present study aims to understand how social class influences the way Southwestern University students respond to their peers’ resource consumption and waste disposal. During in-depth interviews, respondents were asked about their verbal and physical reactions to their peers’ resource consumption, such as water or electricity, or waste disposal/ recycling. The findings reveal that students of all social classes have strong environmental views, but their modes of expression differ by class. Lower middle- and working-class respondents tended to use more verbally direct tactics, passing judgement and issuing demands, compared to those in the middle class and above. Perhaps

surprisingly then, they were also more likely to exercise constraint, refraining from acting or verbally communicating altogether, because they objected to imposing their views on others, which revealed a lower sense of entitlement. However, middle-class respondents and above were more likely to use subtle verbal expressions, such as questions and suggestions, and expressed a greater sense of entitlement by altering shared spaces to fit within their environmental views. Upwardly mobile students used a blend of these characteristics, which attests to the lasting effects of an individual's original social class background even as they become immersed in an upper middle-class institution.

59. Role of Platinum Based Drugs in Cancer Therapies

Austin Baker '18

Sponsor: Dr. Carmen Velez, Chemistry and Biochemistry Department

3:15 pm – Olin 222

Bioinorganic chemistry is the intersection between biochemistry and inorganic chemistry. Until the mid-twentieth century, organic chemistry dominated the field of rational drug design, but with the introduction of inorganic coordination compounds an entirely new class of drugs, with wide-ranging utility, emerged. The efficacy of these drugs is affected by two main aspects of drug design: the metal used and the ligand environment. Cisplatin, one of the first inorganic anti-cancer drugs, is a platinum(II) square planar complex that is used today as a drug in some chemotherapies. Cisplatin kills tumor cells by binding to guanine nucleotides in DNA inhibiting cell replication which leads to cell apoptosis. Some strains of cancer have shown resistance to cisplatin interactions which has prompted the development of new platinum-based drugs. This presentation will examine the DNA interaction with cisplatin, evaluate the evolution of the drug into more effective substituents, and finally propose the synthesis of a novel drug candidate for further research.

60. Titanium-Mediated Synthesis of Cyclobutanones

Renee Walker '18

Sponsor: Dr. Carmen Velez, Chemistry and Biochemistry Department

3:30 pm – Olin 222

Cyclobutanones are important intermediates in the syntheses of many organic materials, including several pharmaceutical compounds. However, they are very difficult to synthesize due to the instability associated with their high levels of ring strain. In this study a novel method for the formation of substituted cyclobutanones was developed using a variation of the Kulinkovich reaction, which utilizes a Titanium source to mediate the process. Various phenyl aldehydes were first converted to cyanohydrins, then the alcohol group was protected using either a tosylate or mesylate group. The tosylation step proved to be difficult for some of the starting materials, and the final cyclobutanation step gave little to no yield for each of the starting materials attempted. This cyclobutanation procedure presents a promising technique to incorporate into future synthetic methods, however, more extensive research needs to be done in order to produce better yields, and to form a wider variety of products.

61. The Aesthetic of Ciro Guerra: Exploring Marginalization through Melodrama

Tori Carraway '19

Sponsor: Dr. Carlos De Oro, Modern Languages and Literatures Department (Spanish)

1:15 pm – Olin 226

In his films *La sombra del caminante* (Wandering Shadows, 2004), *Los viajes del viento* (The Wind Journeys, 2009), and *El abrazo de la serpiente* (Embrace of the Serpent, 2015), Colombian director Ciro Guerra's aesthetic focuses on marginalization which exposes Colombia's societal issues, such as post-war quality of life, poverty, and the tension between marginalized and dominant populations. In order to create a more impactful story, Guerra uses melodrama as a mode rather than a genre as well as aspects of road movies in peripheral settings to portray characters in their constant search for identity and stability, and in their fight for survival. Additionally, technical aspects of the films such as the application of color, mise-en-scene, and sound, create scenes that emphasize the protagonists' marginalization. I explore melodrama as an encompassing mode, with specific regard to Latin American road and counter-road movies, to analyze how the nuances of Guerra's films highlight themes surrounding social issues that have impacted Colombia in its recent history.

62. Women's Evolution in the World of Art

Karla Perez '19

Sponsor: Dr. Àngeles Rodríguez, Modern Languages and Literatures Department (Spanish)

1:30 pm – Olin 226

Women are often depicted in various pieces of art based on the expectations established by the patriarchal society of a specific era. Hence, there exist differences in terms of the various artistic representations and the meaning the spectator provides at the moment of viewing an art piece. In this presentation, I will examine the evolution of female characters in the art world. More specifically, I will be providing a thorough analysis of films directed by Latin American women and interpretations that will help communicate the impact of societal expectations on women's lifestyle. The following films that will be examined are *El Secreto de Romelia* (1988) by Busi Cortés, Danzón (1991) and *El Jardín Edén* (1994) by María Novaro and *La Última Mirada* (2006) and *La Nao China* (2004) by Patricia Arriaga. Women have often struggled to express themselves free from extant prejudice. The evolution of women throughout time is of importance because it provides insight to the effort women have endured to distance themselves from society's expectations. I found evidence that society's expectations of women have greatly influenced, culturally and intellectually, the creation of the female character in the art world. In conclusion, this project will provide further insight into the idealized image of women that society has presented throughout time, and how women have shifted away from these expectations.

63. La identidad de la inmigrante en las novelas *El Último Patriarca* y *La hija extranjera* por Najat El Hachmi

Abby Toppins '18

Sponsor: Dr. Catherine Bourland Ross, Modern Languages and Literatures Department (Spanish)

1:45 pm – Olin 226

Este ensayo analiza y compara el choque entre las identidades de las dos personajes principales en *El último patriarca* (2008) y *La hija extranjera* (2015) por Najat El Hachmi. Las protagonistas de las novelas son de la Generación 1,5 y experimentan dos realidades alternativas entre sus raíces y sus vidas nuevas, creando conflictos personales, lo cual hace un espacio único. Las dos protagonistas atraviesan estos espacios, o "realidades alternativas," en maneras diferentes, contribuyendo a una comparación fascinante. La situación de las novelas alza las realidades alternativas de las inmigrantes de la Generación 1,5 hasta un nivel más profundo. Las novelas de El Hachmi se sitúan en la región de Cataluña, lo cual forma un espacio donde el inmigrante tiene que navegar entre las perspectivas del regionalismo, nacionalismo y lo extranjero. La inmigrante de la Generación 1,5 ya está en un sitio entre su país de origen y su país nuevo, pero la inmigrante a Cataluña tiene que atravesar estas complejidades adicionales. Este obstáculo añadido aporta a la presencia de las dos protagonistas de El Hachmi en realidades alternativas. El conflicto entre las identidades del inmigrante unido con la situación actual en Cataluña pone a las protagonistas firmemente en un sitio separado del resto de la sociedad -- una realidad alternativa.

64. European Solidarity in the Refugee Crisis: A German Problem?

Martin Lopez '18

Sponsor: Dr. Erika Berroth, Modern Languages and Literatures Department (German)

2:00 pm – Olin 226

Professors of Political Science Richard E. Neustadt and Ernest R. May emphasize that historical analysis can inform and misinform our assessment of current issues and events when our analysis does not have an appreciation of the personal histories of individuals. Using Neustadt's and Mays methodology of historical analysis, my study will help with understanding why one would perceive the European Union's handling of a massive wave of migration resulting from the Arab Spring of 2011 as being a problem particular to Germany. My analysis aims to reveal that the lack of solidarity in the refugee crisis was a European problem to begin with, and that the idea of placing responsibility largely and predominantly on Germany was already circulating in the EU before it became the face of the issue in critiques of Angela Merkel's approach summarized in her famous "Wir schaffen das!" (We can manage this!). My approach of tracing history alongside accounts of public opinions and the integration of first person narratives will illustrate the advantage of engaging multiple perspectives.

65. Ostalgie: Representations of Memory Work in German Cinema
Bryan Lu '18
Sponsor: Dr. Erika Berroth, Modern Languages and Literatures Department (German)
2:15 pm – Olin 226

Throughout the cinematic film industry, we find stories that deal with national and personal pasts that incorporate elements of philosophy, ethics, and morals. Whether a film wants to depict the past as a traumatic event, humorous interaction, or as mournful longing, movies have the ability to make powerful public statements. In my study, I examine German post-unification films and how these films affect social perceptions and opinions on dealing with the East German past. "Cult-classics" such as *Good Bye Lenin!* or *Das Leben der Anderen* portray a particularly interesting time in history, during which the communist/socialist DDR in the east developed relationships to the past in different ways than their counterpart West Germans. The differences in memory cultures between these two countries have contributed to a unique social phenomenon labeled "Ostalgie." This term, deriving from the more commonly known "nostalgia" implies that some people might have nostalgia for the old East German lifestyle. More interestingly, film directors have addressed "Ostalgie" and portrayed what it might look like, or why someone might miss an oppressive regime. Due to the popularity of these films, multiple scholars have analyzed these films utilizing critical perspectives from sociology, history, and anthropology. This provides an excellent opportunity first, to view these films to analyze these differences, and, second, to garner the insight of previously conducted academic research. My work moves this scholarship forward by suggesting how understanding films within cultural contexts allows us to examine and understand not only why these phenomena exist, but also garner insight into suggestions for a future oriented memory culture.

66. Recognizing A Third Gender in Germany: The Effects of Gender Representations in Children's Programming on Identity Formations
Salome Owino '18
Sponsor: Dr. Erika Berroth, Modern Languages and Literatures Department (German)
2:30 pm – Olin 226

Media representations of males and females in binary gender roles can impact identity formations in young children. Research shows that the media have powerful impacts on many conscious and subconscious levels. My research on gender representations in German children's TV programming and movies, augmented by interviews with young Germans who consumed those media representations, suggests a rejection of binary gender roles, and a more tolerant and inclusive attitude. I argue that this rejection of binary gender stereotypes can serve as an important model for young children, that inclusive representations of gender contribute to identity formations, and that offering alternatives to binary gender stereotypes can contribute to a more inclusive society. Based on my small data set, my preliminary proposal is that inclusive media representations of gender in children's programs can actually change society's traditional gender stereotypes. I suggest that inclusive and diverse programming can assist in setting up a new generation to being more open-minded. As Germany is preparing to officially add a third gender in legal processes, like documentation of identities at birth, this study offers insights into how such processes of change could start with young audiences.

67. SOU'Garden: The Hydroponic Garden Wheel of the Future
Julianne Whitehurst '17
Sponsor: Dr. Steven Alexander, Physics Department
2:45 pm – Olin 226

The SOU'Garden (Sustenance Originating Unit) is an interesting and unconventional way to grow plants. The design uses a ferris wheel type structure to expose soil-less plants to the proper amount of both artificial sunlight and necessary nutrients to allow them to grow successfully. The wheel works to provide a conveniently space-efficient option for growing a large number of plants, growing up to 80 separate plants while being no larger than the size of a small desk. The intended use for the SOU'Garden would be as a learning tool, a cheap and clean way to grow food within a household, or as a crucial asset to those living on other planets in the future that may not have fertile soil. The main study I wanted to look at for the SOU'Garden was that of its rotary mechanism. As the contents of the wheel grew and made the wheel heavier, there would need to be proper compensation from the

attached motor in order to make sure the wheel would still rotate at the same rate. This led to an important factor in the placement of the motor as well, since certain placement options would be more affected by the change in friction than others. In addition to studying the physics of the wheel, I also observed the effectiveness of the wheel's actual purpose, growing plants. Though rarely discussed, paideia connections between STEM fields like physics and botany/biology are very important to ensure the future of humanity in an ever changing future, something the SOU Wheel attempts to showcase.

68. Exploring Health Related Lifestyle Habits and Influences in Rural India

Aranha Priyanka '18

Sponsor: Dr. Vanessa Mikan, Kinesiology Department

3:00 pm – Olin 226

According to the World Health Organization (WHO) diabetes in India is projected to increase from 31.7 million in 2000 to 79.4 million in 2030. This drastic growth clearly outlines the need for an increase in both awareness and education. The purpose of this project was to collaborate with the non-governmental organization, Mysore Resettlement and Development Agency (MYRADA), to develop an understanding of the perspective towards diabetes in the Chitradurga District. Focus groups were developed within eight villages to discuss lifestyle behaviors (i.e. level of physical activity, leisure time, occupation, nutritional habits, and alcohol and tobacco usage), family medical history, health care accessibility and knowledge of diabetes. Healthcare providers were interviewed for insight on prevalence, risk factors, familial support, process of diagnosis, medical and non-medical treatment options and follow-up. Data was collected using interpretive phenomenological analysis (IPA). Emerging themes, such as illiteracy, lack of awareness, access to medical facilities, and socioeconomic status (i.e. the villages), were examined to develop educational materials. Underlying factors such as genetics, sugar consumption, and tobacco usage were identified as contributors to the prevalence of diabetes within the villages. My experience in Chitradurga district supports the need for continued efforts to educate and increase accessibility to health-related resources.

69. Reliability of Georgetown Newspapers on Primary Election Coverage

Natalie DeCesare '19

Sponsor: Dr. Emily Sydnor, Political Science Department

3:15 pm – Olin 226

Can Georgetown voters rely on local news media to be informed on primary election races within a reasonable time frame? In light of the highly contested races in Georgetown this year, as well as the concept of "fake news, citizens need to know if they can rely on local news to participate in civics. To answer this question, I will conduct a content analysis of the three most widely read newspapers in Georgetown-- The Sun, Community Impact, and Statesman-- and their news stories during 2 weeks of the 2018 primary election cycle. I will search the three newspapers for the words "Primary," "2018 AND Election," "Incumbent, or Campaign" and code the resulting articles as referencing the local, state, or national primaries. I expect to find that local news organizations do not allocate substantial coverage to primary elections. The sheer number of candidates to cover in the primary elections, combined with the extremely low voter turnout typical of primary elections without a presidential campaign, make their coverage a less news-worthy event. Hypothesized Results: No, local news do not focus on primary elections in full to know all candidates in time to vote. There are too many candidates to cover in the primary elections, and newspapers would be less inclined to cover them given the extremely low voter turnout, anyways. Potential Method: Content analysis asks questions about communications that can be processed into quantitative expressions, which is relevant to my question of looking at news media communications. In this analysis, I will borrow the coding processes from Gilen's research. My categories will be local, state, and national politics so I can control for the location of primary elections mentioned. I will have to see if the words were discussed in the context of local, state, or national primaries, and lastly I will quantify my findings to see if there was a statistically significant amount of coverage for Georgetown residents to be informed. Hypothesized Results: No, local news do not focus on primary elections in full to know all candidates in time to vote. There are too many candidates to cover in the primary elections, and newspapers would be less inclined to cover them given the extremely low voter turnout anyways.

70. Familiar Matter: Confronting Habit for Social Change
Elena Gonzalez '18
Sponsor: Prof. Star Varner, Art and Art History Department
3:30 pm – Olin 226

Familiar Matter explores materials and objects associated with the home as evocators of memory. In my artwork, I navigate the intersections of cultural tradition, learned behavior and intuitive self-development in order to examine constructs within culture and society. My ideology is based in the writings of Chicana theorist and activist, Gloria E. Anzaldúa, and her concept of the mestiza consciousness. Anzaldúa defines this variously as “a consciousness of duality,” a reviving of the connection between the conscious and subconscious minds, and a focus on the spiritual potency of our experiences. Anzaldúa employs this method of thought in order to combat rigid, habitual modes of social tradition that perpetuate systems of violence on both a personal and global scale. I apply Anzaldúa’s theory to domestic spaces, drawing upon formative experiences from my upbringing to investigate the nuances of domesticity and patterns of habit that simultaneously shape oneself and society. To do this I incorporate traditional craft and pattern into my work, following the legacy of the Pattern and Decoration movement of the 1970’s, which challenged the notion that tapestry, quilting, knitting, etc. are “women’s work” and blurred the barrier between “high” and “low” art. Like the P&D artists, I appropriate objects and materials found in the home, manipulating and combining them in ways that evoke memory, and inevitably the trauma and nostalgia that may be embedded within them. By understanding the personal as political and confronting ingrained systems on this level, one may enact both inner and global social change.

71. Development of a Novel Titanium-Mediated Synthesis for Substituted Cyclobutanones
Jillian Bradley '18
Sponsor: Dr. Michael Gesinski, Chemistry and Biochemistry Department
3:45 pm – Olin 226

Cyclobutane derivatives occur in many natural contexts and have a wide range of functionality. Important examples include pharmaceutical compounds such as anti-tumor agent’s carboplatin and lobuplatin. Additionally, cyclobutane groups are useful structures in a number of organic reactions. A ring strain of 26.5 kcal/mol makes them ideal for stereo selective ring opening and ring expansion reactions. However, current strategies of forming substituted cyclobutanes, such as phytocycloaddition and ruthenium-catalyzed reactions, are limited either by restrictions on the products’ functional groups or by the need for complex, expensive catalysts. Herein is proposed a cyclobutanation mediated by inexpensive, commercially available titanium reagents. A tosylated cyanohydrin and a titanium complex were combined in diethyl ether, then ethyl magnesium bromide was added dropwise. The reaction then produced a substituted cyclobutanone. A benzyl cyclobutanone was produced in up to 64% yield, and a protected alcohol cyclobutanone was produced in up to ___% yield. Although it requires additional optimization, this reaction is a promising new pathway for producing substituted cyclobutanones.

72. A Cost-Benefit Analysis of Federal Housing Assistance Programs
Manuela Figueroa-Casas '18 and Aresha Davwa '18
Sponsor: Dr. Dirk Early, Economics and Business Department
1:15 pm – Olin 305

Public housing, private subsidized housing, and housing vouchers comprise the bulk of federal support for low-income, elderly, and disabled renters. To add to our understanding of these programs, we utilize data from the 2011 and 2013 waves of the American Housing Survey (AHS) to estimate the benefits and costs of providing these federal programs to households in the U.S. The AHS provides extensive information on housing units and their occupants. Beyond estimating costs and benefits, we compare current consumption of housing and other goods to predictions of consumption patterns in the absence of housing assistance and under alternative policy options, including unrestricted cash transfers. Our analysis also includes estimates of the distribution of benefits across program participants and across all low-income households. To predict program costs, we compare the rents paid by participating households with the estimated market rent of the subsidized unit using a hedonic regression. Estimates of benefits are predicted based on household preferences for housing and other goods. Overall, we find that the cost of providing these programs exceeds the benefits to households. We also find that households consume more

housing while enrolled in any of these programs than they would in their absence or with an equivalent cash transfer. Of the three programs, housing vouchers provide the greatest benefit. These findings suggest policy makers should focus on vouchers as the primary method of providing housing assistance.

73. Are We Headed for a Housing Crisis? Housing Values Relative to Rents
Ryan Gallo '18
Sponsor: Dr. Dirk Early, Economics and Business Department
1:30 pm – Olin 305

The collapse of the housing bubble is commonly cited as the main cause of the Great Recession. The housing bubble was a result of excessive investment in housing, based on the assumption of continuous increases in home prices. In well-functioning markets, prices of owner occupied housing and rents should move together. However, speculation in owner occupied housing can lead to a rapid increase in home prices relative to rents. The goal of this paper is to determine whether measures of home values relative to rents can predict future home values. Data from 2000 and 2006 will be used to determine the trend in home values relative to rents prior to the Great Recession and data from 2010 to 2016 are used to see if a similar trend is present today. The data are at the county level across the roughly 3,000 counties in the United States. If a similar trend in home values relative to rents that led up to the 2008 housing crisis is found again in more recent data, policy makers should be concerned about the stability of the housing market.

74. Well-Being and Marriage: Does Marriage Improve Mental Health?
Maranda Kahl '18
Sponsor: Dr. Dirk Early, Economics and Business Department
1:45 pm – Olin 305

With the decline in marriage rates and the rise in mental health issues, understanding the potential correlation between marital status and overall mental health is of economic importance. This research explores the potential effects of marital status on mental health in the U.S., using cross-sectional, microdata from the 2016 Behavior Risk Factor Surveillance System (BRFSS), which includes over 400,000 observations. The role of marital status (divorced, widowed, separated, and part of an unmarried couple) on three different dependent variables (# of days mental health not good, overall life satisfaction, and the presence of a diagnosed depressive disorder) are estimated using OLS and Logit regressions. Among other findings correlated with race, gender, and age, the results suggest that marriage is associated with a decrease in number of days of poor mental health, a decrease in the likelihood of a depressive disorder diagnosis, and an increase in overall life satisfaction. This research has many policy implications. If divorced individuals have stronger mental health than separated persons, then the U.S. should consider easing the divorce process, and if marital status is linked to mental health, then schools should consider mandating healthy relationship education in conjunction with programs such as sexual education.

75. Can You Beat Vegas: A Study on the Efficiency of the NFL Betting Market
Ryan Ogden '18
Sponsor: Dr. Dirk Early, Economics and Business Department
2:00 pm – Olin 305

Over \$95 billion is gambled betting on National Football League (NFL) and college football games each year. Efficiency in the betting market means that there are no strategies or rules that could consistently lead to profitable bets on games. This paper looks specifically at the NFL and the efficiency of the point spread as a predictor of the actual score difference between the underdog and favorite teams during the 2015 season. It also looks at important factors that might have an effect on the outcome of a game to see if there is any available information not being incorporated in the point spread. If such information is detected, this could lead to strategies that provide a profitable advantage when betting on NFL games using the point spread. Using an OLS regression to test for efficiency in this market, this study found that the point spread is a good predictor of the actual score difference. However, it also found that when the home team beat the point spread in their previous game, they were more likely to not beat the spread in their next game. This relationship could identify a strategy that leads to an advantage in NFL betting. Once a strategy is developed, it is tested using data from the 2016 season.

76. Are Natural Disasters Economic Disasters?
Collin Parks '18
Sponsor: Dr. Dirk Early, Economics and Business Department
2:15 pm – Olin 305

In 2005, Hurricane Katrina struck New Orleans, causing \$160 billion in losses. This event is responsible for the largest insurance payout in US history, estimated at more than \$40 billion. The initial effect of a natural disaster is a disruption in economic activity. Of interest is whether the rebuilding efforts lead to an increase in economic activity in subsequent years. This paper examines the effects of a natural disaster on state economies in the U.S. by using changes in GDP to capture the economic impacts of these events. Using panel data, the percentage change on GDP (the dependent variable) is modeled as a function of, among other things, the level of damage from natural disasters in previous years. Additional controls include the unemployment rate, FEMA grant awards, poverty rates, and high school graduation rates. All variables are at the state level for years 2010, 2011, and 2012. The results will inform policy makers on the immediate and subsequent economic impact of natural disasters.

77. The Effect of H-1B Visas on Economic Growth
Penny Phan '18
Sponsor: Dr. Dirk Early, Economics and Business Department
2:30 pm – Olin 305

To push his “America first” agenda, President Trump has proposed reforms to current immigration policies. One of the proposed changes would affect the H-1B visa program, which issues skilled foreigners permission to work in the U.S. Supporters argue that limiting the number of foreign workers in the market would give native workers better employment opportunities. Those opposed argue that the decrease in the number of H-1B visa holders, usually workers in STEM-related areas, would decrease the rate of innovation and technological progress in the US, which are key factors to economic growth. To assess the macroeconomic impact of the H-1B visa program, this paper studies the role of H-1B visas on per capita GDP growth at the state and metropolitan level, using data provided by the Office of Foreign Labor Certification and the U.S Bureau of Economic Analysis. Estimates, found using OLS regression, will shed light on the effect of skilled immigrants’ contributions to the economy, and therefore the impact of reducing the number of H-1B visas allowed.

78. Google VS Buffet: Are Markets Actually Efficient?
David Strong '18 and Maxx Prado '18
Sponsor: Dr. Dirk Early, Economics and Business Department
2:45 pm – Olin 305

The efficient market hypothesis claims that all readily available information is captured within a company’s share price. Time and time again there have been people who have exploited market inefficiencies through asymmetric information and profited. As economists we want to be able to find any inefficiencies in markets and use those inefficiencies to create a predictive model for individual stocks. Therefore, we are examining the empirical impact of information processing, via google search query volumes, on individual stock performance. We created a model to find evidence that keyword google query volumes have a significant effect on individual stock prices. Depending on the connotation of these searches we are able to form a predictive model of stock price direction. By examining Google trend data and stock price data from Yahoo Finance we show that a major increase in search volume is associated with a significant effect on a company’s future share value.

79. Aggregate Effects of College Completion on Unemployment
Caleb Rightmer '18
Sponsor: Dr. Dirk Early, Economics and Business Department
3:00 pm – Olin 305

College enrollment has increased by 30 percent since 2000 (NCES 2017). At the same time, cost of a college education has doubled (NCES 2016). Given this increase, some have questioned whether the benefits of a college

education outweigh the costs. Most estimates target the individual costs and benefits of a college education. This study considers whether a better educated population (as measured by college attainment) has macroeconomic implications. To do so, estimates of the effect of graduation attainment on state unemployment rates are produced using an OLS regression on cross sectional data for the year 2013. The dependent variable is the state unemployment rate and the fraction of the state population with a college degree is the variable of interest. Other control variables include high school graduation rates, state spending on education, average per capita income for the state, percent of the population that is female, and percent of the population that is white. The sample size consists of the 50 US states plus the District of Columbia. The hypothesis is that college graduation attainment will have a negative effect on unemployment rates at the state level. State policy makers may consider mandatory college prep programs in high schools or other policies that promote college completion, if the hypothesis holds.

80. Risk Tolerance and Asset Allocation

Ian Mead '18

Sponsor: Dr. Dirk Early, Economics and Business Department

3:15 pm – Olin 305

Consumers' investment choices can greatly affect their long term wealth. When market conditions change it is appropriate that investors adjust their portfolios according to their level of risk tolerance. Inekwe (2016) suggests tighter money policy increases risk aversion and uncertainty and Disatnik (2015) suggests investors do not always properly adjust their portfolios to meet their true risk-tolerance levels when these changes in risk aversion and uncertainty occur. This study examines data from the Board of Governors of the Federal Reserve System's Survey of Consumer Finances to determine the effect of risk preference characteristics on household portfolio allocations. Specifically, this study examines how stated risk tolerance levels reflect households' investment choices. Survey respondents are asked on a scale their opinions of making risky investments and detailed financial records for respondents are reported. Income, net worth, debt-to-income ratio, race, financial literacy and education are some of the controls used. Preliminary analysis suggests positive correlations between income and risk taking attitudes and an investor's decision to own stock.

81. The Shadow Beast Within: La Quinceañera as a Means of Cultural Resistance

Esther Ramos '19

Sponsor: Dr. Brenda Sendejo, Latin American and Border Studies Program

1:00 pm – Olin 322

Chicana scholars have documented the quinceañera as a mode of resistance against cultural and institutional oppression within the United States. Despite this, few have documented the resistance happening within the practice itself. This essay builds on the work of Norma E. Cantú and Gloria Anzaldúa's concept of the Shadow Beast to show how quinceañeras have transformed into a mode of cultural resistance against both U.S. and Mexican traditions. The quinceañera provides an avenue for the Shadow Beast to be unleashed, creating a space in which the Chicax community has the freedom to claim their identity on their own terms.

82. Benefits of Outdoor Adventure Programs for Middle Schoolers

Hector Aleman '18

Sponsor: Dr. Alicia Moore, Education Department

1:15 pm – Olin 322

Students and young adults are still developing, both cognitively and physically, in their early years. The development of students extends beyond the knowledge learned and experiences encountered in the classroom. Extracurricular activities have been proven to enhance students' overall performance. Among the benefits from such programs are mental, physical and socioemotional health. This research project will explore the experiences of Georgetown Middle Schoolers in an Outdoor Adventure program and Challenge Course program and analyze their impact on the students' mental health: looking at their confidence and how their achievements in the program translate into their performance in the classroom. Using data from my experiences in my internship at the Georgetown After School Action Program (ASAP), I will compare students' confidence when they begin the program at the beginning of the semester, through the end of the semester. This will give us a better sense as to how

beneficial the Outdoor Adventure Program and Challenge Course are for the students' confidence and if the program generates better academic outcomes. Ultimately this research will strive to push schools to have an Adventure program in their school because it has greater benefits that can all be achieved simultaneously.

83. You Say You Wanna Gloss With Us: Encountering the Bodies of Communication by Translating Music for Deaf Audiences
Audrey Davis '19
Sponsor: Dr. Alicia Moore, Education Department
1:30 pm – Olin 322

Auditory perception is, and has historically been, the customary way of being; if one cannot hear, they are at a disadvantage. This construction of auditory perception as the customary way of being carries on to the idea of music, which is typically thought of as something that can only be experienced aurally. The ways in which Deaf audiences experience music complicates these notions, and gives hearing individuals an opportunity to reevaluate the ways in which they view communication, experience, and connection. Through this project, I take themes of marginalization and stigmatization of the Deaf as a backdrop, then explore the recent phenomena of the circulation of videos that include American Sign Language interpreters performing their gloss, or translation of music into sign, on YouTube. These videos have called attention to the relation of Deafness and music, and notably attracted the interest of hearing audiences. I chose to focus on a video created by Deaf rapper and activist, DEAFinitely Dope. Through analyzing his translation, or gloss, of "Regulate" by Warren G and Nate Dogg, I argue that DEAFinitely Dope effectively responds to stereotypes of Deafness. In doing so, he also helps us begin to identify the ways in which glossing contemporary music can bridge different cultures and create a foundation for mutual respect and shared community.

84. The Importance of Coaching in Motivating Adolescent Girls in Physical Education
Paige McShan '18
Sponsor: Dr. Alicia Moore, Education Department
1:45 pm – Olin 322

Physical Education (P.E.) is one area in the education system that tends to get overlooked frequently. P.E. is important because it helps students with their self-esteem, problem solving on the spot, and the way they interact with others. This project investigates different ways to motivate students, specifically girls, in P.E. as a P.E. teacher. Motivation is the driving force for behavior, initiate goal setting (Jenkins and Demaray, 2015), a person's will to get involved with an activity, and explains why people are eager to get involved or pull away from an activity (Schunk, Pintrich, and Meece, 2008; Weiner 1992). The research is focused on fourth through eighth grade students at a local private school in Georgetown, Texas. The findings will be compared to research in Physical Education dealing with girls in middle school and junior high throughout the nation. The research explores different milestones the average girl goes through during their middle school and junior high years, how different boys are from girls during this time, and how important it is to be there for girls during P.E. classes at this age. This research provides information on how the lack of motivation affects social life, and how it causes self-esteem and interactions issues with others. It answers the following questions: Why are girls not motivated in P.E.? How can a P.E teacher motivate their girls to become more active and positive in their P.E. class?

85. Screenwriting: The Process of Writing a Screenplay
Katie Rouse '18
Sponsor: Dr. Jim Kilfoyle, English Department
2:00 pm – Olin 322

I am a senior English Major and I have had an interest in creative writing for a while now. Last semester I decided to branch out into a new realm of creative writing, screenwriting. Since SU did not offer a class in Screenwriting I decided to ask Dr. Kilfoyle for help and we have been meeting for my Screenwriting Independent Study this semester. In this Independent Study we read and discussed Syd Field's book, Screenplay and we have been using it as our guide to walk me through the process of writing my own screenplay, Ella. By the end of this course I plan on having a first draft of my own screenplay completed. For the presentation, I would like to specifically discuss

Field's concept of the paradigm and the three acts that form every screenplay. I also plan on highlighting other key concepts from Field's book as well as my own personal process and the challenges I have faced while writing my screenplay. In addition I would also like to have a scene from my screenplay read/acted out loud. In participating in this symposium I hope that I can inform attendees about the process of screenwriting, inspire other students to pursue creative writing and possibly inspire the creation of a screenwriting class here at SU.

86. Plastic Threads and Living Tapestries: A Study of Trash and Temporality

Walter Stroup '18

Sponsor: Dr. Jim Kilfoyle, English Department

2:15 pm – Olin 322

Tons of plastic are produced and manufactured to fill a specific utility, then this plastic is thrown away. A bag of chips, for example, is only good for one use then, once consumed, the bag is placed in another plastic container so that it can be placed in a giant collection of plastic containers. Eventually, this collection of plastic will be moved to the ocean where it will swirl and -- excruciatingly slowly -- begin to dissolve amongst a world of plastic. The same logic that informs our conception of trash, or lack thereof, resonates with our contemporary notions of temporality, as well as the complete social horizon of modernity. The uniting thread between our conceptions of temporality and our conception of trash is the intense fragmentation of the world. One cannot ever really throw the bag of chips "away," but it is treated as if it were "away." The world, in other words, is divided away from the world. Merleau-Ponty's notion of temporality paired with the interlace structure of Beowulf compels a reweaving of the threads of modernity back into a coherent tapestry, rather than a series of divided threads moldering in a landfill. The combination of French phenomenology and Old English poetry is particularly effective at this reweaving, because the Anglo-Saxon notion of temporality had none of the fractured problems of modernity. In other words, Beowulf shows what Merleau-Ponty explains.

87. Querying Across Time to Interactively Evolve Animations

Isabel Tweraser '19

Sponsor: Dr. Jacob Schrum, Mathematics and Computer Science Department

2:30 pm – Olin 322

Computers can generate interesting art by simulating evolutionary processes that treat human preference as a measure of reproductive fitness. Evolutionary computation has the power to create interesting 2D pictures (Picbreeder), and 3D shapes (Endless Forms). Both of these programs use Compositional Pattern Producing Networks (CPPNs), which are a generative encoding with a broad range of applications. These networks are a type of artificial neural network that have arbitrary topologies and whose activation functions are chosen from a variety of functions that help create interesting patterns. While Picbreeder and Endless Forms are innovative programs that explore the capabilities of CPPNs in interesting ways, they both produce static outputs. Endless Forms displays animations, but these are merely rotations of static shapes. In our research, CPPNs are queried across time to create dynamic outputs. Specifically, AnimationBreeder and 3DAnimationBreeder are two new programs that expand on the original ideas of Picbreeder and Endless Forms by introducing a new input to CPPNs: time. By adding a time input to CPPNs and generating sequences of results over an interval of time rather than individual results, both 2D and 3D animations can be generated. This enhancement results in more complex and interesting dynamic results.

88. Comparing Direct and Indirect Encodings Using Both Raw and Hand-Designed Features in Tetris

Lauren Gillespie '19

Sponsor: Dr. Jacob Schrum, Mathematics and Computer Science Department

2:45 pm – Olin 322

Intelligent computer agents have a wide range of applications in robotics, video games, and computer simulations. However, fully automated agents should function with as little human guidance as possible. Specifically, agents should learn from their environment directly instead of from highly processed information chosen from the environment by human designers. Learning from the raw, unfiltered domain is difficult for computer agents, but can be easier when they are aware of the geometry of their environment. Indirect encodings allow agents to take advantage of the geometry of the domain and scale up to more complex environments. This research demonstrates

the relative benefits of a direct and indirect encoding using raw or hand-designed features in Tetris, a challenging video game. Specifically, the direct encoding NEAT is compared against the indirect encoding HyperNEAT. Both algorithms create neural networks to play the game, but HyperNEAT can learn better from the raw domain, due to its ability to generate large networks that take advantage of the domain's geometry. However, using hand-designed features leads to higher scores with both algorithms. HyperNEAT makes better use of hand-designed features early in evolution, but NEAT eventually outperforms HyperNEAT. Since each method succeeds in different circumstances, approaches combining the strengths of both algorithms should be explored.

89. Carnegie Mellon's OurCS and Undergraduate Research Experience for Women
Adina Friedman '19
Sponsor: Dr. Therese Shelton, Mathematics and Computer Science Department
3:00 pm – Olin 322

Adina Friedman and Elyssa Sliheet participated in the "OurCS 2017" national workshop hosted by Carnegie Mellon's School of Computer Science in Pittsburgh, Pennsylvania. This workshop encourages undergraduate women in computer science to explore academic research by working in teams to solve real world problems, as well as by attending lectures given by leaders in industry and academia, and a panel of CMU's graduate students. Friedman's team tackled, how can technology give at-risk youth enough social support to stay in school? Using data from the Philadelphia public school system, we addressed issues seen in the comments using technology readily available to high school students. During the workshop we learned how to sort data using affinity analysis, and we developed a product using human-centered-design thinking. Sliheet was part of the team designing a mobile service which focused on solving common problems by creating an app. Her group developed a model for an app called QuickEats that would help college students find places to eat between classes by providing them with the locations of nearby restaurants along with menus and crowd sizes. OurCS gave both students the opportunity to learn about graduate school research and to talk with women who are successful in the computer industry. The variety of teams and presentations gave both a valuable chance to learn about applications of their chosen majors that they may not have considered before attending.

90. The Mathemasticks of Flower Sticks: Finding a Mathematical Model for Juggling Sticks
Bonnie Henderson '18
Sponsor: Dr. Therese Shelton, Mathematics and Computer Science Department
3:15 pm – Olin 322

We present original mathematical models of the motions of three tricks for juggling flower sticks, which can be "juggled" by using only two sticks, one in each hand, to keep the third stick, the flower stick, in the air. We obtained data through using motion capture and digitization technologies for the angle of the flower stick from the horizontal as well as the Cartesian coordinates for each end of the flower stick and for the ends of each stick in the hands. We used our calculated average rates of change to identify features of the data. We then fit sinusoidal functions to each data set based on the features. We use parametric functions of our sinusoidal fits to represent the path of the main stick and the stick in each of the hands. Finally, we show the functions animated together to show the model of the movements of the three tricks for juggling flower sticks.

91. Choose Your Own Adventure: An Analysis of Interactive Gamebooks Using Graph Theory
Daniela Beckelhymer '19 and D'Andre Adams '20
Sponsor: Dr. Alison Marr, Mathematics and Computer Science Department
3:30 pm – Olin 322

"BEWARE and WARNING! This book is different from other books. You and YOU ALONE are in charge of what happens in this story." This is the captivating introduction to every book in this interactive novel series, Choose Your Own Adventure (CYOA). Our project uses the mathematical field of graph theory to analyze forty books from the CYOA book series for ages 7-14. Once the digraphs of each book were drawn, we analyzed the digraphs by collecting structural data such as longest path length (i.e. longest story length) and number of vertices without degree zero (i.e. number of endings). In this presentation, we will discuss the results of statistical analyses used to

compare books by author, year, and reader preference. We will also discuss numerous errors we found in the description of certain books and the publication of others.

EXPERIENTIAL LEARNING POSTER

abstracts

92. Developing Reform Curriculum

Henry Furler '20

Sponsor: Dr. Sherry Adrian, Education Department

10:00-12:00 pm - Charles & Elizabeth Prothro Center for Lifelong Learning

Throughout the history of education, teachers have used curriculum to determine what the students will learn, and how they will be specifically taught. In more recent years - beginning specifically in the late 1980s and early 1990s - more interactive, or "reform," curriculums have become more popular, being used to engage more students. Within more recent curriculums, instructional designers have been incorporating twenty-first century skills that students will need, including creative problem solving and the use of technology. Today's learners specifically need these things, as well as instruction in social justice. These skills need to be created so that they foster student participation, as well as developing a mutual interest in the content area. My study will focus on development of curriculum through the Williamson Museum. I will work with the members of the staff to find resources, as well as background information for the curriculum itself. As a result of this study, I will develop a detailed curriculum on the regions of the state of Texas, which will incorporate interactive activities, the analysis of artifacts and samples, and literature analysis. In conclusion, through examinations of the natural resources and histories of the regions of Texas, I will work with the Williamson Museum to develop a curriculum on the regions of Texas, incorporating hands on activities as well as historical and current social justice issues.

93. Learning How to Teach from My Community

Sarah Buchanan '20

Sponsor: Dr. Sarah Brackmann, Community-Engaged Learning Office

10:00-12:00 pm - Charles & Elizabeth Prothro Center for Lifelong Learning

My poster will highlight all of the CEL placements and activities that I have participated in. I have done in-class placements, after school mentoring programs, and have been a CELTA for two classes over the course of this past year. My involvement in the community has strengthened my confidence as a pre-service teacher, and has taught me more than I could have learned from just my professors. I have been working with one classroom for two semesters now, and I have made valuable connections with the teachers of the class and with the students. I have put what I have learned into action through lesson plans and activities that I have planned and taught. I have witnessed the cultural obstacles that multicultural students face in schools, and how teachers are combating this. I have then taken these observations and applied it to not only my education courses, but also my Spanish courses and the courses that I have been a CELTA for. I have seen first-hand the things that we discuss in our classes, and that will ultimately make me a better teacher when I graduate. I wish to go on to graduate school and to teach Special education. Participating in community-engaged learning courses have strengthened my beliefs as a future teacher. I will now go on to my future classrooms, confidently because of my experiences in the CEL placements.

94. The Democratic Experience in American Politics

Teresa Cropper '20

Sponsor: Dr. Sarah Brackmann, Community-Engaged Learning Office

10:00-12:00 pm - Charles & Elizabeth Prothro Center for Lifelong Learning

This semester I have worked as a CELTA (Community-Engaged Learning Teaching Assistant) for Dr. Sydnor's American Politics class. I am responsible for helping students discover what they would like to do for the required 4 hour community-engaged learning experience. This requires me to be non-partisan and be aware of the political happenings around town. Through this experience, I have gained further understanding of our democratic system and the challenges that come with it. Being a political science major, I am constantly exposed to class concepts in this real world experience of our democracy. One of which being the word "Democracy," which according to

Wendy Brown is "rule of the people and contrasts with aristocracy, oligarchy, tyranny". Through my experiences I have witnessed challenges to rule by the people. Some of my experiences include observing low voter participation, incumbent advantages and smaller challenges that make participation difficult such as transportation. I have also witnessed a rise in rule by the people, which can be seen from the staggering number of candidates in the upcoming elections and new political organizations. Ultimately, my experience has made me more informed of how our political system works and has solidified my academic interests.

95. The Language of Learning: Crestview Baptist Church ESL Classes
Ellie Crowley '20
Sponsor: Dr. Sarah Brackmann, Community-Engaged Learning Office
10:00-12:00 pm - Charles & Elizabeth Prothro Center for Lifelong Learning

My community-engaged learning experience took place at Crestview Baptist church and was a partnership between the ESL classes here and my Spanish III class. This experience changed the way I thought about how language is taught and who represents the main demographic of people who are wanting to learn English. Seeing both the similarities and differences in learning a language between our Spanish III class and the ESL class also opened up the way I thought about how language is used and how it is truly a commodity. This was a very insightful process, I met lots of wonderful women in the class that I helped out with, I was able to practice my Spanish a fair amount, and I was able to see the kind of impact that knowing the English language had on these women's day to day life. Overall, I learned a lot about them, but I also learned a lot about my own circumstances and that the accessibility of Spanish classes in my life is really very much a privilege.

96. Being a Congressional Assistant Campaign Manager
Natalie DeCesare '19
Sponsor: Dr. Sarah Brackmann, Community Engaged Learning Office
10:00-12:00 pm - Charles & Elizabeth Prothro Center for Lifelong Learning

While interning for Mike Sweeney for Congressional District 31, I learned how to run a federal campaign in a divided party and against a formidable incumbent. I also learned the political climate of our communities and who leads decisions made, as well as how to network with a diversity of professionals and neighbors to gather feedback. My responsibilities included leading volunteers, data entry, research, social media, small donor communications, community outreach, and networking at meetings and events. Since the campaign is small, I assumed most responsibilities. I experienced the real-life application of what I learned in my political science classes and helped shape political culture by targeting potential voters with the use of social media. I witnessed the value of civic engagement and how few people really participate in voting and attending civic meetings. I now understand why young people feel discounted in politics, because they are not participating with the same commitment as other ages. It is exciting to see how much opportunity there is for young people to get involved and succeed quickly if interested. Moving forward, I will be working on this campaign through the primary. I truly enjoy helping people win what they deserve, and I want to continue campaign strategy work while I work in the legal field.

97. From Participant to Site Leader: the Return to New Orleans
Lauren Muskara '20
Sponsor: Dr. Sarah Brackmann, Community-Engaged Learning Office
10:00-12:00 pm - Charles & Elizabeth Prothro Center for Lifelong Learning

My interest in working with the Spring Breakaway Program sparked from joining the Disaster Recovery & Rebuilding trip in New Orleans my freshman year. I obtained a greater perspective of social justice issues outside the Southwestern University community, which challenged me to become a more active citizen. The first Spring Breakaway experience had such a great impact on my outlook of social justice issues, I decided to go back to New Orleans, however this time I am a site leader planning to focus on the sustainability component of rebuilding New Orleans. The current experience I am working on is entitled "Paving Our Way to Sustainability: Building Long-Term Pathways for Disaster Recovery." My current role in Spring Breakaway is to serve as a site leader to all the participants in the experience I plan. My responsibilities include finding and developing relationships with community partners and conducting research for pre-education and re-orientation. During the week-long experience

in an outside community, I guide all the participants in daily reflections where I aid in creating brave spaces for everyone.

98. Spring Breakaway, Houston 2018 (Navigating Rough Waters: Refugee Resettlement in the Wake of Natural Disaster)
Amiel Padayhag '20
Sponsor: Dr. Sarah Brackmann, Community-Engaged Learning Office
10:00-12:00 pm - Charles & Elizabeth Prothro Center for Lifelong Learning

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.

99. Roots of Change: Exploring Food Justice and Race
Mauren Rendon '21
Sponsor: Dr. Sarah Brackmann, Community-Engaged Learning Office
10:00-12:00 pm - Charles & Elizabeth Prothro Center for Lifelong Learning

I have been involved in the Spring Breakaway Program since late November of 2017. At first, I met our coordinator, Nikki Welch, at one of our discussion panels for my First-Year Seminar (Doing Good and Doing It Well), with Dr. Melissa Byrnes. I was told about Spring Breakaway at the beginning of the Fall semester, and I immediately knew I wanted to be involved. As the Oakland experience underwent some changes, I was selected as the new Site Leader for the experience. The topic of Exploring Food Justice and Race had already been selected prior to my arrival in the program. While my job was to plan educational meetings, contact community partners and organizations in the Oakland community, and plan logistics of the experience, I also had to educate myself in the topic. The methods I used to stay organized and accomplish my goals were to focus on community partners first, then research about the topic, and get in contact with the participants. While this experience has been one of my first experiences in a leadership position, I also learned that to lead others, one must be prepared beforehand. While preparing materials for my meetings, I researched about food deserts, democracy, systemic racism, and environmental racism. I learned about the topic along with my participants, engaged in discussion, and volunteered with unique organizations that are working with the issue from the very root of it.

100. Independence: At Home and Abroad
Lacey Bowersox '18
Sponsor: Ms. Cortney Graves, Intercultural Learning Office
10:00-12:00 pm - Charles & Elizabeth Prothro Center for Lifelong Learning

Studying abroad is an incredible adventure that challenges and pushes you to your limits daily – mentally, physically, and most of all, emotionally. Despite having struggled when I initially started my semester abroad in Argentina, this experience taught me how to persevere and to ultimately embrace my independence. When defining independence, it mostly retains a positive connotation – to be self-sustainable, to have freedom. My time abroad quickly taught me that along with my new-found freedom, came a great deal of responsibility, singularity, and hardships. Without the aid and support of friends and family around me, both at home and abroad, I wouldn't have

been able to maintain my independence and would have quickly lost the motivation to be self-sufficient and regressed to forms of dependency. Similarly, aging adults also have challenges with independence when they become older, facing health issues, declining mobility, and other struggles as well. Through my Civic Engagement project with Faith in Action, a non-profit organization that offers services to help older adults in maintaining and improving their quality of life and independence, I will analyze the importance of independence and the need that this program has within the community. Throughout this presentation, I will be making connections between my study abroad experience and my civic engagement project to discuss how enthralling independence is and how we can help others maintain theirs through assistance and encouragement.

101. Experiential Learning in Morocco: Studying Race, Racism, and Migration

Dakota Cortez '18

Sponsor: Ms. Cortney Graves, Intercultural Learning Office

10:00-12:00 pm - Charles & Elizabeth Prothro Center for Lifelong Learning

Last semester, I had the opportunity to study abroad in Rabat, Morocco as a Gilman scholar. While in Morocco, I took Arabic as well as a class on migration and transnational identity. I lived with a homestay family the entire time I was in Morocco, which helped me learn the language as well as establish lifelong connections with my host family relatives and friends. I also had the opportunity to conduct a 4-week long independent study project, in which I studied perceptions of black, sub-Saharan migrants in Morocco. As an anthropology and feminist studies major, this was an especially valuable experience for me, as I was able to gain experience in conducting a research project and doing fieldwork on my own. My research was heavily influenced by what I have learned in the classroom at Southwestern, especially in relation to race, racism, blackness, and global white supremacy. With the knowledge I have gained at SU, I was able to go abroad with a critical eye, both of my own study abroad program and positionality, as well as of the larger structures that work to marginalize people in all areas of the world, specifically in relation to the construct of race. I am also planning to go back to Morocco this summer in order to continue my research for my senior honors thesis in anthropology. Importantly, going abroad confirmed that I want to pursue anthropology as a career, especially as a professor, and helped me envision myself studying and/or living abroad in the future. After going to Morocco, I really began to understand the importance of having the opportunity to live and study abroad, which is why I am a strong advocate for study abroad and scholarships like the Gilman, which help students go abroad who are not typically able to.

102. In Full Bloom

Krista Everson '18

Sponsor: Ms. Cortney Graves, Intercultural Learning Office

10:00-12:00 pm - Charles & Elizabeth Prothro Center for Lifelong Learning

The Fall London study abroad program of 2017 was the highlight of not only my senior year, but became the most memorable time of my entire college career. It was here that I finally bloomed to my fullest in my study of the Tudor dynasty. My interest in the Tudors cultivated over the years, growing slowly into a small bud and continued into college where upon studying abroad I was able to take part in the Tudor class run by expert Dr. Jessica Hower. I was able to travel to places like the Tower of London, Hampton Court, Windsor and more where the historical figures lived, walked, breathed, and died. I literally was walking in their footsteps. My knowledge flourished here and finally felt like my childhood dream of understanding these unique figures was coming together in the greatest possible context. I was able to research and create many writings, essays, and short narratives of the Tudors while living in the midst of where they themselves lived so long ago. I could see primary documents, view the actual portraits, and speak with British historians and experts about the Tudors. London taught me true investigative research skills, and highlighted how important and meaningful the space and area around is. It is what influenced me to continue my studies about the Tudors, and base my History Capstone around as well. I know my time spent in London will be a part of me for the rest of my life.

103. From Dallas to Dublin: A Texas Girl's Guide to the International Stage

Joan Milburn '19

Sponsor: Ms. Cortney Graves, Intercultural Learning Office

10:00-12:00 pm - Charles & Elizabeth Prothro Center for Lifelong Learning

I will discuss my experience living abroad and studying in Dublin, Ireland. Last spring, I had the pleasure of attending the Gaiety School of Acting and being a part of their professional acting training program. Through my attendance, I learned more than I ever thought possible in the short 4 months I was there. My class schedule, though rigorous, was incredibly broad and wonderfully fun. I took a huge range of classes, from clowning to stage combat, and with each one I felt I grew into a better actor and student. I will be including a copy of my class schedule in my poster. I will also discuss what goals I set for myself before I embarked on my journey and how I worked to meet each one. I also plan to discuss my accomplishments, my journey to better understand an unfamiliar culture, my long-term career goals following my amazing experiences, my individual travel, and how my time abroad helped me grow and change into a better person.

104. Finding my "Me" in Media

Betty Ton '19

Sponsor: Ms. Cortney Graves, Intercultural Learning Office

10:00-12:00 pm - Charles & Elizabeth Prothro Center for Lifelong Learning

During my Fall 2019 semester in London, I interned at React Communications. This organization specializes in raising brand awareness through multiple media platforms. I applied my Communication Studies and Business Administration knowledge within the Public Relations Industry. I generated a public image for multiple clients, developed social media strategy, and attracted event audiences while exploring my passion for media and technology. This report describes my experience at a Public Relations firm, where I was required to find solutions to difficult issues to meet the goals of my organization. I plan to describe the culture and structure of my company and present an analysis on the impact of digital media and technology within the Public Relations industry on an international scale. After addressing and challenging current trends that affect the market, I will present recommendations and solutions that helped me overcome these issues during my experience. Finally, I plan to discuss how my internship abroad has influenced my long-term career interest and goals.

105. Madagascar: A Moving Experience

Sophia Woodward '19

Sponsor: Ms. Cortney Graves, Intercultural Learning Office

10:00-12:00 pm - Charles & Elizabeth Prothro Center for Lifelong Learning

In my poster I would like to highlight the experiences I had outside of the classroom that enhanced my time abroad. Since this program was not "traditional," I want to show why that was such a strength in my overall learning experience. I would like to talk about the many learning moments that may not have been initially identified as educational. I also want to discuss the excursions and projects I did with the program, including my Independent Study Project, home stays, village stay, and cool units we did including a lemur ecology unit. This poster will be a reflection on the many experiences I had while abroad and how they have impacted my education back here at Southwestern.

106. Assessing HOPE: An Examination of Psychological Practices in a Community Mental Health Center

Hannah Belusko '18

Sponsor: Ms. Dana Luna, Career Services Office

10:00-12:00 pm - Charles & Elizabeth Prothro Center for Lifelong Learning

Located in Oklahoma City, Oklahoma, HOPE Community Services, Inc. is a certified community mental health center that is funded in part by the Oklahoma Department of Mental Health and Substance Abuse (ODMHS). HOPE has been nationally accredited for their behavioral health outpatient services which are provided to adults, children, youth and families living in the Oklahoma City metro. Programs at HOPE include case management, individual/group therapy, housing/community living, psychiatric rehabilitation services, a medication clinic, crisis

intervention, trauma and vocational services. HOPE also has programs designed for criminal offenders and clients who have co-occurring disorders. I completed 240 hours of working at HOPE as an undergraduate intern. During the first two weeks, I was given an orientation to the agency, reviewed policies and procedures, completed online trainings and interviewed the directors of each of the programs that HOPE offers. After my first two weeks of training, I was officially assigned to work in the children's/youth program on Mondays, Wednesdays and Fridays and the HOPE Bridges adult psychiatric day treatment program on Tuesdays and Thursdays. My responsibilities included shadowing intake assessments, observing individual and group therapy sessions, participation in daily meetings and monthly therapeutic services meetings, attending case consultations, traveling with the Recovery Support Specialist (RSS) and case managers on home visits with clients and ongoing training with licensed clinical staff-including Licensed Alcohol Drug Counselors (LADC), Licensed Professional Counselors (LPC), and Licensed Clinical Social Workers (LCSW).

107. My Semester at TTLA

Emilie Fisher '18

Sponsor: Ms. Dana Luna, Career Services Office

10:00-12:00 pm - Charles & Elizabeth Prothro Center for Lifelong Learning

The Texas Trial Lawyers Association is an organization dedicated to empowering trial lawyers across the state of Texas. They do this through legislative advocacy, political involvement, and educational seminars. The organization also offers many other resources for plaintiff's lawyers. During my time at TTLA, I interned as the assistant to the CLE (Continuing Legal Education) Director. The CLE director is in charge of all the educational seminars offered by TTLA. My responsibilities as the CLE assistant included tasks such as hiring speakers for CLE events, promoting CLE events by calling and speaking to lawyers from across the state, promoting CLE events online and on social media sites, and many other meaningful jobs. I came away from this experience knowing that trial lawyers serve a very special role in our society, and that they would not be able to do their job without the support and advocacy of TTLA.

108. A Walk Around the Writer's Block: Finding My Voice at Austin Woman

Lydia Gregovic '19

Sponsor: Ms. Dana Luna, Career Services Office

10:00-12:00 pm - Charles & Elizabeth Prothro Center for Lifelong Learning

Austin Woman is the leading women's magazine in Austin, and the only Austin-area publication written by women, for women. I had the honor of working with Austin Woman magazine in the position of Editorial Intern. Due to the intimate atmosphere of my workplace, I was able to gain first-hand experience with the world of publishing, and have my pieces featured in the October, November, December, January and February print issues of the magazine. Furthermore, working directly with the head print and digital editors of Austin Woman, I got to experience various parts of the writing and publishing process such as pitch meetings, correspondence with outside sources, and planning for future issues. My time at Austin Woman is invaluable to me not only because it showed me how to turn my passion for writing into a career path, but also because it has already begun to open professional doors that I never imagined I could enter. Following the conclusion of my internship last Fall, I applied for and received an internship at the dating-app startup Bumble, where I am currently continuing to pursue my love of writing by working as the content intern for Bumble's website, The Beehive.

109. You Did What as a History Major?

Danyale Kellogg '19

Sponsor: Ms. Dana Luna, Career Services Office

10:00-12:00 pm - Charles & Elizabeth Prothro Center for Lifelong Learning

This past summer, I interned with the United States Department of Homeland Security (DHS)-Homeland Security Investigations (HSI). Specifically, I was assigned to DHS SAC El Paso with the cybercrimes and intelligence groups. I primarily worked with piecing together the backgrounds of numerous personalities and entities of interest in various HSI cases, composing reports that confirmed to departmental standards, and graphically presenting this information in formal presentations and briefs. Though the work I did with DHS was oftentimes stressful and full of

unsettling information and topics, this experience was truly the best of my life. I never imagined that I would be able to have the opportunity to do something like this as a history major, let alone be able to succeed in such a position. This was truly an example of a case in which the flexibility and adaptability afforded to me by a Southwestern education was invaluable and helped to set me apart from others.

110. High-Tech Wants SU

Meredith Parks '18

Sponsor: Ms. Dana Luna, Career Services Office

10:00-12:00 pm - Charles & Elizabeth Prothro Center for Lifelong Learning

My poster highlights my sales and marketing internship at Kinetic Technologies in San Jose, CA, better known as Silicon Valley. My two main passions in life are technology and literature, and as it turns out I can combine both. Although Kinetic Technologies is a semiconductor company, they valued my liberal arts education. At Southwestern, I am constantly writing, thinking, reading and expanding my mind which are all applicable to the high-tech space. As a sales and marketing intern, I met with engineers at Kinetic to write and provide content for the company website and brochure. I was also able to attend customer meetings alongside our sales executives with engineers at companies such as Google, Apple, Amazon and Plantronics. This exposure to the high-tech space gave me confidence in my liberal arts education. In the same way the high-tech space is innovating, so are we here at Southwestern.

111. Business Strategy Behind Sales & Marketing

Elijah Velasquez '19

Sponsor: Ms. Dana Luna, Career Services Office

10:00-12:00 pm - Charles & Elizabeth Prothro Center for Lifelong Learning

No two businesses are the same. The tactics and strategies each business takes to scale their size is extremely important. Industries and areas of business have an impact on how to market, sell, and advertise to potential customers. My project takes into account class concepts and how they relate to the business world and the internship opportunities I have experienced.

POSTER abstracts

112. Phenolic Composition of 23 Basil (*Ocimum Basilicum* L.) Cultivars
Melanie Aing '18, Eunice Bajomo '19, and Luke Ford '19
Sponsor: Dr. Emily Niemeyer, Chemistry and Biochemistry Department
4:00-5:00 pm – Bishops Lounge

Basil (*Ocimum basilicum* L.) is an aromatic herb widely used in cooking that also has applications in traditional medicine for the treatment of headaches, coughs, diarrhea, and constipation. Basil contains numerous phenolic compounds with known antioxidant properties which may confer a range of human health benefits. These phenolic antioxidants are able to act as reducing agents in the body to prevent harm caused by oxidative stress. The purpose of this study was to analyze commercially available basil cultivars to identify the types of basil with the highest phenolic content. Replicates of 23 basil cultivars ($n = 90$ total plants) were grown from seed in a greenhouse for 55 days. Total phenolic concentrations of the cultivars were measured using the Folin-Ciocalteu and Fluorescence Recovery after Photobleaching (FRAP) method. This presentation will discuss similarities and differences in phenolic composition and antioxidant capacity among these basil cultivars.

113. Gold(I)-Catalyzed Synthesis of 1H-Isochromenes
Saarah Cantu '19
Sponsor: Dr. Michael Gesinski, Chemistry and Biochemistry Department
4:00-5:00 pm – Bishops Lounge

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 a 41% unoptimized yield from simple benzylic alcohols. This methodology has been applied to the implementation of a gold-cleavable alcohol protecting group that generates a similar 1H-isochromene as a byproduct. The cyclization regenerates the alcohol with an 80% yield.

114. Titanium-Mediated Synthesis of Substituted Cyclobutanols
Nathan Le '19 and Aimee Rodriguez '19
Sponsor: Dr. Michael Gesinski, Chemistry and Biochemistry Department
4:00-5:00 pm – Bishops Lounge

Cyclobutane-containing compounds represent an important class of molecules for the industrial, agricultural, and pharmaceutical sciences. A novel methodology for the synthesis of cyclobutanes has been developed using 1,2-dicarbonyl organotitanium complexes. While considerable work has described the reactions of these complexes with esters to form cyclopropanols, little has been reported on their interactions with other electrophiles. α -Bromoaldehydes and cyanosylates have been subjected to these complexes to form cyclobutanes. This novel method allows access to a diverse set of substituted cyclobutanes that are not directly accessible through traditional methods.

115. A Latin Thing Happened on the Way to the Forum
Christian Erben '21, Kyla Gorman '21, and Allison Bradford '21
Sponsor: Dr. Halford Haskell, Classics Program
4:00-5:00 pm – Bishops Lounge

In the theatre department's upcoming musical, *A Funny Thing Happened on the Way to the Forum*, the characters names originate from Latin and Greek. What do they mean? In this presentation, we will delve into the origin and meaning of the names of the characters in this show, and in addition go into the history of comedy in Ancient Rome and how it parallels this 1962 musical.

116. Kinematic Comparison of Underwater Dolphin and Flutter Kicking Performed in a Prone and Supine Body Position
Peter Robinson '19, Taylor Adams '18, Mickey Scharbrough '18, and Kali Rose '18
Sponsor: Dr. Scott McLean, Kinesiology Department
4:00-5:00 pm – Bishops Lounge

Despite an increasing emphasis on underwater dolphin kicking in competitive swimming, little objective research exists to explain its preference over flutter kicking. **PURPOSE:** To examine kinematic characteristics of flutter and dolphin kicking performed in prone and supine body positions. **METHODS:** Ten collegiate swimmers (1.77 ± 0.07 m, 72.4 ± 7.6 kg, 19.8 ± 1.0 yrs) experienced with dolphin and flutter kicking completed eight 10 m maximal effort underwater kicking trials. Body position and kicking style were randomly varied between trials such that half of all trials were performed using each kicking style and each body position. A calibrated underwater camera was used to record each trial at 60 Hz. Six body landmarks were digitized for three complete kicking cycles to determine linear and angular kinematic measurements. Whole body speed was defined as horizontal hip velocity. Kicking amplitude and frequency were determined using vertical toe movements. The Strouhal number, a dimensionless index related to the efficiency of underwater undulatory movement, was computed using the kicking amplitude, frequency and velocity. Kinematic measures were compared between kicking style and body positions using a 2x2 (kick x position) repeated measures ANOVA. **RESULTS:** Dolphin kicking velocity (1.22 ± 0.18 m/s) was faster ($p < 0.001$, $h^2 = 0.88$) than flutter kicking velocity (0.99 ± 0.12 m/s). Dolphin kicking amplitude (0.58 ± 0.10 m) was larger ($p < 0.001$, $h^2 = 0.93$) than flutter kicking amplitude (0.48 ± 0.08 m). Dolphin kicking frequency (1.85 ± 0.34 Hz) was lower ($p = 0.002$, $h^2 = 0.68$) than flutter kicking frequency (2.33 ± 0.33 Hz). Dolphin kicking (0.88 ± 0.12) was more efficient as indicated by a lower Strouhal number ($p = 0.001$, $h^2 = 0.71$) than flutter kicking (1.11 ± 0.21). Body position had no effect on any measure of kicking performance ($p > 0.05$). **CONCLUSION:** For these participants, dolphin kicking was a faster, more efficient form of underwater kicking. However, body position had little effect on the ability of these participants to perform the respective kicking style.

117. Algorithms for the Dial-a-Ride Problem
Sara Boyd '20
Sponsor: Dr. Barbara Anthony, Mathematics and Computer Science Department
4:00-5:00 pm – Bishops Lounge

Though they serve quite different purposes, ambulance drivers and food delivery services both face a similar challenge in their work: determining which person or item to transport in what order. We want to find ways for these businesses to make good decisions about their routes for the criteria they deem important, such as most customers served, maximum revenue earned, or highest priority needs met within deadlines. These are examples of the Dial-a-Ride problem, where a server travels in a graph, serving requests that have an origin, a destination, a service time, and potentially a revenue or value associated with them. We study variants of the Dial-a-Ride problem, with a focus on algorithms for revenue maximization. We consider both of the offline problems, where requests are known in advance, and the online problem, where the routing decisions must be made as requests arrive. We focus on the uniform metric, meaning it only takes one unit of time to get from any location in the graph to any other. Our results provide insight into both lower bounds (instances in which no algorithm can do optimally) and upper bounds (guarantees that quantify the worst-case performance of an algorithm).

118. Looking AHEAD: Developing an Advising Hub for EQUIP And DRAFT
Kristen McCrary '18, Vale Cantu '18, Yash Gandhi '18, Marissa Madrid-Ortega '18, Kolton Noreen '18, and Angus Strickland '18
Sponsor: Dr. Barbara Anthony, Mathematics and Computer Science Department
4:00-5:00 pm – Bishops Lounge

As part of the 2018 Computer Science Capstone in Software Engineering, we developed a web application to assist the EQUIP and DRAFT programs at Southwestern. EQUIP and DRAFT are newly implemented programs designed for incoming first-year students to develop skills and connections within their intended field of study. Interviews were conducted with several stakeholders of the EQUIP and DRAFT programs to better understand their needs and wants in relation to application development. Our software allows program advisors and administrators to assess students' progress in their coursework and make observations about the effectiveness of the programs. In the

development of our application we used Django, a Python-based back-end framework, AngularJS, a JavaScript-based front-end framework, and MySQL, a database management system, to design and develop this software. We used an Agile process model, which emphasizes stakeholder interaction with iterative prototypes and rapid development, and Kanban techniques, which promote ownership of tasks and their status of completion, to develop the application. Ideally, this software will aid the program advisors and administrators in the management of organizational duties.

119. Evolution of Board Game Playing Agents

Sarah Johnson '20

Sponsor: Dr. Jacob Schrum, Mathematics and Computer Science Department

4:00-5:00 pm – Bishops Lounge

Board games are a common testbed for Artificial Intelligence algorithms. Their simple design makes games easy to understand and recreate. However, due to the number of possible moves, perfectly designing an agent to play any single board game and defeat a human player is a difficult and interesting challenge. One process that can create effective agents is evolutionary computation, which simulates the process of evolution to solve difficult problems. Specifically, Neural Evolution of Augmenting Topologies (NEAT) is used to create artificial neural networks that act as computational brains to solve problems. Networks evolved by NEAT can be used to evaluate how favorable each board state is for a game playing agent. The agents use Minimax tree-search with Alpha-Beta Pruning to evaluate the game tree, searching through the moves and board states available to them. The NEAT agents are evaluated against agents using a Weighted-Piece Counter (WPC) approach from the research literature, which rates the favorability of board game states based on controlling of specific spots on the board. When facing WPC agents, NEAT agents improve in terms of average win percentage, ending piece differential, and win-lose-draw score for the first 50 generations of evolution. Further refinements to the evolutionary process could lead to better results in the future.

120. Evolving Artificial Intelligences to Compete in Real-Time Strategy Games

Alice Quintanilla '20

Sponsor: Dr. Jacob Schrum, Mathematics and Computer Science Department

4:00-5:00 pm – Bishops Lounge

Evolutionary computation is a method for creating artificial intelligences that learn to act creatively and effectively towards a goal without the direct influence of humans. This project used the specific evolutionary algorithm HyperNEAT (Hypercube-based Neuro Evolution of Augmenting Topologies), which evolves artificial neural networks that act as computational brains. The aim of this project was to train those neural networks in a domain that is challenging due to an incredibly large amount of possible moves that have hard-to-determine effects: a Real-Time Strategy (RTS) game. In our experiment, evolved agents were tested against an agent that acted randomly. In each generation of simulated evolution each agent was evaluated, and the best among them were recombined and mutated to form a new population for the next generation. Over 500 of these generations, our evolved agents were shown to have substantially increased their rate of victory. This shows that HyperNEAT can effectively improve AI behavior in such domains when compared to random opponents, however, further research is needed to produce agents that may beat a skilled human opponent.

121. Modeling Trends for Texas Traffic Accidents

Victoria Gore '18

Sponsor: Dr. Therese Shelton, Mathematics and Computer Science Department

4:00-5:00 pm – Bishops Lounge

We analyze traffic accident data in Texas for fatal and non-fatal accidents using different plot functions in Mathematica to see the relationship between different measures of time and the number of traffic accidents occurring. 3D plots, box and whisker plots, and histograms reveal interesting trends by hour of the day, with differences for weekdays and for weekends; by day of the week; and by month of the year. The most valuable trend is found when analyzing the number of traffic accidents that occur based on hour of the day; here we see a distinct increase in nonfatal accidents with the typical rush hours during the weekdays and no change in fatal accidents

occurring during the same times. Knowing the most frequent times of traffic accidents and their severity can be of value to emergency response teams to help them be as efficient as possible.

122. The Mathemasticks of Flower Sticks: Finding a Mathematical Model for Juggling Sticks
Bonnie Henderson '18
Sponsor: Dr. Therese Shelton, Mathematics and Computer Science Department
4:00-5:00 pm – Bishops Lounge

We present original mathematical models of the motions of three tricks for juggling flower sticks, which can be “juggled” by using only two sticks, one in each hand, to keep the third stick, the flower stick, in the air. We obtained data through using motion capture and digitization technologies for the angle of the flower stick from the horizontal as well as the Cartesian coordinates for each end of the flower stick and for the ends of each stick in the hands. We used our calculated average rates of change to identify features of the data. We then fit sinusoidal functions to each data set based on the features. We use parametric functions of our sinusoidal fits to represent the path of the main stick and the stick in each of the hands. Finally, we show the functions animated together to show the model of the movements of the three tricks for juggling flower sticks.

123. Math and Mancala: A Decision Model and Analysis
Kristen McCrary '18
Sponsor: Dr. Therese Shelton, Mathematics and Computer Science Department
4:00-5:00 pm – Bishops Lounge

The game of Mancala is a two-player board game consisting of “pits” and “stones,” and is widely known and played by many audiences. It is an example of a combinatorial game, which is a sequential game with perfect information. In this project, we created a mathematical model of the game Mancala using code written in Java. The simulation is a decision model that captures the setup and rules of the game. After developing the model, we implemented three players that could participate in the simulated game. These were an input player, a random player, and a “smart” player. The input player is implemented such that a user can interactively play the game; the random player chooses some random, valid move; the smart player employs a simple strategy that can give them an additional move. To evaluate the performance of these players as well as the efficacy of our game model, we ran many simulations of the game and collected data. We found that placing two random players against each other resulted in an approximately normal distribution of scores, while placing a random player against a smart player resulted in a skewed distribution of scores in the smart player’s favor. From these observations we conclude that following the smart player’s strategy can significantly improve the results of a human player that is beginning to play Mancala.

124. Singapore: Model of a Savings Fund
Penny Phan '18
Sponsor: Dr. Therese Shelton, Mathematics and Computer Science Department
4:00-5:00 pm – Bishops Lounge

In Singapore, the Central Provident Fund (CPF) serves as the national savings system. Singaporean and permanent workers are required to contribute part of their wages to this compulsory savings account to fund their retirement, healthcare, and housing needs. Combining statistical analysis and mathematical modeling, we analyze median income data in 2016 across different occupation and age groups; individual savings of each job sector are estimated to examine if all workers, whether skilled or unskilled, are eligible to join the Retirement Plan by age 55 at median income level. We check the consistency of our results in the second model, which considers the inflation rates and allows workers to enter the labor force at any given year and age. We also model the total CPF contributions for all workers in each occupation group using data on workforce participation. Our project provides visualizations of the data and the models, and aims to enhance understanding of a compulsory savings plan.

125. Shift Operators on Directed Infinite Graphs
Elyssa Sliheet '19
Sponsor: Dr. Therese Shelton, Mathematics and Computer Science Department
4:00-5:00 pm – Bishops Lounge

This work, "Shift Operators on Directed Infinite Graphs," was conducted at an NSF-funded summer Research Experience for Undergraduates (REU) at California State University Channel Islands. This mathematical research is a cross between graph theory and functional analysis with applications in dynamical systems. Let G be a directed graph, by $L^p(G)$ we refer to the Banach space of complex-valued functions defined on the vertices of G . We study linear operators on $L^p(G)$ which we call shift operators. For a directed graph, the "backward" shift is represented by the graph's adjacency matrix, and the "forward" shift is represented by the transpose of the adjacency matrix. We give necessary and sufficient conditions for boundedness of these operators and present results regarding some other properties. We prove that for directed graphs, the "forward shift" operator is the adjoint of the "backward shift." Finally, we describe the kernels of the operators and related properties regarding the range as well as give conditions for when the orbit of a function under the operators is dense in the function space, a property known as hypercyclicity.

126. The Cost of Health

Samuel Vardy '18

Sponsor: Dr. Therese Shelton, Mathematics and Computer Science Department

4:00-5:00 pm – Bishops Lounge

For my senior capstone in Mathematics, we conducted a study of healthcare costs to create models capable of predicting National Healthcare Expenditure (NHE). We studied health and societal factors along with their relationship to NHE at a given year in the United States between 1974 - 2014. Factors included GDP per capita, rates of extreme obesity, and rates of Medicare enrollment. Using databases from the World Bank and the Centers for Medicare and Medicaid Services, we conducted single and multiple linear regressions. The software R and the IDE, Rstudio, were utilized in managing and manipulating the data. Using Rstudio, linear regressions were performed between the various predictor variables and NHE. Each factor was regressed independently against NHE to determine the predictive capability, and then multiple regressions were used to create more rigorous models. The two final models were SocMod and HealthMod; SocMod used 'societal factors' as predictor variables for NHE, HealthMod used 'health factors' as predictors. The models proved to be capable of predicting NHE with accuracy. And although the two final models used disjoint sets of predictor variables, both models' predictions for NHE were similar. As a result of the study, we identified factors of health and society that have a relationship with NHE, creating working models for predicting NHE. Further research includes combining health and societal factors to create an inclusive model for NHE.

127. Insights into the Influence of ENSO on United States Gulf Coast Ozone Using a Surface Ozone Climatology

Morgan Engle '18

Sponsor: Dr. Therese Shelton, Mathematics and Computer Science Department

4:00-5:00 pm – Bishops Lounge

The economy of the Gulf Coast of the United States is strongly tied to the oil and gas industry, which is situated both on and offshore. Although cities have benefitted from improving air quality due to enhanced emissions standards, many locations along the Gulf Coast still exceed the National Ambient Air Quality Standards (NAAQS) for ozone a few times each year. Understanding the anthropogenic and natural causes of high ozone events benefits future air quality management efforts. Surface ozone concentration data from four Gulf Coast states (Texas, Louisiana, Alabama, and Florida) from the period 1980-2015 were used to create a database of 8-hour peak ozone concentrations for the United States Gulf Coast. The database was then leveraged to perform an analysis of climate-scale influences on tropospheric ozone in the region. In particular, the influence of the El Niño-Southern Oscillation (ENSO) was evaluated. To extract an ENSO signal from a dataset with a long-term decreasing temporal trend in surface ozone, a detrending algorithm was applied to each site. Using the detrended data, we evaluated the dependence of surface ozone concentration on ENSO phase along the Gulf Coast datasets.

128. Progressivism Through a Camera Lens: How Cinema Progressed the Feminist Movement in France

Dillion Betros '19

Sponsor: Dr. Aaron Prevots, Modern Languages and Literatures Department (French)

4:00-5:00 pm – Bishops Lounge

Film, as an art form, has an incredible ability to give a visual and auditory representation of any given point in time. In this way, the audience or viewers of a film can use these representations, these works of art, to better understand life and the way of life in a specific period. French cinema, specifically French feminist cinema, is a perfect example of this. By comparing different films, for example the early, silent feminist films of Dulac with later films, such as *Les Demoiselles de Rocheforte*, we, as viewers, are able to watch the subtle transitions and progressions in the feminist movement as well as see how the French society viewed specific feminist issues differently between, for example, the early 1900s and the 1960s. The purpose of this poster will be to examine the differences in these films, whether they are subliminal or overt, and discuss how these films have been used as tools to press forward and progress the feminist movement in France and, perhaps, on a more global scale.

129. A French Cinematic Critique of 20th Century Society

Sonny Bushak '21

Sponsor: Dr. Aaron Prevots, Modern Languages and Literatures Department (French)

4:00-5:00 pm – Bishops Lounge

In the 20th century, the French cinematic industry offered a vital and subtle critique of the male-dominated and heteronormative ideas regarding sexuality that were prevalent in that era. Examples of these contributions include *La coquille et le clergyman* (1928), *Une femme mariee* (1964), and *Jules et Jim* (1962). *La coquille et le clergyman* by Germaine Dulac demonstrates and deconstructs the usage of women as objects of desire through clever usage of impressionist symbolism and character development, while *Une femme mariee* by Jean-Luc Goddard observes the inherent imbalance of sexual relationships within a male-dominated society and the impact of this inequality on the self-image and concerns of women in the 20th century. Finally, *Jules et Jim* by François Truffaut could be interpreted as a film that gives the audience insight into the perils of a heteronormative society and its effects on emotionally intimate relationships between men. Together, these films and others create a vivid collage of French gender roles in the 20th century while simultaneously evaluating and deconstructing them.

130. French Cinema and New Wave Feminism

Kathryn Caudell '20

Sponsor: Dr. Aaron Prevots, Modern Languages and Literatures Department (French)

4:00-5:00 pm – Bishops Lounge

The films *Meshes of the Afternoon*, *Cleo from 5 to 7*, and *Les demoiselles de Rochefort* are three films that coincide with the progression of the second wave of feminism. Each of these films is distinctly different—*Meshes of the Afternoon* is a silent film that takes place within a dream of a woman, *Cleo from 5 to 7* follows a woman who prides herself on her beauty and uses it to reject her cancer diagnosis, and *Les demoiselles de Rochefort* tells the story of the feminine ideal in the late 1960s. The new wave feminism focused on every aspect of women's lives: family, sexuality, and work. By analyzing these films and examining them against the new wave of feminism during the 60s and 70s, I assert that these films serve as excellent examples of emotionally diverse female characters that break away from cookie-cutter molds of male-directed films.

131. Women and the Emergence of the Auteur

Corinne Cordts '19

Sponsor: Dr. Aaron Prevots, Modern Languages and Literatures Department (French)

4:00-5:00 pm – Bishops Lounge

French cinema has been dominated by the 'politique des auteurs,' or auteur theory, since its emergence in the mid-twentieth century. The concept of the auteur emerged in the wake of the *Nouveau Vague* movement in French cinema and places the director at the forefront of the creative process of film. Credited as the main artist, and often seemingly the sole artist, of the film, directors are given precedence over other contributors to the product, such as the writers or actors. This conception of film later faced criticism for its exclusive focus on the director, but the criticism avoided the incentive for the emergence of this theory. The question of the auteur theory as inherently masculine has been touched on, but never explored with real depth. This paper will study the work of three prominent French directors, one from before the auteur movement, one celebrated auteur director, and a post-auteur

French icon. The lens of these films will help magnify the masculinist nature of the auteur theory, and its goal at excluding women from success in film.

132. French Feminist Films: The Power of Nonverbal Cues

Kayleigh Hanna '19

Sponsor: Dr. Aaron Prevots, Modern Languages and Literatures Department (French)

4:00-5:00 pm – Bishops Lounge

In the film *Les Demoiselles de Rochefort* (1967) the imagery combined with the costumes and make-up of the actors sets the tone of the film. This colorful movie communicates nonverbally with its audience a sense of youthful romance, the excitement of opportunity, and the power of femininity that unabashedly seeks and arrests the gaze of all, indiscriminately. The power of this nonverbal communication brings depth to the strength of the women portrayed in the film who freely engage in the ritual of sex appeal. For my project I will explore the impact this colorful film has on the contemporary audience it constitutes, as well as the audience the film drew upon its first release. I will situate both audiences within the feminist third and second wave respectively. I will explore the meanings derived from both groups and compare those meanings. In undertaking this research, I will explore the ideals which both connect and separate the feminist second wave and the feminist third wave. I will also gain insights on feminism as it occurs in different cultures.

133. Erasure and Immurement of Real and Fictitious Women

Bonnie Henderson '18

Sponsor: Dr. Aaron Prevots, Modern Languages and Literatures Department (French)

4:00-5:00 pm – Bishops Lounge

The history of women in French film has changed throughout time, from the early years of film during the Impressionist era to the films in the modern era. During the Impressionist era of French film, the industry was new enough that women had not yet been walled out. However, once the industry grew, women were kept out of many aspects of French film. By looking at three main periods over the last 100 years of film, we infer how things are moving forward or backward for women in French film. We examine the innovations of Germaine Dulac and how she is often left out of surrealist discussions, Agnès Varda's multifaceted portraits and personal challenges as a filmmaker, and the modern Catherine Corsini's way of putting herself into her movies. We study the films *La cigarette*, *La souriante Madame Beudet*, *Une femme mariée*, *Madame Bovary*, and *La belle saison* to draw conclusions on how women, both fictitious and real, have been trying to break down the door of French film.

134. Modern Women in Every Era

Audrey Horton '19

Sponsor: Dr. Aaron Prevots, Modern Languages and Literatures Department (French)

4:00-5:00 pm – Bishops Lounge

When cinema first began, it was an industry mainly run by women. We can see this in the early work of Germaine Dulac, Alice Guy Blanché, Angès Varda, etc. These directors were feminism advocates and their work can be analyzed to show it. Slowly, men started to take over. It is evident that their visions for film are different than the previous directors. While feminism is not as present, we still see some. This poster analyzes *Une femme mariée* directed by Jean-Luc Godard and *La souriante Mme Beudet* by Germaine Dulac. The idea was to observe different camera techniques and narratives and compare and contrast the director's motives. While keeping in mind each era has feminism, even when we do not think it was very present. Each time period has a modern women. The poster also goes over how the idea of modern women has changed over time, from the early 1900's to present day.

135. Brigitte Bardot and Feminism in French Film

Katherine Morris '19

Sponsor: Dr. Aaron Prevots, Modern Languages and Literatures Department (French)

4:00-5:00 pm – Bishops Lounge

Over the course of this class, it has become clear that French women were truly the instigators of progressive film. French directors of even the early 1900s had a dynamic and enlightened vision for a new century of filmmaking, one that introduced strong, independent female leads and artfully weighed in on radical topics such as gender equality. One actress whom I strongly believe to be the catalyst for what we now know to be modern French filmmaking is Brigitte Bardot. A model, activist, singer, dancer, and actress, Bardot introducing the cinema to a multi-capable kind of woman: one who was entrepreneurial, successful, and enlightened. Throughout her cinematic reign of the 1960s, she became known as the "it" woman, or simply, "the woman" to be. She unabashedly utilized femininity and sexuality as artistic weapons against the dominantly conservative, or at least majoritively male-fronted world of film. Her 1956 film, *And God Created Woman* is fairly self-explanatory. Bardot revolutionizes the role of a woman in art, transcending from the historically passive to the now-embraced active role, demonstrating the power and potency of womanhood, particularly in film. In an increasingly progressive society that too often tries to condemn femininity as an enabling force for sexism, Bardot's work maintains a charming traditional aesthetic while portraying her own femininity as her most powerful asset.

136. Waves of Feminism Represented in Film

Valentina Olivieri '19

Sponsor: Dr. Aaron Prevots, Modern Languages and Literatures Department (French)

4:00-5:00 pm – Bishops Lounge

For the Research symposium, I intend to investigate more about how women have changed over the decades in the movies. I am interested in the way they are portrayed, with their outfits and their mannerisms, and how big their role is in the movie (whether they are the protagonists or secondary characters). In order to do this, I will analyze the movies "La cigarette" by Germaine Dulac, "Les demoiselles de Rochefort" by Jacques Demy, and "Lady Chatterley" by Pascale Ferran. In my opinion, each of these movies represents a wave in the feminist movement, and since the movies are mostly presented from the women's perspective, we get an inside look into what is going through these women's minds and what actions they decide to make accordingly. I plan to compare and contrast the main female characters, and also see how the context affects the way these characters act in their respective films.

137. Analysis of the Role of Gender in the Nouvelle-Vague Film *Les Demoiselles de Rochefort*

Olivia Rosen '19

Sponsor: Dr. Aaron Prevots, Modern Languages and Literatures Department (French)

4:00-5:00 pm – Bishops Lounge

The 60s era musical *Les Demoiselles de Rochefort* (1967) was directed by Jaques Demy and stars the critically acclaimed French actress Catherine Deneuve. The movie seems to mimic a Hollywood style movie with its upbeat songs and light hearted comedy. This type of movie has been recreated time and time again. Notably, the first scene in *Les Demoiselles de Rochefort* when a traveling carnival comes to the town of Rochefort and everyone begins singing and dancing is similar to the famous first scene in *La La Land* (2016). The movie exudes joy and hope from its characters who unbeknownst to them are all somehow connected and dreaming of each other. Through the analysis of camera movement, intricate patterns of color, song choices, and a critical article that demonstrates the place of women in society throughout time, the differences of gender in the film and the "ideal woman" will be explored. This film is created in a time that was a transition from the Nouvelle Vague period in cinema. The women in *Les Demoiselles de Rochefort* represent how women can be independent and have their own dreams and aspirations while still wanting love. It is also interesting to note that each man has a different version of what an ideal woman is.

138. Surrealism, Feminism, and Structuralism in Early French Film

Catherine Staskawicz '20

Sponsor: Dr. Aaron Prevots, Modern Languages and Literatures Department (French)

4:00-5:00 pm – Bishops Lounge

In the early 1920s, the Surrealist movement as exemplified by the likes of Salvador Dalí and René Magritte yielded visual compositions that remain well known even today – *The Son of Man*, *The Treachery of Images*, etc. However, the place of Surrealism in cinema is often neglected, and the use of Surrealist filmmaking techniques as a mode of

feminist expression is all but unknown in popular contexts. Germaine Dulac, an early French filmmaker, and Maya Deren, a Ukrainian-born American French filmmaker, both put Surrealism and women under the camera's lens, creating silent films with much to say about the male gaze, the subconscious, and society's images of women. Dulac's *La coquille et le clergyman* (1928) and Deren's *Meshes of the Afternoon* (1943) both portray female protagonists through an array of dizzying and distinctly Surrealist camera techniques which both disorient the spectator and ground him/her in feminist explorations of Woman and women. The utilization of a Surrealist style of filmmaking renders Dulac's and Deren's respective works uniquely participatory – the spectator takes an active role both in looking at the women portrayed and questioning how women are looked at. Finally, Surrealist cinema as personified by Dulac and Meren inevitably partakes in both structuralist and deconstructionist commentaries upon the idea of “woman” – woman as simulacrum per Jean Baudrillard and woman as existing in the gap between sign and signified per Jacques Derrida.

139. Germaine Dulac: A Visionary of Film and First-Wave French Feminism

Kayleigh Thomas '18

Sponsor: Dr. Aaron Prevots, Modern Languages and Literatures Department (French)

4:00-5:00 pm – Bishops Lounge

During the inception of the art of film, women in France played a prominent role in evolving and inspiring its trajectory as we know it. In an art medium without any explicit rules, women were able to take part in discovering and producing film with nearly the same freedom as men from the 1890s until around the 1930s, when they were largely pushed out of the industry. French director Germaine Dulac was among one of the women who truly pushed the boundaries of film while delivering a subtle and carefully crafted feminist message to her audience. Through three of her films, “*La Cigarette*,” “*La souriante Madame Beudet*,” and “*La coquille et le clergyman*,” I will analyze her evolution as a feminist and as a filmmaker. Dulac pioneered techniques and is often credited with creating the first Surrealist film, but she also took many risks in exposing her audience to feminist thought through her films. Experiencing her films over hundred years later gives us insight to French First-Wave feminism and challenges us to understand the gambles that women like Dulac took, which often seem mundane in our twenty-first century feminist culture.

140. The French Origins of Surrealist Film

Eris Tock '18

Sponsor: Dr. Aaron Prevots, Modern Languages and Literatures Department (French)

4:00-5:00 pm – Bishops Lounge

Surrealism is a well-known as a movement in art and literature, but it is not often associated with film, or with creative figures other than the infamous Salvador Dali. Surrealism was, in fact, the first artistic movement to make the leap from the page and canvas to film and did so through the vision of French female director Germaine Dulac in 1928. Inspired by her work “*La Coquille et le Clergyman*,” or “*The Seashell and the Clergyman*,” a number of other artists, including but not limited to Salvador Dali, created 4 more surrealist films in quick succession: “*L'Etoile de Mer*” or “*The Sea Star*” by Man Ray, “*Un Chien Andalou*” or “*An Andalusian Dog*” by Salvador Dali and Luis Buñuel, “*L'Age d'Or*” or “*The Age of Gold*” by the same creative team, and “*The Blood of a Poet*” by Jean Cocteau. These films vary wildly in narrative content but are all connected by a thread of French culture. The writers and directors that created them were either French, in the case of Dulac or Cocteau, or heavily influenced by time spent in France, in the case of Dali, Buñuel, and Ray. Through analysis of these 5 early surrealist films produced over the course of two years this presentation will underline the strong French influence on the beginnings of this enduring film style.

141. The Existence, or Lack Thereof of, Diversity in French Cinema

Sophia Woodward '19

Sponsor: Dr. Aaron Prevots, Modern Languages and Literatures Department (French)

4:00-5:00 pm – Bishops Lounge

I would like to analyze the existence, or lack thereof, of people of color throughout French cinema. In my preliminary findings I have found quite a lack of diversity throughout the films viewed, and I believe that the few

scenes with people of color are intentional. I plan to emphasize one scene in the film *Cleo de 5 a 7* by Agnes Varda, and possibly another film by Varda. I also plan on viewing other films that are representative of French cinema and apply critical articles covering this topic to my presentation. As an Anthropology major I will incorporate some of my experience of studying this discipline in analyzing these texts. I will focus on Varda since her work has been so influential, but I will also expand my analysis to other relevant texts and films as needed.

142. Cryptography Using Nonlinear Dynamics

Roberto Garza '19

Sponsor: Dr. Chris Curry, Physics Department

4:00-5:00 pm – Bishops Lounge

The purpose of my SCOPE project was to utilize a GPU in order to show the performance of GPU's (Graphic Processing Units) over CPU's (Central Processing Unit). The SCOPE research being done was a physics based SCOPE summer research. However, since GPU's were involved there were many applications for computer science majors and this is where I was able to bring my own experience to the research. The research was done on nonlinear dynamics. What is interesting about nonlinear dynamics is that chaotic behavior can be achieved through simple formulas. One of the characteristics that make nonlinear dynamics useful is the sensitivity to initial conditions. I used this fact in order to create an encryption scheme using the logistic map. Sensitivity to initial conditions is what makes my encryption scheme secure; unless the person who is trying to decrypt the message has all of the initial conditions, that person will not be able to read the message. The results yielded from my encryption scheme truly shows off the power of a GPU. A 10,000 word short story could be encrypted in under a second using a GPU. The same short story would take 27 - 30 seconds on a CPU. The reason the performance difference is so drastic is the highly parallelized architecture of a GPU. Calculations are run on "threads" in a GPU, doing many calculations all at once. A CPU instead only does one calculation at a time, explaining the difference in performance.

143. Constructing a Wave Powered Robot

Christina Nissen '20 and Alexandria Trevino '19

Sponsor: Dr. Steven Alexander, Physics Department

4:00-5:00 pm – Bishops Lounge

In 2008 a 9.5-meter catamaran, the *Suntory Mermaid II*, traveled from Honolulu, Hawaii to Wakayama, Japan using two fins that converted wave energy into forward motion. Despite the success of this Wave Devouring Propulsion System (WDPS), little has been published about how it works. The goal of this project was to create a working model based on this method, and to analyze its performance. A wave-powered boat design would be ideal for a sensor platform that could travel over a wide area for an extended period without refueling. The *Suntory Mermaid* was used as a basis to reverse engineer a fin and cantilever design for a much smaller craft. Many tests were performed in a simulated wave environment using video analysis to determine the fin shape, cantilever design and spring strength for optimal forward motion. Preliminary findings indicate that the design is scalable, and that a design that can provide forward motion can be achieved. Future work will streamline and increase the efficiency of this design and add GPS and sensors to the craft to be used as a reliable research tool.

144. The Effect of Proximity on Reactions to Hate Speech

Camille Martin '18

Sponsor: Dr. Emily Sydnor, Political Science Department

4:00-5:00 pm – Bishops Lounge

When analyzing how people engage in political discourse, proximity will be considered as it affects how people react to politics. Within a large Democratic Republic, engaging all US citizens in discourse, and democratic practice, is unrealistic. Through 20 interviews conducted at a small liberal arts university, the way college students talk about and react to politics revolves around their physical proximity to a political event. In interviews regarding white nationalist events on college campuses, participants had stronger reactions when issues of political incivility were contextualized to directly affect the participant's campus community rather than a distant community. Participants are more emotional and strongly opinionated when hate speech threatens to become part of their campus experience. They are willing to take illiberal measures to limit free speech, giving insight into when and

under what conditions young people accept restrictions on civil liberties. In two interviews, the first seeking to establish how college students go about discourse regarding the allowance of a lecture by a white nationalist at Auburn University and the second asking students to react to an invitation that has been extended for this white nationalist to speak at their university, the responses are overwhelmingly different. This project demonstrates that when politics presently affects a certain population, discourse tends to be more active and emotional as stronger language is used.

145. Conflict Orientation and its Effect on How College Students Discuss the Free Speech Debate

Emily Tesmer '20

Sponsor: Dr. Emily Sydnor, Political Science Department

4:00-5:00 pm – Bishops Lounge

The free speech debate on college campuses has become highly politicized with the Republican party arguing that free speech is all speech and the Democratic party arguing that free speech doesn't include hate speech. Conflict orientation is a personality trait that determines whether individuals feel more or less comfortable when confronted with conflict. Previous research (Testa et al 2014) finds that conflict orientation—individuals' psychological predisposition towards conflict—condition Americans' attitudes in the face of political disagreement. However, little research has been done into how conflict orientation influences the ways in which people engage in contentious conversation. I argue that conflict orientation has a significant impact on the way college students discuss the free speech debate: students who are comfortable with conflict will be more likely to fully engage in the free speech debate, offer strong opinions, and choose a side of the debate. In order to test this hypothesis, I conducted a series of interviews with undergraduate students about their thoughts and ideas regarding political incivility and campus free speech. I expect that individuals' conflict orientation will greatly impact their willingness to engage, offer strong opinions, and choose a side in the free speech debate.

146. Personality Traits, Coping, and Romantic Relationships

Julie Swets '18, Meredith Pollock '19, Matthew Gonzales '18, Rachel Allen '19, Amy Goodman '18, and Allison Cook '18

Sponsor: Dr. Bryan Neighbors, Psychology Department

4:00-5:00 pm – Bishops Lounge

Extensive research has demonstrated that the nature of personality traits is associated with how individuals cope with problems - with some traits predicting healthy and effective coping and others predicting maladaptive coping. Psychopathy is a construct that reflects a constellation of personality traits (e.g., manipulative, impulsive, lacking in empathy and remorse) associated with a wide variety of problematic behaviors and maladaptive coping strategies. For example, psychopathic traits correlate positively with the frequency of coping with alcohol and other drugs. To further examine this area, the current study will test a model proposing that the correlations between psychopathic traits and two coping strategies (substance use and maladaptive daydreaming) are moderated by attachment insecurity. This model is based on Bowlby's attachment theory and the extensive body of research supporting the critical role that attachment relationships play in the development of personality and in the way life experiences are dealt with. The hypothesis to be tested is that greater attachment insecurity will strengthen the positive correlation between psychopathic traits and the frequency of both forms of maladaptive coping. Data collection was recently completed producing a sample of 134 undergraduate students and 78 adult residents of a court-mandated substance abuse treatment center. The proposed model will be tested with multiple regression techniques and the complete results will be presented and discussed.

147. Creative Casanovas: Mating Strategy Predicts Using – But Not Preferring- Unusual Flirting Tactics

Helena Lorenz '18 and Justin White '18

Sponsor: Dr. Carin Perilloux, Psychology Department

4:00-5:00 pm – Bishops Lounge

Flirting is an enigmatic and intriguing facet of human mating, perhaps because of its uniqueness: humans seem to be the rare exception in the animal kingdom in that our cues of sexual interest are relatively hidden. From an evolutionary perspective, we consider the possible function of creative, unpredictable flirtation: perhaps individuals

who employed unusual flirting strategies incurred benefits of plausible deniability and enhanced desirability to many potential mates (i.e., if unexpected flirting behavior signals creativity and intelligence). We hypothesized that unexpected tactics would therefore be more beneficial for short-term maters to employ and to prefer from potential mates. In Study 1, participants (N = 396) read vignettes depicting potential flirting scenarios and then selected a behavior which was closest to how they would flirt in that scenario. The behavior choices varied in “expectedness” (as rated by another sample). Participants also completed individual difference measures, including the SOI-R to assess mating strategy (i.e., short-term vs. long-term). We found that individuals who were more interested in short-term mating were significantly more likely to select the less “expected” flirting behaviors. This relationship was not influenced by self-confidence, extraversion, nor self-rated attractiveness. There was a sex difference in that men selected more unusual behaviors than women. In Study 2, participants (N = 486) read vignettes depicting scenarios in which an individual was about to flirt with them, then they selected a behavior which was closest to the type of flirtation they would prefer (using the same vignettes and behavior choices as Study 1). Unlike in Study 1, we found that mating strategy was not correlated with preferences for unusual flirting tactics. Together, our results suggest that short-term maters are more likely to engage in unusual flirtation tactics, but they are not more likely to enjoy being on the receiving end of said tactics. Perhaps while unexpectedness is useful to attract the attention of a variety of potential mates, when we are the target of flirtation, we seem to prefer more transparency and clarity in the messages from our suitors.

148. The Effects of Ketamine on Sexual Behavior, Anxiety, and Locomotion in Female Rats
Chantal Gonzalez '19, Devon Lucero '19, and Paige Womble '18
Sponsor: Dr. Fay Guarraci, Psychology Department
4:00-5:00 pm – Bishops Lounge

The present study characterized the effects of ketamine on sexual behavior and anxiety in female rats. In Experiment 1, female subjects received an injection of ketamine (10.0 mg/kg) or saline 30 min prior to a sexual partner-preference test during which each female subject was given the opportunity to interact with a female stimulus or a sexually vigorous male stimulus. Immediately afterwards, female subjects were tested for locomotion in an open field test. Ketamine-treated subjects spent significantly more time with the male stimulus than saline-treated subjects. No other measures of mating behavior (i.e., paced mating behavior, lordosis) were affected by ketamine. Ketamine also had no effect on locomotion. In Experiment 2, female subjects received an injection of ketamine (10.0 mg/kg), or saline daily for 10 days to investigate the possibility that sexual dysfunction emerges only after repeated exposure. Similar to the results of Experiment 1, ketamine-treated subjects spent significantly more time with the male stimulus than saline-treated subjects. Chronic ketamine treatment also decreased the likelihood of leaving the male after mounts, without affecting any other measures of sexual behavior. Chronic ketamine had no effect on locomotion. In Experiment 3, female subjects received an injection of ketamine (10.0 mg/kg) or saline and were tested for anxiety in an elevated plus maze test and for locomotion in an open field test. Acute ketamine had no effect on anxiety or locomotion. In Experiment 4, female subjects received an injection of ketamine (10.0 mg/kg) or saline daily for 10 days to investigate the possibility that anxiety emerges only after repeated exposure. Chronic ketamine exposure had no effect on any measure of anxiety. However, chronic ketamine exposure increased locomotion. The results from these experiments indicate that unlike other medications prescribed for depression, neither acute nor chronic ketamine treatment causes anxiety or disruption of sexual behavior.

149. Fake Smiles, Faker Accounts: The Relationship Between Life Satisfaction and Finstagram Use
Lourdes Davis '20, Emily Olson '20, and Dean Neubek '20
Sponsor: Dr. Traci Giuliano, Psychology Department
4:00-5:00 pm – Bishops Lounge

The current study examined relationships between social media habits and personality traits, specifically the relationship between Finstagram use and life satisfaction. One hundred and twenty-two participants (69 women, 51 men, 2 other) completed an anonymous survey at a predominantly White liberal arts college in central Texas. The questionnaire focused on participants' social media habits and various self-perception scales, including their Finstagram use and reported life satisfaction. Contrary to the hypothesis, the relationship between life satisfaction and Finstagram use was found to be nonsignificant. However, supplemental analyses of the relationship between

Finstagram use and social satisfaction found that Finstagram users had lower levels of social satisfaction as well as higher levels of narcissism. These findings support previous literature suggesting that social media fails to provide its users with the emotional support that they receive from face-to-face interactions and suggests that regardless of the platform used, social networking sites are insufficient in offering the same social benefits as personal relationships.

150. “Do They Give a 🍌?”: The Effects of Emojis on Professor Perception

Ella Doss '20 and Mariany Gainza-Perez '18

Sponsor: Dr. Traci Giuliano, Psychology Department

4:00-5:00 pm – Bishops Lounge

Email has become popularized for the speed and efficiency it allows for in interpersonal communication. Despite its utility and popularity, a significant challenge associated with email is message misinterpretation due to its users' inability to convey emotion because of the lack of nonverbal cues. As such, the present study was conducted to examine the effects of professor gender and emoji usage in email on professor and email perceptions. As part of a 2 (Professor Gender: Female or Male) x 2 (Emojis: Present or Absent) between-subjects design, seventy-two undergraduate students (35 women, 36 men, 1 other) read a fictitious email outlining constructive feedback and made judgements about the email and the professor who sent it. The results showed that, as expected, professors who used emoji's in their email were perceived to be more likeable and more caring than were professors who did not use emoji's. Contrary to our predictions, however, gender did not affect perceptions: male and female professors were perceived to be equally likeable and caring regardless of their emoji use. In addition, messages containing emoji's were rated more positively than were messages without emoji's. These findings suggest that when delivering constructive feedback via email, professors should consider using emoji's to soften the message so that they do not appear overly critical to the student receiving the email.

151. The Effect of Accomplishments and TV Preferences on Perceptions of Intelligence

Emily Olson '20, Davis Kate '20, Athena Pinero '20, and Josh Im '20

Sponsor: Dr. Traci Giuliano, Psychology Department

4:00-5:00 pm – Bishops Lounge

The current study investigated the effects of a female target's accomplishments and TV genre preference on her perceived intelligence. As part of a 2 (TV genre preferences: Reality TV or Documentary Shows) x 2 (Level of accomplishment: Accomplished or Unaccomplished) between-subjects design, 64 undergraduates (32 women, 31 men, 1 unreported) at a predominantly White liberal arts university in Central Texas completed an experimental packet that examined “perceptions of an academic mentor”. Although we found that people with a greater number of prestigious accomplishments were perceived as more intelligent than those with less impressive accomplishments, there was no effect of TV genre on perceived intelligence. However, our results did show that participants perceived targets who watch reality TV as higher in risk-taking behavior compared to targets who watch documentary shows. In addition, men perceived women who watch reality TV as less attractive than women do. In sum, participants' perceptions of those who watch reality TV revealed previously unknown prejudices that exist against reality TV viewers.

152. Now That's Aggressive!: Examining the Relationship Between Political Orientation and Political Flaming

Kirk Zanetti '20, Athena Pinero '20 and Taylor Torres '20

Sponsor: Dr. Traci Giuliano, Psychology Department

4:00-5:00 pm – Bishops Lounge

With the political climate online becoming more hostile and partisan, the topic of political flaming (i.e., argumentative online political discussion) is becoming an increasingly important issue. Research has shown that the likelihood of engaging in online political flaming can be predicted by lower levels of intelligence and higher levels of aggression (Cicchirillo, Hutchens, & Hmielowski, 2015; Hutchens, Cicchirillo, & Hmielowski, 2014). Furthermore, political conservatism is correlated with both lower levels of intelligence (Kanazawa, 2010) and higher levels of aggressive behavior (Crowson, 2009; Johnson, McDermott, Cowden, & Tingley, 2012). As such,

the current study investigated whether political conservatism would predict online political flaming. To examine this relationship, a convenience sample of 122 undergraduate students (69 women, 51 men, 2 unreported) at a small liberal arts college completed a self-report survey measuring political orientation, likelihood of engaging in online political flaming, and political extremity. As predicted, the more politically extreme participants reported being, the more likely they were to engage in online political flaming, $r(116) = .22, p = .015$. Contrary to predictions, however, the more politically conservative participants reported being, the lower their likelihood of engaging in political flaming, $r(116) = -.21, p = .021$, and the lower their belief in extreme political ideals, $r(118) = -.49, p < .001$. These findings suggest that there are additional factors aside from the stereotypical political affiliation attributes that contribute to an individual's likelihood of engaging in political flaming.

INDEX

- Adams, D'Andre, 38
Adams, Taylor, 48
Adams, Tyler, 8, 22
Adrian, Sherry, 40
Aing, Melanie, 47
Aleman, Hector, 35
Alexander, Steven, 13, 14, 15, 30, 56
Allen, Rachel, 57
Anthony, Barbara, 14, 48
Bajomo, Euniceo, 47
Baker, Austin, 28
Barbour, Oscar, 10
Barrera, Anastasia, 8
Beadle, Triston, 22
Beck, Grayson, 8
Beckelhymer, Daniela, 38
Belusko, Hannah, 44
Berroth, Erika, 8, 29, 30
Betros, Dillion, 51
Bienvenu, Allison, 18
Bouton, Jaclyn, 18
Boutris, Melina, 18
Bowersox, Lacey, 42
Boyd, Sara, 48
Brackmann, Sarah, 40, 41, 42
Bradford, Allison, 18, 47
Bradley, Jillian, 32
Bray, Landry, 8, 18
Bruns, Kerry, 24
Buchanan, Sarah, 40
Buck, Aidan, 8
Bueno, Violeta, 9
Burks, Romi, 21
Bushak, Sonny, 52
Butler, Dakota, 24
Byrnes, Melissa, 18, 19
Cantu, Lizette, 9
Cantu, Saarah, 47
Cantu, Vale, 48
Cardenas, Sydney, 12
Carraway, Tori, 28
Carrola, Madeline, 27
Carroll, Sean, 9
Caudell, Kathryn, 52
Cook, Allison, 57
Cooper, David, 22
Cordts, Corinne, 52
Cortez, Dakota, 26, 43
Costola, Sergio, 17
Cropper, Teresa, 40
Crowley, Ellie, 41
Curry, Chris, 56
Daniels, Egeenee, 18
Danner, Megan, 8
Davis, Audrey, 36
Davis, Lourdes, 58
Davwa, Aresha, 32
De La Garza, Valerie, 9
De Oro, Carlos, 28
DeCesare, Natalie, 10, 31, 41
Doss, Ella, 59
Early, Dirk, 32, 33, 34, 35
Edwards, Rebecca, 13, 14, 17
Engle, Morgan, 51
Erben, Christian, 47
Espinosa, Veronica, 18
Everson, Krista, 18, 20, 43
Felts, Ellie, 13
Figueroa-Casas, Manuela, 32
Fisher, Emilie, 45
Ford, Anai, 13
Ford, Luke, 47
Friedman, Adina, 38
Furler, Henry, 18, 40
Gainza-Perez, Mariany, 59
Galewsky, Sophia, 26
Gallo, Ryan, 33
Gandhi, Yash, 13, 48
Garza, Roberto, 56
Gesinski, Michael, 24, 25, 32, 47
Gideon, Grant, 24
Gillespie, Lauren, 22, 37
Gillham, Braydyn, 8
Giuliano, Traci, 58, 59
Gonzales, Matthew, 13, 57
Gonzalez, Chantal, 58
Gonzalez, Elena, 32
Gonzalez, Martín, 21
Goodman, Amy, 57
Gore, Victoria, 49
Gorman, Kyla, 47
Granier, Madison, 21
Graves, Courtney, 42, 43, 44
Greenan, Paige, 18
Gregovic, Lydia, 45
Guarraci, Fay, 20, 58
Gutierrez, Christine, 14
Guven, Zeynep, 8
Hanna, Kayleigh, 53
Hansell, Christian, 8
Harding, Claire, 8, 14
Harting, Emma, 14
Hartsell, Rehgan, 18
Haskell, Halford, 47
Henderson, Bonnie, 38, 50, 53
Henkel, Cameron, 14, 18
Henry, Leslie, 14
Hoffman, Alexander, 14
Hollingsworth, Bryan, 15
Horton, Audrey, 53
Hower, Jessica, 18, 19, 20
Hughes, Brooke, 18
Hunt, Kylie, 9
Hyatt, Chandler, 21
Im, Josh, 59
Inglis, Adrienne, 13
Jalufka, Mary, 27
Jennings, Brandon, 18
Jezisek, Andrew, 8, 18
Johnson, Leanne, 8
Johnson, Sarah, 49
Jones, Grant, 8
Kahl, Maranda, 33
Kate, Davis, 59
Kellogg, Danyale, 45
Kelly, Niklis, 8
Kilfoyle, Jim, 36, 37
Kimbrow, Weston, 8
Kincaid, Peri, 8
Knight, Haylee, 18
Landon, Andrew, 9
Le, Nathan, 47
Lopez, Martin, 11, 29
Lord, Robert, 18
Lorenz, Helena, 57
Lowe, Maria, 26, 27
Lu, Bryan, 8, 30
Lucero, Devon, 58
Luna, Dana, 44, 45, 46
Lunda, Esteffany, 27
Madaninejad, Banafsheh, 8
Madrid-Ortega, Marissa, 48
Mandelbaum, Isabel, 19

Marble, Stephen, 18
 Marr, Alison, 38
 Martin, Camille, 56
 McCrary, Kristen, 48, 50
 McLean, Scott, 48
 McShan, Paige, 36
 Mead, Ian, 35
 Mekelburg, Wil, 8
 Mendez, Antonio, 21
 Mikan, Vanessa, 31
 Milburn, Joan, 44
 Moore, Alicia, 35, 36
 Moriarty, Ryan, 8
 Morris, Katherine, 53
 Muskara, Lauren, 41
 Nenga, Sandi, 27
 Neubek, Dean, 58
 Newell, Alexander, 15
 Nieghbors, Bryan, 57
 Niemeyer, Emily, 22, 23
 Nissen, Christina, 56
 Noreen, Kolton, 48
 Nuemeyer, Emily, 47
 O'Neill, Tim, 9, 10, 11, 12
 Ogden, Ryan, 33
 Olivieri, Valentina, 54
 Olson, Emily, 58, 59
 Orantes-Orellana, Ian, 22
 Orces, Daniella, 9
 Orco, Rachel, 9
 Owino, Salome, 11, 30
 Padayhag, Amiel, 42
 Pagano, Matthew, 24
 Palacios, Angelina, 15
 Pardo, Veronica, 25
 Parks, Collin, 34
 Parks, Meredith, 46
 Peraino, Ryan, 23
 Perez, Karla, 9, 29
 Perilloux, Carin, 57
 Phan, Penny, 34, 50
 Pinero, Athena, 21, 59
 Pollock, Meredith, 57
 Prado, Maxx, 34
 Prevots, Aaron, 51, 52, 53, 54, 55
 Price, Jessica, 18
 Priyanka, Aranha, 31
 Quetzeri, Mariana, 18
 Quintanilla, Alice, 49
 Ramos, Esther, 35
 Rendon, Mauren, 42
 Riggs, Alison, 23
 Rightmer, Caleb, 34
 Rivadeneyra, Camila, 25
 Robinson, Peter, 48
 Rodgers, Summer, 18
 Rodriguez, Aimee, 47
 Rodríguez, Àngeles, 29
 Rose, Kali, 48
 Rosen, Olivia, 54
 Ross, Catherine Bourland, 9, 29
 Rouse, Katie, 36
 Roward, Margaret, 23
 Rydell, Katie, 18
 Scharbrough, Mickey, 48
 Schorr, Tate, 8
 Schrum, Jacob, 16, 37, 49
 Sendejo, Brenda, 25, 26, 35
 Shafer, Alex, 18
 Shelton, Therese, 38, 49, 50, 51
 Sherinian, Rachel, 20
 Shipp, Marissa, 16
 Sliheet, Elyssa, 50
 Spence, Mackenzie, 18
 Staskawicz, Catherine, 54
 Strickland, Angus, 48
 Strong, David, 34
 Stroup, Walter, 37
 Swets, Julie, 57
 Sydnor, Emily, 31, 56, 57
 Tesmer, Emily, 57
 Thomas, Kayleigh, 55
 Tock, Eris, 55
 Ton, Betty, 44
 Toppins, Abby, 9, 29
 Torres, Taylor, 59
 Trabucco, Shine, 26
 Trevino, Alexandria, 56
 Tweraser, Isabel, 16, 37
 Vardy, Samuel, 51
 Varner, Star, 32
 Vasquez, Christine, 3
 Velasquez, Elijah, 46
 Velez, Carmen, 28
 Visser, Mary, 15, 16
 Walker, Renee, 28
 Walsh, Emma, 8, 19
 Walsh, Shannon, 21
 Ward, Timothy, 18
 Watts, Zoe, 16
 Weigand, Willis, 23
 Wells, Aris, 17
 White, Justin, 57
 Whitehurst, Julieanne, 30
 Williamson, Kin, 17
 Wilson, Parker, 25
 Wise, Olivia, 17
 Wolk, Miranda, 18
 Womble, Paige, 58
 Woo Kee, Stephen, 19
 Woodall, Aaron, 11
 Woodward, Sophia, 44, 55
 Wright, Susan, 8
 Wu, Weidong, 12
 Zanetti, Kirk, 59
 Zewail Foote, Maha, 23