First-Year Research Conference
April 25, 2019

Location: Anchor Ballrooms (A-D)
Reminders for Attendees and Presenters

First Year Research Conference Committee

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FYRC 2019 Schedule

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First-Year Research Conference

The First-Year Research Conference (FYRC) takes place at the end of each Spring semester and is an opportunity for first-year students to participate in a formal academic conference. The students presenting today, were required to submit proposal in mid-March that were evaluated by a panel of faculty judges. The DUGS faculty and staff are here to help you in any way that we can. Please do not hesitate to contact us if you have any questions or concerns. Those of us on the FYRC Planning Committee look forward to hearing from you during and after the conference.

Please enjoy your time at the conference and help us celebrate the research of our first-year students!

Reminders for Attendees & Presenters

• Please be polite, enter the room on time, and stay until all presenters have completed their presentations.
• Please silence all cell phones and electronic devices, and do not take calls or texts during the presentations.
• Evaluation sheets for student audience members are provided at the door.
  • Be sure to fill them out and turn them in to your seminar instructor. In most cases, you are expected to review one full session's worth of presentations.
• Try to engage the speakers with questions at the end of their presentations.
• All presenters should wear appropriate business or semi-formal attire and should practice their presentations to ensure a professional delivery.
**First Year Research Conference Committee**

**Dr. Brandi Kutil** – Committee Chair, Coordination and Scheduling  
**Professor Kellie Jarvis** – Committee Co-Chair, Technical and Communications  
**Professor Loren Watts** – Faculty Moderators, Volunteer coordinator  
**Professor Crystal Ballard** – Marketing / Web Assistance / Program Design

**Session Formats**

- **15-Minute Presentations** may be given individually or as groups and will inform an interdisciplinary audience. They may be given in the form of PowerPoint and/or spoken presentations with films or handouts depending on the convention of the discipline and decisions of the speaker(s). Each presentation should last approximately 10 minutes.

- **45-Minute Panels** A panel, unlike a group presentation, has the entire 45 minutes session to themselves (usually make up of three 10-15 minute presentation).
Proposal Reviewers

The FYRC Committee thanks the following TAMU-CC faculty for serving as proposal reviewers.

Prof. Chimene Burnett
Department of Undergraduate Studies

Dr. Cecil Ekici
Department of Mathematics & Statistics

Dr. Brooke Friley
Department of Communication & Media

Prof. Chelsie Hawkinson
Department of Undergraduate Studies

Dr. Frances Johnson
Department of English

Dr. Brandi Kutil
Department of Undergraduate Studies

Dr. Melanie McMahon
Department of Undergraduate Studies

Prof. Andrea Montalvo
Department of Undergraduate Studies

Prof. Loren Watts
Department of Undergraduate Studies

Prof. Amy Carter
Department of Undergraduate Studies

Prof. Bernadette Flores
Department of Undergraduate Studies

Prof. Amanda Hartman
Department of Undergraduate Studies

Prof. Kellie Jarvis
Department of Undergraduate Studies

Prof. Rachel Johnson
Department of Undergraduate Studies

Prof. Amanda Marquez
Department of Undergraduate Studies

Dr. Mark McNamara
Department of Undergraduate Studies

Prof. Jennifer Simpson
Department of Undergraduate Studies
Session Chairs

The FYRC Committee thanks the following TAMU-CC faculty for serving as session chairs.

Prof. Sean Britt  
Department of Undergraduate Studies

Prof. Marnie Cannon  
Department of Undergraduate Studies

Prof. Shannon Chambers  
Department of Undergraduate Studies, Advising

Prof. Bernadette Flores  
Department of Undergraduate Studies

Prof. Chelsie Hawkinson  
Department of Undergraduate Studies

Prof. Rachel Johnson  
Department of Undergraduate Studies

Dr. Melanie McMahon  
Department of Undergraduate Studies

Prof. Rishi Raj  
Department of Undergraduate Studies

Prof. Chimene Burnett  
Department of Undergraduate Studies

Prof. Amy Carter  
Department of Undergraduate Studies

Prof. Erin Cofer  
Department of Undergraduate Studies

Dr. Joshua Hamilton  
Department of Undergraduate Studies

Dr. Frances Johnson  
Department of English

Dr. Rachel Kirk  
Department of Undergraduate Studies, Advising

Dr. Mark McNamara  
Department of Undergraduate Studies

Dr. Rita Sperry  
Department of Undergraduate Studies
FYRC Schedule

8:00am - 8:45am
Anchor Ballroom D
Session Chair: Professor Jennifer Simpson

Exploitation of Labor

Presenter: Johnathan Salman
Marx’s Diagnosis of capitalism holds true in some sense, but his ideas of the association between the proletariat and the bourgeoisie are not held in complete truth. Through Locke and Nozick we can see that the connection between worker and employer are just.

Biogeochemistry of Hydrothermal Vents

Presenter: Jordan Rodriguez
With the biogeochemistry of hydrothermal vents serving as a key area in oceanographic science today, it is essential for aspiring/young scientists to understand the importance and uniqueness of these ecosystems. By understanding these environments, the processes of chemoautotrophs and the presence of hardy microbial enzymes will continue to sustainably benefit human life by revolutionizing industrial and medicinal research.

Is It Ethically Right or Wrong?

Presenter: Sasha Salazar
In 1968, the A.H. Robins Company distributed defective intrauterine contraceptives to women of America without passing through the FDA. The IUDs harmed the insides of the women but were still shipped out to third world countries. According to Kant and Mill, was this ethically the right decision?
Quantum Computing

Presenters: Grayson Cox, Gabriel Lobato, & Isaac Yeang
Quantum computers have been highly sought after since the 1980s. This is because they are hundreds of millions of times faster than your average computer. The effects we talk about will include weakening of cybersecurity, the modeling of complex data, and why quantum computing is a large step up from traditional computers.

The Correlation Between the Cost of Facial Scrubs and the Microplastics Present Within Them

Presenters: Souhad Bachnak, Allison Abrego, Sofia Lara, Nicholas Magana, Alyssa May, & Araceli Murillo
Did you know that something so small in size is having a large impact on the marine environment and human population? Microplastics, plastic debris less than 5 millimeters in length, are found in everyday items, ranging anywhere from toys and plastic bags, to facial scrubs. Come check out the impact your facial scrub is having on our environment.

Exploring Pelvic Floor Dysfunction

Presenters: Maryam Tolentino, Juliana Alcala, & Samantha Belcher
The presentation will explore the complex urinary system through the case study of a 65-year old woman. It focuses on the urinary system and symptoms that results in a variety of diagnoses.
Online Schools: The Future or Passing Fad

Presenter: Julia Pina
The presentation is covering online schools for children in the grade levels from Kindergarten to 12th grade. Throughout I’ll discuss the pros and cons of whether the funding of online schools should continue in the rate that it’s progressing, or if the programs need a serious makeover before more funding is spent. Some which include cyber security, student readiness for college, and how students compare to their peers who didn’t partake in online schools or online programs.

Population Density Comparison of Bitter Panic Grass on Mustang Island and Ward Island

Presenters: Nathaniel Kastl, Camilla De La Garza, & Mindy Melendez
In the years following Hurricane Harvey, Bitter Panic Grass is extremely important for beach health and recovery. This original research project compares the population density of Bitter Panic Grass at TAMUCC’s University Beach to the population density at Mustang Island State park to see how the artificial beach is doing.
9:30am – 10:15am
Anchor Ballroom C
Session Chair: Professor Chimene Burnett

Artificial Beaches

Presenters: Tayo Ajanaku, Mary Cazes, Emma Eccher, Christian Morales, Jon Michael Nguyen, & Anya Pearce

Our research team is noticing a huge influence on our beaches due to restoring the beaches to enhance tourism but how is it effecting the marine life? We went to both artificial and natural beaches and looked for crab holes and sea grass to give us an indication of how artificial beaches are impacting the marine life.

The Creation of a Database: The Crafting of an Easy to Use Data Receptacle

Presenters: Felipe Alvarez, Benjamin Hacker, Jose Perez, & McKinley Parker

Databases are the basis on which the new world of information is built on. Our presentation will detail the process on how we built our own database designed with specific requirements. We will also discuss the struggles and discoveries which we during the creation of this database. A live demo of our final product will also be presented.
10:00am – 10:45am
Anchor Ballroom D
Session Chair: Professor Amy Carter

The Rights of Students: Education and Ethics
Presenter: Alex Buitron
The presentation will begin by showing the audience the code of ethics which teachers use as guidelines in the classroom. This will then be followed by an example of an ethical dilemma which could be faced in classrooms today. To finalize, articles will be referenced as a point of reference to solve this dilemma.

Power and Oppression: The Future of Racial Equality in America
Presenters: Frederick Jones & Justin La Rose
This presentation will address racial inequality in the United States by examining the connection between primary documents from the 18th century to the current Black Lives Matter Movement and discussion of Reparations for descendants of those affected by slavery.

Dorthea Dix: Advocating Change, Advancing Science
Presenter: Blake Montez
Dorthea Dix worked to improve the treatment for the mentally ill in the mid nineteenth century. Dix’s activism and her innovation in advancing science connects to how we can evolve the treatment of Alzheimer’s disease in our modern lives.
10:30am – 11:15am
Anchor Ballroom C
Session Chair: Professor Shannon Chambers

Green Roofs: A Solution for the Future
Presenter: Meredith Zey
Energy consumption of buildings accounts for a staggering 40% of total energy consumption. Green roofs present a reasonable solution, taking advantage of the otherwise wasted space of rooftops. A layer of vegetation placed upon a roof can help to simultaneously lower the temperature and energy consumption of a building.

Relationship Between Trash Receptacles and Beach Litter in Corpus Christi
Presenters: Brooke Barli, Meagan Billings, Kristen Cavazos, Caitlyn Little, & Alexys Puckett
Beach pollution has been a major problem that seems to have no solution. We are measuring the correlation between litter and the distance from the trash receptacles. We want to see if the Corpus Christi community uses the sources available to them to stop pollution.
11:00am – 11:45am
Anchor Ballroom A
Session Chair: Professor Rishi Raj

Abuses of Power: Living in America Today

Presenters: Christian Carranza, Isabel Garza, Andres Gonzalez, Lakyn Medrano, & Jacob Seelhammer
Today, there is a monopolization of power that goes on within our own political institutions which allows for individuals of power to have control over American lives. The allocation of federal spending is being mishandled for corrupt purposes such as “The Wall”, instead of necessities like affordable housing.

An Analysis of the Effect of Human Presence on Dipodomys Compactus, the Gulf Coast Kangaroo Rat, at North Padre Island and Mustang Island

Presenters: Brittany Klesel, Josmari Lima, Brett Lowry, Kelsey Pavelick, & Elizabeth Puentes
The impact of human disturbance on plants and animals is a growing concern within the modern age. Our goal of this research project was to investigate whether the Gulf Coast kangaroo rat has been affected by the presence of humans at the North Padre Island and Mustang Island sand dunes.

Modeling Periodic Orbits Using Trigonometric Functions

Presenters: Cameron Miller, Ryan Molina, Cassandra Ramos, & Megan Rodriguez
Trigonometric functions can be used to model trigonometric phenomena. This presentation will demonstrate how to extend trigonometric function ideas into modelling periodic orbits of any kind using parametric and complex framework. We demonstrate how this approach integrates multiple representations into analyzing periodic phenomena found in analyzing sounds and images.
Plant Species Richness Related to Rising Sea-Levels

Presenters: Brandi Brouillette, Travis Danek, Christina Janicek, Gillian Kerr, Justin Nguyen, & Maria Rodriguez
Living in the coastal bend, rising sea levels are something that we are directly impacted by. We aim to educate our community on the impact that future storm surges and seal-level rise will have on biodiversity. We conducted an observational experiment using aquatic plants and land plants in multiple sites.

Effects of the Oso Wastewater Treatment Plant on Surrounding Plant Species

Presenters: Mattison Allen, Odessa Dukes, Omayra Montellano, Allison Otto, & Karla Salazar
Wastewater treatment plants are essential for the City of Corpus Christi, these plants filter out impurities so that the water can either be reused or flow back into the environment. Our goal of this original research project was to investigate whether the Oso wastewater treatment influences the surrounding environment.

The Effects of Beach Cleaning Equipment on Ghost Shrimp Population

Presenters: Brittany Albritton, Logan Belanger, Leonel Garcia, Hamza Mohammad, & Isaiah Trevino
Ghost shrimp live below the sands surface, and their environmental role is to infuse sand layers with oxygen, benefiting other organisms and to accelerate the decomposition of organic matter. Our goal for this project was to test whether beach cleaning equipment has an effect on the population of Ghost shrimp.
Fossil Indication

Presenter: Taylor Duncan
This presentation will discuss Fossil Indication and why we should be aware of it. The fossil record has bias and misinterpretation due to fossils being destroyed, not having accurate results, and time plays a major role. Fossils are important tools that indicate past environments, life, and geologic ages. By improving the fossil dating techniques Paleontologists use and creating new productive ones the fossil record can grow and be more precise.

Environmental Impact on Groundwater Overuse

Presenter: Catana Faison
Groundwater is a nonrenewable resource that is essential for life. Irreversible groundwater contamination comes from runoff of fertilizers from agriculture, over pumping, and septic seepage. Unmonitored groundwater is resulting in increasing health issues. This can be avoided by using the "groundwater flow-process simulation model" Mulligan K (2014).

Stem Cells are the Way to the Future

Presenter: Trevor Kosielski
Stem cells have demonstrated encouraging potential therapy for patients, who suffer from disease or injury. Stem cells aims to repair damaged and diseased body-parts with healthy new cells provided by stem cell transplants. The United State should focus more government funding into stem cell treatment that could save human lives.
12:00pm – 12:15pm
Anchor Ballroom A
Session Chair: Professor Chelsie Hawkinson

“Straight Outta Patience:” For Injustice
Panel Discussion: Faith Richards, Marina Cuevas, & Iliana Elizondo
In our research panel presentation, we will present research on Police brutality towards African American communities, cold cases, and anxiety and depression in college students of color. These topics will be analyzed through a sociological viewpoint, specifically looking at race as a social construct and how it affects one’s life chances.

Anchor Ballroom D
Session Chair: Professor Erin Cofer

Economic Demand and the Environment
Presenter: Adam Courvelle
The economic demands on products from organisms in the environment can have a significant impact, either positive or negative, on the ecosystems they come from. Ecosystems everywhere are starting to disappear due to the human exploitation of their resources. Where we put this demand will determine the fate of many wildlife species and ecosystems around the world.

Is There BPA in your Everyday Plastics?
Presenters: Trenasia Cunningham, Denise Trevino, Maya Williams, Melanie Zuniga, & Alexander Zambrana
Plastics are used everyday, however they pose a major threat to lots of people and walks of life. Some people have never really given a second thought about plastics and their real potential harmful or not. The purpose of our proposed presentation is the inform and investigate whether commonly used plastic items have traces of BPA. BPA is a chemical, and the abbreviation stands for bisphenol A which can be harmful.

3D Printing: From Monitor to Material
Presenters: Heather Gillmeister, John Schneider, Garrett Martin, Andrew Myers, & George Papalexiou
Our presentation will consist of 3D modeling a toy truck that contains 7 parts in total. The result will be able to connect all parts together to look like the model. We will show and
explain the engineering process along with Inventor Design. Our presentation will take you through the steps of modeling and then printing.

12:30pm – 1:15pm
Anchor Ballroom C
Session Chair: Professor Sean Britt

Search and Rescue Robots for Disaster Recovery

Presenters: Hunter Betancourt, J.D. Diaz, Christian Piper, & Kassandra Tamez
There are many disaster situations where humans cannot help those in need, in these times we look to robotics. With sensor equipped robots controlled by remote operators we can create maps to make decisions, communicate, and assist victims. We are simulating systems for remote control of search and rescue robots.

Creating an Accurate Citation Generator: Coding for a Cause

Presenters: Zachary Allen, Chris Arceneaux, Michael Orgill, & Robert Taylor
This semester we were tasked to create a citation generator that which was both easy to use and eliminated user errors when inputting information. Our presentation will discuss the steps we took to make an accurate citation and what we learned from the process of building something for a client.

You Can Handle the Truth!

Presenters: Jiselle Camota, Peter Osamor, & Grant Williams
The creation of truth tables can be somewhat confusing and time consuming. Our presentation will discuss the steps taken in the creation of a program that generates truth tables. A live demo will be presented, showing that complex statements can be made simple with a simple click of a button.
1:00pm – 1:45pm
Anchor Ballroom D
Session Chair: Professor Chimene Burnett

**Human Trafficking and Immigration Conflicts**

Presenters: Hannah McKenzie Zapata & Alondra Camacho
Human trafficking involving females and immigration conflicts have implications on certain individuals every day. In our presentation, we will be discussing how the theme of power and oppression and the impact of history relates to these issues from the 17th-century primary document Richard Frethorne "Life in Colonial Virginia (1623)."

**Exploitative Aid: A Look into Kant and Mill**

Presenter: Zane Taylor
Kant is going to argue against the case of the Robbins company stating their policy made with the U.S. government to provide harmful contraceptives to underdeveloped countries is unethical as abuses impoverished people for profit rather than provide adequate care. Mill will argue in favor of the policy stating it is ethical as all parties are made better off.
1:30pm – 2:15pm
Anchor Ballroom C
Session Chair: Dr. Rita Sperry

The Exploration and Creation of an Archival Database

Presenters: Timur Musaev & Reina Ochoa, Esteban Martinez, & Walker Daniels
Archival data is used virtually anywhere information is stored. In this project we will not only explore and detail the creation of our student archive database, but also expand on the creation of classes, functions, and variables for our system.

Quick Truth Table Generator

Presenters: Matthew Buehring, Adrian Garza, Christofer Henry, & Garrett Griffiths
True or false? Determining the truth of a given statement is an important concept that spans across multiple fields, including mathematics, computer science, and philosophy. Our presentation will explore the concept of Boolean values in a truth table and will also include a live demonstration of our truth table generator.

Citation Generator: Properly Formatting Citations in APA/MLA

Presenters: Julia Pina, Nathan Heslep, Oscar Salinas, Davis Bradshaw, & Marcus Silguero
The topic of our presentation is a citation generator that we have created using C++. The purpose of this was to give our client a program that can properly format their citations into MLA or APA format. It verifies the user input to ensure that there are no improper citations generated, so that you always get proper citation.
2:00pm – 3:00pm  
Anchor Ballroom D  
Session Chair: Professor Rachel Johnson  

The Thread on Biodiversity  
Presenters: Elizabeth Kiley, Natalie Fajardo, & Shelby Tullos  
By addressing biodiversity, we hope to advocate for change to improve not only the wellbeing of animals and their environments, but to also raise awareness about the importance of government regulation and to suggest solutions for tackling some of the man-made problems associated with climate change, habitat destruction, and poaching.  

Reality of Broken Heart Syndrome  
Presenters: Shania Esquivel, Gabriella Ayarzagoitia, Jacob Rodriguez, & Alexandria Serna  
The cardiovascular system is the system of structures that consists of the heart, vessels, and blood, by which blood is circulated throughout the body. A case study of a postmenopausal 79-year-old woman will be examined to address the cardiovascular system’s involvement in takotsubo cardiomyopathy, also known as broken heart syndrome.  

Risk of Vibrio Accumulation in Three Popular Bodies of Water in the Corpus Christi Area  
Presenters: Felicite Galvan, Caitlynn Partin, Madison Marmon, Danielle Delgado, Olivia Barbee, Lydia Kiyola, & Victoria Mora  
With summer approaching, it’s important to take caution of the possible dangers in the waters of the Corpus Christi area. *Vibrio vulnificus* is a bacteria that is most abundant during the warmer months, and after comparing data, we will determine which area of water has the greatest potential of accumulating vibrio first.
Immigration and its History in America

Presenters: Madyson Deal & Isaiah Olmos
We will be presenting information on the issue of Immigration policies and work visas here in the United States and the history behind it.

United States Border Security Methods: The Southern Wall

Presenters: Stephen Belota, Isabela McGough, & Whitney Yates
This presentation covers the Democrat, Republican, and Trump administration’s views and proposed methods in border security. This information is important because as residents of a border state, this political issue could affect the citizens of Texas directly, and is important to stay informed on as newly registered voters.

Prisons, Protests, Reservations: Power and Oppression in the United States

Presenters: Travis Spangle, Daniel Detwiler, & Colton Potter
This presentation will explore how issues in our nation's past, such as power and oppression, are still very relevant today. Our presentation will include a discussion of the injustices in the prison system, protests against the government, and the mistreatment of Natives throughout American history.
3:30pm – 4:15pm
Anchor Ballroom C
Session Chair: Dr. Melanie McMahon

**Border Security: Perspectives from the Political Parties**

Presenters: Troy Bernal, Victor Diaz, & Lauren Parrott
Do you care about the importance of border security in the United States? Would you say the topics of illegal immigrants, drug trafficking, and sex trafficking are labeled as priorities for the country? If so, come and hear President Trump’s, the Democrats, and Republicans views of border security.

**Vaccines: How Different Factors Affect Opinion**

Presenters: Kela Prince, Alyson Reyes, Lillian Sanchez, Jordan Weaver, & Kaylee Ordonez
In our presentation we will be discussing why we believe children should be vaccinated and dive a little deeper into the factor that affect others’ opinions on why children should not be vaccinated. We will also provide statistical reasoning that backs up our claims for why not vaccinate your children at a young age could do more harm than good.

**Theory and Social Dynamics of Key & Peele**

Presenter: Roger Luke Marin
Comical, quirky and fun, Key & Peele take the most outrageous moments of everyday life and capture them for all to relate to. Social dynamics and critical race theory often set the stage for hilarious situations in each episode, which allow the relatability for each unique struggle for most people.
4:00pm – 4:45pm  
Anchor Ballroom D  
Session Chair: Dr. Frances Johnson

**Project W.A.V.E.S.**  
Presenters: Armon Alex, Imani Boston, Iran Montes, Marcelina Esquivel, & Marco Rodriguez  
The goal of this study was to compare the status/trends of the overall water quality at each Bay in Corpus Christi: Oso Bay, Corpus Christi Bay, and Nueces Bay. Temperature, dissolved oxygen (DO), total dissolved solids (TDS), and turbidity all contribute to the overall water quality of a large body of water, such as a Bay.

**Murine Typhus Risk Cats Pose to Students**  
Presenters: Valeria Garza, Victoria Vigar, Cheyenne Garza, Jessey Artache, Tabitha Chavez, & Sarah McCurdy  
The purpose of this experiment was to observe cats in different areas around Corpus Christi and the Texas A&M University-Corpus Christi Campus, and determine the risk of infection these cats pose, regarding Murine Typhus. This zoonotic disease is common in coastal areas and can pose major health risks and can even prove to be fatal if untreated.

**Concentration of Plastic Debris on Beaches**  
Presenters: Sarah Downey, Ilsa Vaquera, Auría Avalos, Alexa Molina, Lydia Cates, & Montserrat Ochoa  
The widespread use of plastic has led to its accumulation in zones such as the Great Pacific Garbage Patch. Plastic left behind on beaches plays a significant role in creating these zones. This experiment aims to show how humans contribute to the amount of plastic in the environment which, as shown in research, leads to the instability of ecosystems and spread of disease.