UNDERGRADUATE RESEARCH CONFERENCE

November 20, 2026
9:00 AM–5:00 PM

Lampasas Hall
ASBN
Old Main



WELCOME

Welcome to the Fall 2026 Undergraduate Research Conference! Today we celebrate students from across Texas State and the curiosity and creativity that have motivated their research. The projects presented today began in many places: faculty laboratories, studios, archives, courses, and individual imaginations. Mentors and advisors helped the students turn budding ideas into projects.

Many of the students here have received support from the Undergraduate Research Fellowship and are on their way to the Honors Medallion or IDEA Center credit. All are contributing to the creation of knowledge and culture that defines Texas State's work as an emerging R1 university. Honors helped organize today's events, and we are grateful to the faculty mentors, staff, and colleagues across the University who made them possible.

Guests, please take time to talk with these students about their work. Students, talk with each other too. You will learn what we already know: undergraduate researchers at Texas State exceed our expectations and surprise us in the best possible ways.

Sincerely,

Kathy J. Cooke
Dean
Honors College

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1. Code at Work: Supercomputers, Virtual Networks, and Web Applications

OM 232 | 12:30–1:45 PM

Panel Chair: Dr. Ted Lehr, Department of Computer Science

Aaditya Baniya

Department of Computer Science

From Sequential to Hybrid: Evaluating Parallel Programming Models Across CPUs, GPUs, and Distributed Systems

Modern computing systems increasingly rely on parallelism to improve performance as the benefits of traditional sequential execution become limited by hardware and computational constraints. This project investigates how different parallel programming models affect the performance, scalability, and efficiency of computational programs across multi-core CPUs, GPUs, and distributed-memory systems. The project begins by establishing sequential performance baselines and progressively redesigns and evaluates the programs using multiple approaches to parallelism, including MPI, POSIX threads, OpenMP, CUDA, and HIP. These approaches represent distributed-memory communication, shared-memory multithreading, and GPU-based accelerator programming. Performance experiments are conducted on the Stampede3 supercomputer at the Texas Advanced Supercomputing Center, allowing the implementations to be evaluated on high-performance computing hardware. The project examines how factors such as workload distribution, synchronization, communication overhead, and hardware architecture influence the effectiveness of each parallelization strategy. The final stage combines multiple forms of parallelism into a hybrid implementation designed to take advantage of different computing resources within a single solution. Through this progression from sequential execution to heterogeneous and hybrid parallelism, the project aims to demonstrate the tradeoffs among major parallel programming models and identify how selecting and combining appropriate parallelization techniques can improve the performance and scalability of computational software.

Supervisor: Dr. Martin Burtscher, Department of Computer Science

Aaron Espinoza

Department of Computer Science

Paying Less for L2 Bridging: veb(4) Development for FreeBSD

Currently, if_bridge(4) is the de facto method for connecting bhyve VMs and vnet jails, despite carrying machinery that these virtualization topologies never use: spanning tree, copied broadcast frames for implicit host presence, and control-plane paths that get more expensive as bridge member count grows. Compared to if_bridge(4), veb is a narrower virtual Ethernet bridge driver, modeled on OpenBSD's veb(4). It has no spanning tree, no implicit host presence, and explicit host access through a vport

interface. In this talk, I will cover the design tradeoffs, measured results against if_bridge(4), and where the driver stands today against what upstreaming would require.

Supervisor: Dr. Ziliang Zong, Department of Computer Science

Anuska Dhital

Department of Computer Science

Library Management System

The Library Management System is a full-stack web application developed using the MERN stack (MongoDB, Express.js, React, and Node.js). The main purpose of this project is to provide a simple and efficient way to manage library books and track their availability. The application allows users to view available and checked-out books, check out books, and return them. Each book contains information such as title, author, publisher, ISBN, availability status, borrower name, and due date. MongoDB is used to store and manage book information, while Node.js and Express.js handle the backend operations and API requests. React is used to create an interactive and user-friendly interface that communicates with the backend. The system will initially contain at least 10 books available for checkout. This project demonstrates how frontend and backend technologies work together to create a functional web application for managing library books.

Supervisor: Rick King, Department of Computer Science

2. Testing Predictive Models: From Software Performance to Election Forecasts

OM 232 | 2:00–3:15 PM

Panel Chair: Dr. Heena Rathore, Department of Computer Science

Prashansa Dotel

Department of Computer Science

Are LLM-Extracted Program Features More Effective Than Raw Code Embeddings or Traditional Compiler-Level Static Attributes for Performance Prediction Tasks?

This project looks at how different ways of representing source code can be used to help predict compiler optimization decisions, especially loop unrolling. I am using programs from the AnghaBench dataset and selected 5,481 C programs that contain loops. The project compares three types of program representations: AutoPhase static features, CodeBERT embeddings, and features extracted using large language models. AutoPhase gives compiler-related static features, while CodeBERT creates learned numerical representations of the source code. Since the selected programs are longer than CodeBERT's input limit, I split each program into smaller chunks, generated an embedding for each chunk, and averaged them to get one 768-dimensional embedding for the full program. The next step is to compare these representations using predictive models to see which one is more useful for deciding whether loop unrolling should be applied. The overall goal is to understand whether learned representations like CodeBERT and LLM-based features can provide useful information compared to traditional compiler features.

Supervisor: Dr. Apan Qasem, Department of Computer Science

Connor Lopez

Department of Computer Science

Comparing Large Language Models and Machine Learning for Image Corruption Detection

Large language models are increasingly becoming multimodal, allowing them to process and reason about images in addition to text. However, their ability to recognize when an image has been degraded or corrupted has not been as extensively explored as traditional machine learning approaches. This project investigates whether multimodal large language models can accurately determine whether an image is clean or corrupted and compares their performance with a traditional machine learning image classification model. A dataset containing clean images and corrupted images will be used for evaluation. Multiple types of image corruption, including noise, blur, and environmental effects, will be applied at varying severity levels. A machine learning model will be trained to classify images as clean or corrupted, which will establish a baseline for comparison. Multimodal large language models will then be

evaluated on the same classification task without traditional model training. Performance will be compared using classification accuracy and other evaluation metrics across different corruption types and severity levels. The results will help determine whether multimodal large language models are capable of reliably recognizing image corruption and how their performance compares with a model specifically trained for the task.

Supervisor: Dr. Heena Rathore, Department of Computer Science

Jonathan Hebler

Department of Political Science

Market Mania: Analyzing Whether Prediction Markets Function as Effective Election Forecasting Tools When Compared to Election Polling in National Elections Outside of the US

Following the results of the 2024 US Presidential Election, large prediction markets such as Polymarket and Kalshi demonstrated a distinct advantage over the election polling results leading up to election day in their accuracy at forecasting the race's eventual winner. The dynamic reactivity of prediction markets to real-time events along with the major differences in how prediction markets ask election questions and generate responses allowed them to more precisely track voter sentiment and predict the direction an election is heading when compared to traditional polling methods. These differences suggest that prediction markets may be more effective than polls at providing accurate projections of election outcomes. However, most of the research into this topic focuses on the aforementioned 2024 US election, or other national or state level elections taking place within the United States. This capstone seeks to discover whether there is evidence to suggest that prediction markets demonstrate these same advantages in national elections taking place outside of the US where trading volumes on prediction markets are lower and election frameworks differ. This study conducts a comparative analysis of three national-level elections, the 2026 Hungarian Parliamentary Election, the 2025 Romanian Presidential Election, and the 2026 Colombian Presidential Election. Using Bayesian Structural Time Series (BSTS) modeling, each candidate's market contract on Polymarket and Kalshi is modeled individually to accommodate non-binary, multi-candidate fields. Then, the analysis visually and quantitatively tracks market and polling responsiveness to real-world campaign shocks. Finally, Brier scores are given to the market data and polling numbers using historical polling error data to compare how each method's projections performed at fixed intervals. The ultimate goal of this project is to test if prediction markets retain their edge in event reactivity and overall forecast accuracy despite lower overall trade volume and electoral differences. The results help to establish whether there is room for cross-national generalizability of prediction markets as modern election forecasting tools.

Supervisor: Dr. Hassan Tajalli, Department of Political Science

3. Designed for People: Websites, Virtual Reality, and Illustrated Science

ASBN 353 | 9:00–10:15 AM

Panel Chair: Grayson B. Lawrence, School of Art and Design

Isla Shih

Department of Mathematics

UX Case Study: Texas State Honors College Website

This case study documents the user experience (UX) design process as it was applied to audit and suggest updates to the UX of the Texas State Honors College website. Surveys and interviews were conducted with Honors students to understand their Honors experience, emphasizing their sense of belonging in relation to the Honors College. Iterative prototyping and user testing were used to refine potential new designs of the Honors website. Final suggestions informed by the insight gained during this process will be delivered to the Honors College; suggestions will focus on improvements to the Honors website with additional suggestions on small changes to the Honors College itself provided where they would be beneficial and cost little to implement. The survey, interview, user test approach follows the common practices of real-world UX designers, whose work is always informed by the input of users. This project's ideas come from the experiences of Honors students and, along with general UX improvements informed by those experiences, the goal of the project is to help the Honors College better promote a sense of belonging amongst its students. The project hopes to discover ways in which a website can contribute to this sense of belonging, directly or indirectly.

Supervisor: Grayson Lawrence, School of Art and Design

Giovanna Gati Lima Neri

Department of Computer Science

Evaluating the Quality of 360-Degree Immersive Video Using Virtual Reality

High-resolution 360-degree video is important for providing an immersive virtual reality (VR) experience. Currently, delivering high-quality video can be challenging due to bandwidth and hardware limitations. One approach to addressing these limitations is to reconstruct higher-quality visuals from lower-resolution content using upscaling techniques. This project investigates the perceived quality of 360-degree videos upscaled to original video quality using different techniques when viewed in VR. Participants complete a training session before evaluating a series of 10-second video clips produced under different upscaling conditions using a head-mounted display (HMD). During each trial, participants view a reference sequence and then rate the quality of a corresponding test sequence relative to the reference using a 9-point comparative scale. The experiment consists of two evaluation sessions separated by a rest period, with participants able to freely explore the 360-degree content while seated

in a swivel chair. Pre- and post-experiment questionnaires are also used to collect demographic information, assess simulator sickness, and evaluate the application experience. The collected responses will be analyzed to characterize how differences between upscaling conditions are perceived in an immersive VR environment. This evaluation will help provide insight into how upscaled 360-degree video is experienced in VR and support the development of approaches for delivering high-quality immersive video despite bandwidth and hardware limitations.

Supervisor: Dr. Mylene Queiroz de Farias, Department of Computer Science

Emily Owen

Department of Anthropology

Know Your Bones? An Illustrated Guide to Siding Bones Like a Forensic Anthropologist

Bone siding methods are often passed down by instructors through oration and physical demonstration. Although there are several existing works that detail these techniques, they are often composed of technical jargon and single-projection images that deter the average reader. This book exists as a guide to the unique methods that forensic anthropologists employ when siding hand and foot bones, gathered into an illustrated format mirroring that of a children’s book, to ensure aesthetic appeal and accessibility for learners of all levels. These techniques were gathered from biological anthropology courses, textbooks, and personal communications with anthropology students and staff at Texas State University. The creative process involved the use of a 3D anatomy software as a reference to create 2-dimensional bone representations, which were then overlaid with hand-drawn line art and compiled into the book’s final format using the Adobe Creative Suite. Understanding how to effectively utilize this creative software presented unique challenges that were overcome by a series of trial and error experiments during the preliminary stages of illustration. This iterative process ultimately produced a resource that combines anatomical accuracy with visual clarity, demonstrating how artistic works can make esoteric concepts more approachable. By presenting bone siding methods in a format that encourages engagement from learners of varied experience levels, this project demonstrates the potential of creative media to improve accessibility in science education. The resulting guide serves as an engaging resource for students, educators, and aspiring forensic anthropologists, bypassing barriers to learning while supporting the development of foundational anthropology techniques.

Supervisor: Dr. Elaine Chu, Department of Anthropology

4. Proteins in Action: Structure, Expression, and Function

OM 201 | 12:30–1:45 PM

Panel Chair: Dr. Karen Lewis, Department of Chemistry and Biochemistry

Yamika Menon

Department of Biology

Sequence-Based Identification of Pathogenic Hotspots in Folded Protein Domains

Many human diseases are caused by changes at specific sites in proteins, yet it is difficult to predict from the primary sequence which regions of a protein are most sensitive to disease-causing changes. Previous work from this research group showed that pathogenic sites concentrate in short regions of intrinsically disordered regions (IDRs). This project asks whether folded regions also contain concentrated pathogenic regions, and which sequence features distinguish them from the rest of the folded region. ParSe v2 is a sequence-based predictor that uses an optimized set of amino acid property scales, selected using curated sets of folded and disordered protein sequences, to identify folded regions. It is used here to define folded regions from the primary sequence alone. The approach previously applied to IDRs is then applied to these folded regions to identify segments of high pathogenicity and to compare their amino acid composition and property scales with those of folded regions with low pathogenicity. The comparison is then extended to the concentrated pathogenic regions previously identified in IDRs. This work is expected to show whether concentrated pathogenic regions are a shared feature of folded and disordered regions or are specific to IDRs, and to identify sequence features that mark them. Because ParSe v2 requires only the primary sequence, the approach could be applied to proteins without an experimentally determined structure and could help prioritize variants of uncertain clinical significance.

Supervisor: Dr. Steven Whitten, Department of Chemistry and Biochemistry

Emilyn Ramos

Department of Biology

Investigating the Effects of Proline Mutations on Human LARP6 Structure and RNA Binding

La-related protein 6 (LARP6) is an RNA-binding protein that helps regulate type I collagen production by binding to a stem-loop structure in collagen mRNA. This project aims to create a mutant version of human LARP6 that will test the hypothesis that two proline residues in the RNA-binding domain are critical for RNA-binding activity. These prolines are located in the La Motif structural domain, and we hypothesize that their location in a “wing” region limits the flexibility of the protein backbone and thereby regulates RNA binding activity due to its rigid ring structure. Therefore, we expect that replacing these conformationally restricted proline residues with the more flexible alanine amino acid will affect the overall protein structure and its ability to bind RNA. Site-directed mutagenesis, protein expression,

and purification will be used to create and isolate the mutant protein. The RNA binding activity of the resulting mutant protein will be compared to that of the wild-type protein to determine how these proline residues contribute to the LARP6 structure and RNA-binding activity.

Supervisor: Dr. Karen Lewis, Department of Chemistry and Biochemistry

Alan Vargas

Department of Chemistry and Biochemistry

Investigating the Effect of the P182A Mutation on Human LARP6 RNA Binding

LARP6 is an RNA-binding protein that is involved in the regulation of type I collagen. LARP6 regulates expression through its interaction with a stem-loop structure in collagen mRNA. This project focuses on proline 182 (P182), which is located within the linker region of LARP6 and may contribute to the protein's RNA-binding function. Replacing the proline with an alanine may alter the flexibility or conformation of this region and potentially affect RNA-binding affinity. To examine this, the P182A mutation was made by site-directed mutagenesis. The resulting plasmid was treated with DpnI, transformed into E. coli cells, purified by DNA miniprep, and the mutation was confirmed by Sanger sequencing before being introduced into Rosetta cells for small-scale expression. Future experiments will evaluate protein expression and purification, followed by an RNA-binding assay comparing the P182A mutant with the wild-type LARP6. This work aims to determine whether P182A plays a major role in the RNA-binding activity of LARP6.

Supervisor: Dr. Karen Lewis, Department of Chemistry and Biochemistry

Jerry Rodriguez

Department of Biology

Effect of IPTG Induction on Recombinant Plant Protein Expression in E. coli BL21(DE3)

In this project, we are exploring how the induction of IPTG can affect the protein production in E. coli strain BL21(DE3). IPTG is a synthetic reagent that induces the lac operon, which then allows the E. coli to express specific proteins. Protein expression was assessed using Western Blots, Coomassie gels, and Nickel Bead affinity chromatography. We assessed 5 different bacterial cultures expressing proteins from model plant Arabidopsis and Glycine max, 2 from Arabidopsis and 3 from Glycine max. The bacteria that were induced with IPTG could express the desired protein, but the cultures that were not induced with IPTG showed no expression of the desired protein. Our findings suggested that the cultures induced with IPTG with proteins from the plant Glycine max had lower expression when compared to the Arabidopsis. This experiment highlighted how the origin of proteins and the induction conditions can influence recombinant protein yield in bacteria.

Supervisor: Dr. Sumit Mukherjee, Department of Biology

5. Under Stress: How Plants and Fish Respond to Environmental Change

OM 201 | 2:00–3:15 PM

Panel Chair: Dr. Sunethra Dharmasiri, Department of Biology

Claire Taylor

Department of Biology

Elucidating the Molecular Mechanism: The Role of Arabidopsis EIN4 Ethylene Receptor in Plant Stress Response

In the rapidly changing environmental conditions of today, plants are exposed to the presence of more stressors than ever before. These stressors include high temperatures, drought, high salinity, frequent flooding, and other environmental extremes. When exposed to these conditions, plants release the hormone ethylene, which plays a major role in balancing plant stress response, growth, and eventual survival or senescence. We previously identified a picloram (a widely used herbicide)-resistant Arabidopsis mutant (pic20). The mutation is in the Ethylene Insensitive4 (EIN4) gene, which codes for an ethylene receptor in plants. My investigations then showed that this gain-of-function mutant was moderately insensitive to ethylene and that it showed a hypersensitivity to salt and osmotic stress, as well as to another stress-induced hormone, abscisic acid. We conducted a complementation analysis in which the mutant pic20 gene was cloned and inserted into the wild-type Arabidopsis. The transformed independent lines exhibited a mutant phenotype, confirming that the mutation in the EIN4 gene was in fact leading to the observed mutant phenotype in the pic20 mutant. We continue to investigate how the EIN4 protein is involved in stress response by monitoring its transcript levels when exposed to environmental stressors using quantitative real-time PCR (qPCR). Additionally, I have generated transgenic Arabidopsis lines of EIN4:EIN4-GUS reporter gene construct to further validate the expression pattern of EIN4 using a histochemical assay. These findings will allow us to elucidate the intricate relationship between EIN4 gene expression and plant stress response and would enable future genetic manipulation of crop plants for stress tolerance and higher yields.

Supervisor: Dr. Sunethra Dharmasiri, Department of Biology

Rylie Bendel

Department of Biology

Interactive Effects of Ultraviolet Radiation and Cold on Stress Physiology, Behavior, and Growth in Gambusia affinis

Climate change affects freshwater ecosystems through a wide variety of environmental stressors. Changes in air temperatures due to climate change can lead to differences in water temperature, which can have significant effects on aquatic organisms. Ultraviolet radiation (UVR) is another environmental

stressor that can penetrate freshwater ecosystems and negatively affect fish at different life stages. Because both of these stressors can be experienced simultaneously, it is important to understand how they can work in conjunction to affect freshwater fish. We will be studying Gambusia affinis, which are found in many different types of freshwater habitats, and are able to tolerate and adapt to change if allowed to acclimate in the conditions that appear in their environment. Despite their resilient nature, studies have shown that changes in temperature altered their growth and behavior and that UVR affected the regeneration of their tail fin. These environmental changes can induce stress on the fish, which can be measured through their cortisol. A detour task will be used to assess the fish's ability to use inhibitory control and thus test their cognitive performance. We hypothesize that UVR combined with cold water will have a synergistic effect on increasing fish stress and reducing cognitive performance in comparison to each of the single stressors alone. Studying multiple environmental stressors on fish should give insight into the impacts that are occurring in many freshwater fish habitats as a result of global climate change.

Supervisor: Dr. Caitlin Gabor, Department of Biology

Sam Dunphy-Miller

Department of Biology

Quantifying Relationships of Standard Water Quality Parameters with Glucocorticoid Levels in Juvenile Bluegill (Lepomis macrochirus) in Central Texas Streams

This study aims to examine relationships between several important water quality parameters and stress levels in juvenile bluegill (Lepomis macrochirus), as well as secondarily between water quality and biodiversity of fishes. Bluegill were chosen as a target species due to their prevalence throughout Texas streams, their value as an indicator species due to their sensitivity to environmental conditions, and their important role in the ecosystem as both predators and prey of many other species. The measured parameters include dissolved oxygen, pH, salinity, total dissolved solids, and temperature. These variables play vital roles in the health of fish, regulating functions such as respiration, osmoregulation, reproduction, immunity, and metabolism. Cortisol, the primary stress hormone in fish, is being measured in order to provide a reflection on their physiological condition. Six different sites within Central Texas were selected along a gradient of known water quality data. At each site, 15 juvenile bluegills will be collected via seine net and will undergo nonlethal water-borne cortisol sampling to quantify baseline release, acute stress response, and stress recovery. The study predicts that poorer water quality conditions will be associated with elevated baseline cortisol, less effective recovery, and a lower diversity of fishes.

Supervisor: Dr. Caitlin Gabor, Department of Biology

6. Studying Biodiversity: From DNA to Databases to Documentaries

OM 201 | 3:30–4:45 PM

David Leal Ochoa

Department of Biology

Assessing Data Source Reliability: A Comparison of iNaturalist and Wildlife Insights for Detecting Colombian Terrestrial Mammals Across Body Mass

Reliable biodiversity information is essential for large-scale ecological research and conservation planning, particularly in megadiverse countries such as Colombia, which hosts 553 mammal species according to the Sociedad Colombiana de Mastozoología checklist. The rapid expansion of digital platforms has generated unprecedented species occurrence records, yet methodological differences may influence data representativeness. This study compares two global sources, iNaturalist, a citizen science platform, and Wildlife Insights, a camera trap repository with AI-assisted identification, to evaluate which is more reliable and useful for detecting Colombian terrestrial mammals of different body masses. Focusing on mammals likely detectable by both methods, we included Perissodactyla, Cingulata, Lagomorpha, Carnivora (excluding Otariidae and Phocidae), Artiodactyla (excluding fully aquatic families), Pilosa (excluding arboreal families), and species > 500 g for Rodentia and Didelphimorphia. Domestic, exotic, and invasive species were excluded, and taxa that Wildlife Insights does not resolve to species were grouped at genus or complex level. Body mass (PanTHERIA) will be the main comparative axis. Record counts per taxon (iNaturalist observations and observers; Wildlife Insights detections and images) will be related to body mass, and platform performance evaluated through taxon coverage, data sufficiency, taxonomic resolution, and a Platform Bias Index (data up to 2026). We will also examine how body mass composition varies among Colombia’s five biogeographic regions (Amazon, Caribbean, Andean, Pacific, and Orinoco) and, where records allow, how platform records differ among them. We hypothesize that Wildlife Insights will provide greater coverage and data sufficiency, especially for large-bodied, elusive taxa, whereas iNaturalist will provide higher taxonomic resolution and greater contribution for small- and medium-bodied, conspicuous species, so their combined use will maximize representation of Colombian mammals. By identifying these biases, this study will inform database selection for macroecological and conservation strategies.

Supervisor: Dr. Ivan Castro Arellano, Department of Biology

Alejandro Febres Morales

Department of Biology

Uncovering the Mitogenome of Amphibian-Parasitizing Acari Mites in Central Texas

Amphibian-parasitizing mite larvae (Hannemania spp.) burrow into the skin of anuran hosts and feed on them as part of their complex lifecycles. These intradermal mites are globally understudied; thus, we aim to increase genetic resources through sequencing the mitogenome of representative individuals in Texas. We collected mites from infected frogs residing in Central Texas ponds to extract sufficient DNA for genetic analyses. We will then use PCR and Sanger sequencing to first confirm the identity of the mites as Hannemania spp. using 18S and 28S reference sequence data. Once mite identity is confirmed, we will then perform whole-genome sequencing using nanopore DNA sequencing technology. We will extract any mitogenomic reads to create a draft assembly of the partial or whole mitogenome. The draft mitogenome will be annotated and taxon-specific primers will be developed for future phylogenetic and population genetic analyses.

Supervisor: Dr. David Rodriguez, Department of Biology

Abhiraame Karuppasamy

Department of Biology

PyCatfish: A Python Interface for Eschmeyer's Catalog of Fishes

Taxonomy plays a vital role in biological research. However, a major challenge for biologists is harmonizing taxonomic names across diverse datasets, where various synonyms for the same species may exist between databases. One tool to facilitate harmonizing names is the California Academy of Sciences Eschmeyer's Catalog of Fishes (CofF), which is the main authority for fish taxonomy. However, accessing the data for this source requires either specialized computational skills or manual data extraction which limits broader accessibility to the data. To address this issue, we provide an accessible interface to the CofF in the Python programming language. We previously published an R package (rcatfish) and have translated it to Python, with database queries structured into memory-efficient pandas DataFrames. Core functionalities of the interface include scraping and parsing the taxonomic table, conducting user-defined search queries, and providing access to monthly updates made to the CofF. We compare the performance of rcatfish and PyCatfish. PyCatfish provides a publicly accessible software tool to streamline the taxonomic data handling for fish biologists.

Supervisor: Dr. Sam Borstein, Department of Biology

Isis Lindley

Department of Biology

Beyond the Bite: Cognitive and Affective Framing of Sharks in Television Documentaries

Understanding media portrayals of ecologically significant, low-contact species such as sharks is essential as public perception of these organisms relies on media representation instead of experience. This perception can be analyzed through Mind Perception Theory, pioneered by Kurt Gray, Heather Gray, and Daniel Wegner, which defines the ascription of human attributes such as the capacity to experience emotion (affective) and the capacity to act, think, and plan (cognitive) to entities (artificial intelligence, corporations, gods or deities, and animals). This content analysis will answer how frequently

shark-focused television documentaries use linguistic, visual, and acoustic elements to create cognitive and affective framing of sharks. Observational categories include language across titles, transcripts, and screenplays; cinematography and scoring; human-shark interaction frequency and type; and conservation broadcast time. Elements will be coded based on whether they portray sharks as having relatively high or low levels of cognitive and affective traits. The study predicts a higher frequency of low affective and high cognitive framing across 75% of observational categories, with human-shark interactions appearing in fewer than 15% of media sampled, and a high average conservation broadcast time for more than 20% of media sampled. This analysis will provide insight into media effects on public perception, conservation support, and application of Mind Perception Theory to sharks.

Supervisor: Dr. Jenn Idema, Department of Biology

7. Bicycles, Tubing, and Tampons: Managing San Marcos Streets and Streams

ASBN 353 | 2:00–3:15 PM

Panel Chair: Dr. Christina Wright Lopez, Meadows Center for Water and the Environment

Madi Roberts

Department of Geography and Environmental Studies

Bicycle Level of Traffic Stress in San Marcos, Texas

The experience of non-vehicular road users, like pedestrians and cyclists, is often overlooked and understudied when assessing transportation infrastructure needs. Integrating the experiences of pedestrians and cyclists can refine prioritization and tracking metrics for network improvements to ensure the greatest number of users' needs are met. This research deploys a Bicycle Level of Traffic Stress (BLTS) analysis to understand cyclists' comfortability on roadways in San Marcos, Texas. The analysis assesses characteristics that indicate varying stressors for bicyclists which include roadway width, existing bicycle facilities, vehicle speed, Average Daily Traffic volumes, number of lanes, and vehicle direction. Comfortability is determined by aggregating roadway features and classifying them with a BLTS score between 1 and 4, where 1 is the lowest stress, and 4 is the highest. The final analysis visualizes results and details key findings. The results can be applied to target maintenance and facility construction, be corroborated with future community outreach efforts, and guide further research in the spatial distribution of stress for cyclists.

Supervisor: Dr. Willard (Billy) Fields, Department of Political Science

Zoe Cooper

Department of Geography and Environmental Studies

Riverine Sustainable Recreational Capacity: Case Study of the San Marcos River in Central Texas

Rivers provide for both ecological and social demands. Balancing these competing demands requires careful compromise, such as limiting recreation. While limiting river users can have socioeconomic consequences, benefits include enhancing the visitor experience and protecting the ecosystem. Hydrologic droughts complicate this dynamic by limiting the area usable for recreation and increasing the vulnerability of sensitive species. The goal of this study was to investigate the San Marcos River's capacity for recreation at low flow levels. I compiled drone imagery and bathymetry data to determine the portion of the upper San Marcos River recreation zone that can be used with limited effects on the habitat. I then calculated occupant capacity based on several possible scenarios that cover differences in densities of visitors to the river, water quality, and types of recreation use, comparing my results to a previous study at higher flows. As expected, the impact of low flows has decreased the sustainable

recreation capacity of the river compared to the previous study, with changes distributed variably along the channel. The numbers derived from this study can be used to make policy recommendations for future versions of the river's habitat conservation plan, which includes visitor use restrictions.

Supervisor: Dr. Jason Julian, Department of Geography and Environmental Studies

Devin Parente

Department of Geography and Environmental Studies

Using Tampons to Track Water Pollution: A Community Science Approach in Central Texas

Freshwater streams in the greater San Marcos area support high biodiversity alongside heavy human use, making maintaining water quality a key concern. Despite their ecological importance and water quality management efforts, many streams in the area are impaired by elevated levels of E. coli. These elevated levels indicate fecal bacteria contamination and the potential presence of disease-causing organisms, posing a risk to people using these waters. However, the presence of E. coli alone does not distinguish between human and animal sources of contamination. Optical brighteners (OBs) are associated with anthropogenic pollution and can help make the distinction between contamination sources. OBs are compounds commonly found in laundry detergents and fluoresce under ultraviolet light. Current professional water quality monitoring lacks the spatial and temporal sampling scales needed to monitor impaired streams. Community science programs, such as the Texas Stream Team, help address these gaps by expanding water quality data coverage through reliable, volunteer-collected data. This study evaluates whether the Texas Stream Team's optical brightener monitoring protocol can help identify potential human wastewater contamination in local streams. Following the Texas Stream Team's Whirl-Pak grab method, water samples are collected at selected sites in the greater San Marcos area. Organic, untreated cotton tampons are submerged in the collected water within black, photosensitive Whirl-Pak bags and allowed to soak in darkness for 24 hours. The tampons are then examined under 365 nm ultraviolet light for distinctive blue fluorescence within the cotton fibers, indicating the presence of OBs. By evaluating the Texas Stream Team's OB monitoring protocols, this study assesses the potential of accessible, volunteer-based monitoring to detect wastewater indicators in freshwater stream systems.

Supervisor: Dr. Christina Lopez, Department of Geography and Environmental Studies

8. Written in Stone and Bone: Reconstructing Ancient Lives

ASBN 353 | 12:30–1:45 PM

Panel Chair: Dr. Michelle Hamilton, Department of Anthropology

Abigail Langston

Department of Anthropology

Lithics in Context: Comparing Ordovician and Cretaceous Chert Nodules in Central Texas

Lithic artifacts are extremely plentiful in the Central Texas region. They’re often picked up in backyards and kept in personal collections. What anthropologists would like to know is the story of these tools from their precipitation in limestone millions of years ago to when they were extracted by human hands. This project aims to source chert lithic artifacts through geochemical analyses that detail the palaeoecological environment. Ordovician in situ chert nodules and free-floating samples were collected in the Llano Uplift region from the Ellenburger Group. Cretaceous samples were collected local to San Marcos from the Edwards Group. Samples were previously analyzed primarily through electron dispersive spectroscopy. By cross-referencing elemental maps and spectrum charts with stratigraphic sections of the Llano Uplift, we can expect to learn about the chemical composition of seawater during the formation of the Ellenburger Group. When connected to geochemical analyses on lithic artifacts, trace elements and fossilization will help us determine specific quarries that were utilized by humans over the Paleolithic era.

Supervisor: Dr. Shelly J. Wernette, Department of Geography and Environmental Studies

Abbey Mitchell

Department of Anthropology

Central Texas Chert and Lithic Artifact Geochemistry

Lithic artifact analysis remains one of the most extensively studied topics within archaeology of the Southwestern United States. This project will develop a standardized method of microanalysis to compare lithic artifacts from an archaeological site with their potential parent rock. Using a combination of X-ray diffraction (XRD), X-ray fluorescence (XRF), and scanning electron microscopy (SEM), this study aims to conduct pioneering research on understanding lithic artifacts beyond their morphoscopic traits. Data collected through these techniques systematically characterize the parent rock of a lithic artifact by quantifying its complex geochemistry. The ongoing research will compare known lithic artifact assemblages to their archaeological sites by geochemically analyzing samples from known source locations. These analyses will then be compared to a collection of Central Texas lithic artifacts to determine their origin based on geochemical tracers. With this data, we will be able to map the geographic distribution of lithic artifacts to deepen our understanding of Quaternary mobility of ancient peoples in Texas. This capstone is a small part of a larger National Science Foundation (NSF)-funded

archaeological research study being conducted at Texas State University.

Supervisor: Dr. Brandon Radoman-Shaw, Department of Geography and Environmental Studies

Harper Boyd

Department of Anthropology

Utilizing Our ReSources: Dietary Reconstruction of Mitrou and Tragana Agia Triada in Bronze Age Greece

Within Greece, the Bronze Age to early Iron Age, ca. 3200-900 B.C., was a period of great historical significance marked by technological advancement, trade, and socioeconomic disparity, as seen in Mycenaean and Minoan civilizations. Located in the understudied region of East Lokris, Central Greece, Mitrou and Tragana Agia Triada are coastal sites associated with the late Bronze Age Mycenaean culture. By representing life outside of major Mycenaean palaces and administrative centers, these sites can provide insight into culture and social stratification throughout the Bronze Age. One way in which this can be observed is diet. Dietary practices can reflect both individual and group access to resources, interactions with the environment, shifts in social practices, and identity. To better understand the protein sources of individuals in Mitrou and Tragana Agia Triada, stable isotope analysis was performed. This was done by obtaining the $\delta^{13}C$ values from collagen and apatite, as well as the $\delta^{15}N$ values and C:N ratio. ReSources, a Bayesian mixing model which runs as an R package, was used to analyze and compare the isotopic values. These values were first compared to assess differences between individuals from Mitrou and Tragana Agia Triada. The results were then examined in relation to other sites across Greece, focusing on the comparison between coastal and inland sites. Lastly, the Mitrou and Tragana isotopic values were compared to regional Bronze Age and Iron Age sites to better understand the transition. This research examines the changes, or lack thereof, in diet to be tracked and categorized, contributing to a greater understanding of lifestyle in Bronze Age Greece.

Supervisor: Dr. Nicholas Herrmann, Department of Anthropology

Sarah Bell

Department of Anthropology

“A Plague of Leprosy”: An Analysis of the Bioarcheological Evidence of Hansen’s Disease in Medieval England

Leprosy is an infamous disease that remains widely misunderstood to this day. This essay examines Mycobacterium leprae and how the disease it causes in humans, Hansen’s disease, manifests in the bioarcheological record. Using the clinical knowledge of how leprosy symptoms appear in modern patients, the various afflicted areas of the human skeleton are analyzed to determine the bioarcheological indicators of leprosy, with respect to the osteological paradox and other “imitator” diseases such as tuberculosis. The possibility of ancient DNA being present at these sites is also explored. Archeological evidence of medieval treatment methods for leprosy and other related diseases is also considered. These details culminate in the analysis of the skeletal elements, with the aim of determining the frequency of leprosy in medieval England. By assessing the evidence of Hansen’s

disease, this essay explains what is known about leprosy in the past and suggests possible future avenues for research.

Supervisor: Dr. Michelle Hamilton, Department of Anthropology

9. Understanding Disability: Educational Support and Institutional Responsibility

LAMP 501 | 3:30–4:45 PM

Panel Chair: Dr. Jennifer Ahrens, Department of Health and Human Performance

Noah Fry

Department of Curriculum and Instruction

Teaching Students with Tourette Syndrome: Information and Classroom Management Strategies for the Secondary Educator

Tourette syndrome is a neurological disorder that produces involuntary movements and vocalizations known as tics. Tics vary from person to person and can be anything from blinking or throat clearing to hitting or cursing. Many secondary educators are not well informed about Tourette syndrome or how to manage it in their classrooms; if they do choose to seek out information, it is typically surface level, not accessible to someone outside of the neurological field, or made for elementary-age students. The strategies for managing peer-to-peer relationships and instructional approaches are different in the secondary classroom. By examining research papers about tic management and current professional development resources, it became clear that there needs to be a tool geared towards secondary educators that bridges the gap between the how and why. This research and professional development tool attempts to educate secondary teachers on Tourette syndrome and strategies to manage the disorder in their classrooms.

Supervisor: Dr. Jennifer Ahrens, Department of Health and Human Performance

Sunshine Flores

Department of Communication Disorders

Strategies for Collaborative and Interprofessional Practice Between Speech-Language Pathologists and Educators: A Scoping Review

Speech-language pathology is the healthcare profession that evaluates, treats, and helps prevent communication disorders. According to the American Speech-Language-Hearing Association, half of speech-language pathologists (SLPs) work in educational settings, where they collaborate with teachers to meet the needs of not only students with speech-language impairments but also all students. To determine the strategies used to prepare for, initiate, and sustain collaborative and interprofessional practice between SLPs and teachers in educational settings, this project will map the existing evidence through a scoping review. The need for this research is evident in the importance of mapping existing strategies and identifying gaps in interprofessional collaboration between SLPs and teachers to facilitate and increase their success. Through a scoping review, all relevant literature will be identified, screened, and analyzed to map available evidence. The key findings and relevant information of the included

sources will be organized and documented in data tables. From there, the data will be summarized and synthesized descriptively to identify patterns, themes, gaps, and areas for future research. Final refinement of the search strategy is underway, with database searches expected to be completed by October 2026. Findings are expected to contribute to a better understanding of collaboration between SLPs and teachers; this, in turn, will lead to greater success in the classroom and more effective services for students.

Supervisor: Dr. Anne C. Reed, Department of Communication Disorders

Chrispy Polanco

Department of Communication Studies

Are Parents with Disabilities Overrepresented in Cases Investigated by Child Protective Services in Texas?

The purpose of this study is to determine if parents with disabilities in Texas are significantly more likely to be investigated by Child Protective Services for abuse or neglect than parents without disabilities. It will further seek to determine if these parents are also significantly more likely to see their children placed in out-of-home care or have their parental rights terminated. Researchers will also check disability status against other factors such as age, race, and gender. The study will be modeled after a 2024 study completed by Dr. Tracy LaLiberte, Dr. Kristine Piescher, Nicole Mickelson, and Dr. Mi Hwa Lee in Minnesota. The researchers will use data from Texas Health and Human Services and the Texas Education Agency to build a sampling frame of individuals with verified disability statuses who would have been 18-34 years of age between 2014 and 2024. The final sample will be established by cross-referencing this data with records from Child Protective Services; then identifying information will be deleted. Data will be analysed using descriptive statistics, chi-square analysis, disparity indices, and logistic regression. Additionally, researchers plan to distribute surveys to the 27 centers for independent living serving Texas to attempt to get insight into the experiences of parents with disabilities who have had interactions with Child Protective Services. It is expected that, as in Minnesota, a significant disparity will be found between parents with disabilities and without. It is also expected to be found that disability is a major contributing factor. If the expected outcome is found, the data will be used to push for legislation to protect the parental rights of people with disabilities.

Supervisor: Dr. Jeremy White, IDEA Center

10. Campus Under Pressure: Body Image, Alcohol, and Anxiety

LAMP 501 | 12:30–1:45 PM

Panel Chair: Dr. Michelle Lynn Edwards, Department of Sociology

Molly Myers

Department of Sociology

Injecting Insecurity? Exploring How Undergraduate Women at Texas State University Make Sense of GLP-1 Discourse Online and Offline

The rapid popularization of GLP-1 receptor agonists, such as Ozempic and Wegovy, has fundamentally disrupted American weight-loss culture. As of 2026, reports state that around 15% of American adults have used a GLP-1 for weight loss. While these medications have resulted in more medicalized discourse that challenges the idea that weight loss is simply a matter of willpower, their adoption is not without controversy. Public discourse around GLP-1s often involves discourse over shortages for Type 2 diabetes patients, celebrity speculation and confirmed usage, moral judgements that view it as cheating the hard work of traditional weight loss methods, and fears around it being over-approved by doctors as "medically-approved anorexia." Current medical and social research studying GLP-1s and perceptions of them has primarily focused on those above the age of thirty. Though young adults are a significantly smaller demographic of GLP-1 users, they have an outsized presence on visual social media platforms like TikTok and Instagram, where much of the discourse around GLP-1s is occurring. Considering that these platforms already have a propensity for content around body image, diet culture, and "thinspiration" alongside the pressures from campus "fat-talk" and gendered expectations for impression management, the addition of GLP-1s into the conversation further complicates the already treacherous psychosocial landscape college-aged women often navigate. Through in-depth, semi-structured interviews with second-year undergraduate women at Texas State University, this exploratory qualitative study aims to investigate how young women make sense of online GLP-1 discourse and assess how this transformative drug's popularity affects and shapes college campus culture in how people consider perceptions of weight, self-image, modern beauty standards, and health.

Supervisor: Dr. Michelle Edwards, Department of Sociology

Jade Scott

Department of Health Sciences

From Intention to Action: Alcohol Use, Drinking Motives, and Protective Sexual Behavior Among College Students

Alcohol use among college students frequently intersects with sexual health decision making, often creating a gap between protective intentions and actual protective behavior. While the general risks of alcohol during sexual encounters are documented, less is known about specific internal drivers, such as

social or coping drinking motives that might interact with alcohol severity to influence decision making. This study examines how alcohol-use severity and distinct drinking motives are associated with protective sexual-health behavior when alcohol is present. It is hypothesized that greater alcohol use severity and higher endorsement of drinking motives in social or coping contexts will be associated with lower consistency between protective intentions and actual protective behavior. To evaluate this hypothesis, data will be collected from college students via Prolific, a survey platform, as part of the College Outcomes, Motivations, Protective Behaviors, Alcohol, Sexual Health, and Stress (COMPASS) Study. This survey will capture detailed demographic background (gender identity, sexual orientation, race/ethnicity, and financial strain), recent sexual behavior history, and university-based sexual-health resources. Alcohol consumption severity and drinking motives are assessed along with measures of protective sexual behaviors and intentions. Quantitative data analysis will utilize models to evaluate the main and moderating effects of drinking motives on intention–behavior consistency while controlling for sociodemographic factors and resource access. Data collection is actively ongoing. Analyses will examine whether different drinking motives moderate the association between protective sexual-health intentions and actual protective behaviors. Results will offer preliminary insight into how specific motivations for consuming alcohol may correspond with sexual-health decision-making and enactment of protective practices.

Supervisor: Dr. Aitiana Sanchez-Garciaguirre, Department of Health and Human Performance

Katharina Reyling

Department of Biology

Stress, Worry, and Body Signals

College student mental health problems are substantial and persistent, with anxiety disorders being the most prevalent (~12%), followed by depression (7–9%). Treatment uptake is low and suicide is a leading cause of death. Also, anxiety-linked somatic symptoms drive repeated visits to student health clinics. Finally, somatic symptom disorder harms functioning and often persists despite reassurance; reactions to symptoms (worrying/checking) amplify this impairment. The proposed study will examine the interrelationships among stress, worry, and somatic symptoms, guided by the primary research question: how do the reactions to body sensations (worrying, low trust) relate to stress-related symptoms? To test this question, this study asks (a) to what extent does Intolerance of Uncertainty (IU) predict anxiety, stress-related variables (including both previous trauma and present events), depression, and somatic symptoms of stress? (b) to what extent do Interoceptive Not-Worrying and Body Trust relate with anxiety and somatic symptoms of stress, functioning and global health? (c) to what extent does (higher) stress/adversity strengthen the predicted influence between Intolerance of Uncertainty (IU) and anxiety?

Supervisor: Dr. Amy Weimer, School of Family and Consumer Sciences

11. The Social Balancing Act: Attraction, White Lies, and Camouflaging

LAMP 501 | 2:00–3:15 PM

Panel Chair: Dr. Randall Osborne, Department of Psychology

Alexzandra Lopez

Department of Psychology

Beyond the Familiar: Tolerance for Ambiguity and Romantic Attraction

Tolerance for ambiguity refers to an individual's ability to manage uncertainty, complexity, and unfamiliar situations. Although personality and individual differences play important roles in romantic attraction, the potential relationship between tolerance for ambiguity and perceived attractiveness remains an area for further exploration. This project will provide a comprehensive review of psychological literature examining ambiguity tolerance, its theoretical foundations, and its potential connections to personality and romantic attraction. The review will also examine how ambiguity tolerance has been measured, including the McLain Multiple Stimulus Types Ambiguity Tolerance Scale (MSTAT-II), and evaluate newer or alternative measures that may inform future research. Based on the literature, the project will identify gaps in existing research and propose a study investigating whether a potential partner's tolerance for ambiguity influences perceived attractiveness and interest in pursuing a romantic relationship. The proposed study may use descriptions of hypothetical partners that vary in their demonstrated comfort with uncertainty, with participants rating their attractiveness and dating interest. This project aims to clarify the potential role of ambiguity tolerance in romantic preferences and provide a foundation for future empirical research on personality and attraction.

Supervisor: Dr. Randall Osborne, Department of Psychology

Elsie Keizer

Department of Psychology

The His and Hers of Lying: Gender Differences in Telling and Responding to Prosocial Lies in Naturalistic Contexts

Prosocial lying, or lying to spare others’ feelings, is a frequent behavior that illustrates the tension that can occur when the values of kindness and honesty come into conflict. Although gender differences in prosocial behavior broadly and in self-serving, or antisocial, lying are fairly well studied, little is known about gender differences in prosocial lying, particularly in more naturalistic contexts. In two separate studies, we examined whether there were gender differences in both telling and responding to prosocial lies. In the first study, young adults (N = 267) were given the chance to tell a prosocial lie or a blunt truth to the author of a poorly written essay. In the second study, young adults (N = 259) were told either a prosocial lie or a blunt truth about the quality of their own essay that they had to write about a very

challenging topic. Ongoing data analyses will examine whether rates of prosocial lying differed based on gender and whether subjective ratings of the feedback experience were impacted by gender. These results will have implications for understanding variability in how individuals display and respond to the very common social behavior of saying something different than one's true opinion.

Supervisor: Dr. Katherine Rice Warnell, Department of Psychology

Nyx Schexnayder

Department of Psychology

Prevalence and Correlates of Social Camouflaging Compared in Autistic, ADHD, and AuDHD Adults

This study examines the differing levels of social camouflaging exhibited in adults with exclusively autism, adults with exclusively ADHD, and those who have both (AuDHD), as well as exploring their correlation to social well-being factors and demographic variables. Using the Camouflaging Autistic Traits Questionnaire (CAT-Q) and preexisting data sets, we will compare the data within these three groups, as well as a control group. We expect the rates at which each group reports social camouflaging will be negatively correlated with their social well-being (loneliness, social anxiety, exhaustion), and we also expect gender to play a role in rates of camouflaging. Previous studies on social camouflaging in ADHD are limited, and almost none have addressed AuDHD camouflaging, leading to a lack of research on the ways this concept can negatively affect their mental health. The future of this research hopes to make the negative impacts of social camouflaging more clear in order for specified treatment plans to be made for these individuals.

Supervisor: Dr. Katherine Rice Warnell, Department of Psychology

12. From LAs to AI: Investigating Student Success in the College Classroom

ASBN 353 | 10:30–11:45 AM

Panel Chair: Dr. Jonathan Vontsteen, IDEA Center

Amelia Friedman

Department of Biology

The Human Element of Chemistry: How Student Perceptions, Confidence, and Study Habits Shape Chemistry Success

General and organic chemistry are gateway courses that strongly influence whether undergraduates stay in STEM-related fields or abandon the subject altogether. Yet the factors on the student's side that come before performance, such as expectations, confidence, and study habits, are less well understood. Undergraduate chemistry courses have relatively high Drop-Fail-Withdraw rates, indicating that more students in these areas of study end up having to retake the class, or even switching to a different area of study. This study examines how current student mindsets relate to study habits and anticipated outcomes across the general-to-organic chemistry sequence (CHEM 1320, 1341, 1342, 2341, and 2342). These mindsets include perceived course difficulty, comfort with expected prior knowledge, and course reputation transferred through word of mouth or online platforms such as Rate My Professors. To test this, we asked: 1) How do perceptions of difficulty relate to performance, and how might they shift over time between general and organic chemistry? 2) Which study habits do students use as they advance, and how do these align with course goals, anticipated grades, and career goals? 3) How does student experience with expected prior knowledge shape perceived difficulty, study approaches, and anticipated course outcomes? 4) Do demographics and outside obligations influence how students approach learning? An IRB-approved Qualtrics survey was given to students to allow them an introspective look into their own learning. Likert-scale questions were analyzed in Stata, and open-ended responses were thematically coded with NVivo. We hypothesized that more negative mindsets will be associated with weaker study habits and lower anticipated grades. We also expected perceptions and habits to shift with time, course level, career goals, and demographics. Findings will show instructors a new way to approach the human side of students, which is what matters most for their success in chemistry.

Supervisor: Dr. Cynthia Luxford, Department of Chemistry and Biochemistry

Meagan Selman

Department of Biology

Impact of LAs on Student Performance in Introductory STEM Classes

The Learning Assistant (LA) program is a pedagogical model designed to facilitate active learning and increase conceptual understanding of topics in large introductory STEM courses. Learning Assistants are

undergraduate STEM students who return to aid in teaching a course they have already demonstrated success in. By working with students directly and guiding education based on previous experiences in a certain course, the ultimate goals of the LA program are to lower DFW (Drop, Fail, Withdraw) rates and increase final exam scores across popular STEM courses. In this particular scientific study, prior collections of deidentified data (collected both before and after LAs were implemented) will be utilized to conduct non-parametric statistical analyses in the quantitative software Stata. The datasets include four introductory subjects, including BIO 1330, BIO 1331, CHEM 1341, and CHEM 1342. We hypothesize that there will be an increase in grade distribution, as well as lower DFW rates, in LA-supported courses in comparison to non-LA-supported courses. With the more recent addition of LAs in CHEM 1342 courses, we also expect that the benefits of this learning model will carry through from CHEM 1341 to CHEM 1342. Findings of the statistical analyses will inform the continued implementation and expansion of LA programs in gateway STEM courses. They will also give LAs and program leaders evidence of the program's impact, helping institutions better support student success.

Supervisor: Dr. Cynthia Luxford, Department of Chemistry and Biochemistry

Jeremiah Reno

Department of Information Systems and Analytics (ISA)

The Influence of Faculty Perception of Generative AI on Teacher-Student Relationships

This research intends to determine the influence of faculty members' perceptions of student AI usage on the teacher-student relationship. Current literature has delved into faculty members' ability to employ AI in the classroom and more direct impacts of AI on how teachers and students interact, but has not effectively considered faculty willingness to integrate AI. This research aims to measure perception of AI and compare it to faculty perception of their interactions with their students to determine if there is any correlation. A Qualtrics survey will be distributed to faculty at Texas State University over the course of the next few months, which will then be put through a series of statistical and thematic analyses to finalize its findings. The findings of this research may provide insight into the requirements to develop sustainable policy surrounding the integration of AI into academia.

Supervisor: Dr. Jonathan Vontsteen, IDEA Center

13. Peanuts, Mercury, and Concussions: Evidence for Better Health Decisions

OM 232 | 3:30–4:45 PM

Panel Chair: Dr. Denise Gobert, Department of Physical Therapy

Leslie Herrera Nunez

School of Family and Consumer Sciences

Do Peanuts Make a Difference? A Scoping Review of Peanut Consumption and Glycemic Outcomes in Adults

Peanuts and peanut butter contain essential nutrients like protein and unsaturated fats. These can have an important influence on glycemic levels. The available literature examines the effects of peanut consumption on fasting glucose, postprandial glucose, insulin, and long-term glycemic control. This literature is very diverse and focuses on different types of peanut interventions and study populations. This scoping review aims to examine and bring together the available literature about the relationship between peanuts and peanut butter consumption and glycemic outcomes in adults and identify the gaps within the literature. The following databases are being used to obtain the available literature: PubMed, Google Scholar, Web of Science, CINAHL, and Texas State University Library Database. Eligible studies included human adults aged 18 years or older, evaluated peanuts or peanut-containing foods as an intervention or exposure, and reported at least one glycemic outcome. Study designs included the following: randomized controlled trials, clinical trials, cohort studies, case-control studies, and cross-sectional studies. The available and eligible literature showed mainly neutral effects of peanut consumption on fasting glucose, especially on those studies with longer-term interventions. In contrast, some studies showed favorable postprandial glycemic responses. This includes reduced glucose responses following peanut or peanut butter intake. Evidence regarding HbA1c and insulin was limited and results varied from study to study, making it difficult to narrow an overall result. These outcomes suggest that peanuts and peanut butter may have more significant effects on acute postprandial glycemic responses than on fasting glucose or longer-term glycemic control. However, variability across studies and limited evidence for HbA1c and insulin make it difficult to make a firm conclusion. Future research should include longer-term trials, standardized peanut interventions, and glycemic measures, and direct comparisons of different peanut forms.

Supervisor: Dr. Temi Ibiyemi, School of Family and Consumer Sciences

Alexandra Stentz

Department of Physical Therapy

Gender-Specific Persistent Post-Concussion Symptoms Screening Questionnaire (GPPCS-SQ)

In this research project, my mentor and I are creating a survey for athletes that will compare women and men's concussion symptoms. The main comparison that we will be looking at is long-term symptoms, and how they are affecting everyday lives differently depending on gender. In this survey, the only difference in questioning will be including questions about changes in menstrual cycles for women. Our goal is to determine how men and women respond differently to previously having multiple concussions.

Supervisor: Dr. Denise Gobert, Department of Physical Therapy

Taylor Rutherford

Department of Biology

Mercury Concentrations in Red Snapper (Lutjanus campechanus) in the Northwestern Gulf of Mexico

Mercury (Hg) is a nonessential, toxic trace element and global pollutant that is well known to bioaccumulate in marine fishes and biomagnify through marine food webs. As a result, long-lived top predators such as sharks, tunas, and billfishes have the greatest Hg concentrations in muscle tissue. Humans are primarily exposed to Hg through seafood consumption, and chronic exposure can result in neurotoxic and cardiovascular effects and the maternal transfer of Hg from mother to child. As a result, federal and state agencies can issue Hg advisories when muscle Hg concentrations exceed threshold levels (U.S. Environmental Protection Agency: 0.3 µg/g wet weight human health criterion; Texas Department of State Health Services: 0.7 µg/g wet weight human health-based standard; Food and Drug Administration: 1 µg/g wet weight action limit). Red snapper (Lutjanus campechanus) is a commercially and recreationally important fishery in Texas. In 2024, 3.15 million lbs of red snapper were landed commercially in Texas, bringing in approximately $18.5 million. Despite their popularity, few studies have reported Hg concentrations in this species. Using a direct mercury analyzer, this study measured the Hg concentration in red snapper muscle tissue and investigated the relationship between Hg concentration and body length and body weight. Additionally, the percentage of individuals exceeding the federal and state Hg advisory levels was determined. Muscle tissue was collected from 114 red snapper filleted at a cleaning station in Matagorda Harbor in September 2026. The results will provide updated information on Hg concentrations in red snapper in Texas waters and potentially promote red snapper as a good fish choice to eat to minimize Hg exposure through seafood consumption.

Supervisor: Dr. Jessica Dutton, Department of Biology

14. The Promises and Perils of AI and Social Media

ASBN 353 | 3:30–4:45 PM

Panel Chair: Mark Manuel Hernandez, Department of English

Isabel Houle

Department of Geography and Environmental Studies

Using Art to Interpret the Detrimental Impacts of AI to College Students

For my Capstone Project, I aim to explore the potential of artwork as a medium to educate and deter college students from the excessive use of AI. Art possesses a unique capacity to evoke emotions, which may enhance its effectiveness as an educational tool compared to purely textual information. The question guiding my work was, “Can art displaying how damaging AI is to the environment and human creativity deter people from using and supporting it?” I will use the method of surveying two different groups with the same questions before and after to observe the different responses from the infographic or artwork. Alternatively, the results may reveal that textual information is more impactful, or that the dataset lacks sufficient statistical power to draw definitive conclusions. This project seeks to investigate whether art-based learning, rooted in emotional engagement, can more effectively deter AI overuse than conventional methods. Ultimately, I hope this project sparks a progressive response from my audience, fostering critical reflection and encouraging collective action against the unchecked proliferation of AI.

Supervisor: Mark Hernandez, Department of English

Sophia Bergsli-Chavez

School of Journalism and Mass Communication

Analysis of Shifting Public Perceptions of Social Media Addiction After the Meta and Google Verdict

On March 5, 2026, a jury found Meta and Google guilty of designing their algorithms to be addictive and failing to protect younger users. Current research often looks at whether social media addiction (SMA) is real and how it happens. Despite the intense focus on whether SMA is real and how it happens, few researchers have examined what people think about it. This study is a text and sentiment analysis of people’s perceptions of SMA and usage before and after the case, aimed at addressing whether SMA is being blamed on companies, the sub-topics of why or when people use social media, and the sub-topics of youth and parenting, and how AI plays a part. By looking at the naturally occurring opinions of what people are saying online, we can uncover new topics of discussion, reasons people use social media, and who is being blamed to help with prevention and regulation.

Supervisor: Dr. Kristen Sussman, School of Journalism and Mass Communication

Meidad Troper

Department of Computer Science

SpeechEase: Enhancing Public Speaking and Interview Competence Through Multimodal and Machine Learning Feedback

Public speaking anxiety and interview apprehension present substantial barriers to academic achievement and professional advancement. Preliminary campus survey data indicate acute deficits in communication confidence: only 24% of surveyed university students reported complete confidence during high-stakes job interviews, and merely 41% felt confident presenting in academic environments. To address this disparity, I created SpeechEase, a mobile app platform engineered to deliver automated, actionable feedback on the overall delivery. SpeechEase integrates custom machine learning scoring models with multimodal device tracking—evaluating user vocal tone, diction, facial engagement, head movement and other elements. To ensure clinical rigor and practical relevance, the underlying assessment models were calibrated against qualitative evaluations and scoring rubrics provided by industry professionals whom I have worked with. By correlating algorithmic performance metrics directly with industry hiring benchmarks, the platform iteratively refines its scoring accuracy to deliver realistic training cues. SpeechEase demonstrates how accessible mobile sensor architectures and targeted machine learning pipelines can provide scalable, personalized communication coaching, bridging the gap between student preparation and professional performance expectations.

Supervisor: Dr. Ted Lehr, Department of Computer Science

15. Culture in Context: Black Fantasy, Hip-Hop Lyrics, and Japanese Screens

LAMP 502B | 2:00–3:15 PM

Panel Chair: Dr. Andrew Hsin Chen, School of Art and Design

Jayla Chukwu

Department of English

Looking Beyond the Pages: Analyzing Depictions of the Black Experience in Fantasy Novels

With a short series of essays, this capstone explores the way that Black authors use speculative fiction to depict the unique lived experience of Black Americans. This project uses the novels Ring Shout by P. Djèlí Clark, Mama Day by Gloria Naylor, and Kindred by Octavia Butler to showcase how each author hyperbolizes a distinct aspect of Black culture and history to present a new perspective and understanding to readers. In this project, it is explored how Ring Shout subverts the misrepresented and mischaracterized anger of Black Americans during the Jim Crow era. In Mama Day, Naylor disrupts white-washed representations of Black culture through the life and legend of Sapphira Wade and Willow Springs. The last essay focuses on the ways in which Kindred forces readers to acknowledge the true uncensored horrors of slavery and its consequences through Dana’s experience with time. This project serves to highlight Black speculative fiction and the ways in which authors are able to merge history and fantasy to re-imagine the realities of society.

Supervisor: Dr. Drea Brown, Department of English

Isabel Kenney

Department of History

Controversies in Concert: Eminem, Ye, and the Politics of Derogatory Language

Eminem and Ye are known for their musical success in the hip-hop industry, but controversies have arisen with their use of derogatory words in their lyrics over the years. This has attracted many criticisms throughout their fame. In this project, there is a focus on how each artist has used slurs and derogatory language over time. There is also a discussion on how such patterns intersect with identity, political expression, and changes in public perception. This study analyzes the lyrics of fourteen Eminem albums and twelve Ye albums. Throughout the study there was a categorization of derogatory language and a comparison in changes in frequency and usage over time. By combining quantitative data through carefully examining lyrics, the project shows how identity, political context, and artistic persona shape contemporary understandings of derogatory language and hate speech in the world today.

Supervisor: Dr. Louie Valencia, Department of History

Savannah Gallegos

School of Art and Design

A Narrative on Why Framing Folding Screens as Uniquely Japanese Is Essential to the Art Historical Canon

My research paper will be arguing that 17th-century Japanese screens should be called Japanese folding screens and not world art for their cultural specificity. I will be including a definition of both terms (Japanese folding screens and world art) for context. Evidence for my argument will include motifs, styles, techniques, and materials used, and a significant part of my research will further analyze examples like Southern Barbarians, The Tale of Genji, and Beyond Golden Clouds. I will focus on why folding screens are so deeply embedded in Japanese culture, like their uses as room/space dividers, their importance as status symbols in the Japanese court and warrior homes, and as auspicious objects that were a crucial style of art during the Edo period and of the Kano School of Painting in Japan. I will end with a counterargument that looks at why classifying Japanese folding screens as world art is problematic, including that it disregards the importance of their Japanese origins and forces them to be viewed according to a European or Western standard of art, but also why the term ‘world art’ is complicated and encourages a colonizer perspective.

Supervisor: Dr. Andrew Chen, School of Art and Design

16. Contested Histories: Museums, Monuments, and the Promise of Equal Rights

LAMP 502B | 12:30–1:45 PM

Panel Chair: Dr. Nancy Kay Berlage, Department of History

Cassandra Browning

Department of Anthropology

Fight for the Museums: Understanding Trump and the Smithsonian Through a Historian's Lens

This paper seeks to evaluate and understand the ongoing conflict between the Trump Administration and the Smithsonian Institution, starting from March of 2025. It looks at some of the executive orders that detail the administration’s issues with the Smithsonian’s exhibits and curation practices and compares them to the Smithsonian’s responses. Then, it will compare this event to the 1995 Enola Gay exhibit, highlighting the similar ideals that sparked these events, and explain how the ongoing culture wars play into this. Next, the paper analyses the responses from historians, museum staff, and other academics to understand how these events are not only affecting the Smithsonian, but the wider field of history and academics. Finally, it takes a step back to discuss why this discussion is important for the public to be aware of and why they should be concerned about it. This topic deals with museum practices and public history, and how political ideology can not only harm academia but how Americans understand their own culture and place as American citizens.

Supervisor: Dr. Nancy Berlage, Department of History

Elena Fisher

Department of History

Confronting Oblivion: The Evolution of Spanish Historical Memory Policy and the Silenced Memories of Francoism

Francisco Franco’s fascist dictatorship in Spain effectively ended with his death in 1975. However, the country’s transition from dictatorship to democracy prioritized reconciliation and political stability, leaving many Spaniards without a sense of justice or closure for the repression they experienced under the regime. This paper examines how Spain’s 2007 Law of Historical Memory and the 2022 Democratic Memory Law attempt to address significant leftover issues from the Franco dictatorship through case studies on illegally adopted children, mass graves, and fascist monuments. It utilizes legal comparison and a historical memory approach to analyze how the Spanish State’s relationship with its past has evolved since it transitioned to democracy. This project highlights the way in which contradictory official and personal memory leads to societal discontent and efforts for realignment through social movements and calls for legislative reform.

Supervisor: Dr. Louie Valencia, Department of History

Kyra Josephs

Department of Psychology

The Illusion of Rights in 21st Century America Through the Lenses of Fascism, Systemic Racism, Hateful Rhetoric, and Trumpism

This Honors Capstone project examines the relationship between historical and contemporary America to explore how authoritarianism, systemic racism, political division, and exclusion continue to shape American society in the twenty-first century. Through an analysis of historical patterns and contemporary political developments, this project investigates the extent to which the rights and freedoms promised by American democracy are experienced unequally across racial, social, and political groups. Particular attention is given to fascism, systemic racism, hateful rhetoric, and Trumpism to examine how political ideologies, language, and institutional structures can influence public perception, reinforce existing inequalities, and challenge democratic principles. By comparing historical examples of discrimination, authoritarian leadership, and political propaganda with contemporary American society, this project seeks to demonstrate how historical patterns can persist even as the language surrounding freedom, equality, and democracy evolves. It explores how rhetoric can normalize prejudice, create divisions between social groups, and influence the ways individuals understand citizenship, belonging, and human rights. Additionally, this project considers the contradictions between the ideals of American democracy and the lived experiences of marginalized communities, questioning whether legal protections alone are sufficient to guarantee meaningful equality. The project will consist of a research-based essay accompanied by two original zines. The essay will provide the historical context and critical analysis necessary to understand the connections between past and present systems of power. The two zines will serve as supplementary creative and educational materials, highlighting key buzzwords, political terminology, and examples of hateful rhetoric examined throughout the essay. Through accessible language and visual organization, the zines will illustrate how words and political messaging can contribute to the normalization of harmful ideologies and shape public discourse. Ultimately, this project aims to encourage critical reflection on the relationship between historical memory, political rhetoric, and the protection of civil rights in contemporary America. By combining historical research with accessible visual publications, it seeks to challenge assumptions about democratic progress and emphasize the importance of recognizing recurring patterns of inequality, exclusion, and authoritarianism.

Supervisor: Dr. Ellen Tillman, Department of History

17. Understanding Violence: Extremist Recruitment, Christian Nationalism, and Gun Policy

LAMP 502B | 3:30–4:45 PM

Olivia Cabral

Center for International Studies

Terrorists and Cults: A Comparative Analysis of Recruitment Strategies

This project is a literature review and content analysis that compares the recruitment strategies of terrorist organizations and extremist new religious movements. By comparing these two radical groups, we explore the group dynamics and psychological backgrounds that contribute to recruitment and the influences of joining these groups. This project explores the similarities and differences in the progression leading up to group affiliation and ideological identification with these groups. I hope to explore how complicit or noncomplicit an individual is when recruited, and how recruitment can look different in terrorist organizations when the individual is “homegrown.” Through these studies, I hope that by understanding cultic and terror recruitment, we can better curb those joining these groups and the subsequent damage to the individual or community that can follow.

Supervisor: Dr. Nathan Pino, Department of Sociology

Selena Molinari

School of Criminal Justice and Criminology

White Christian Nationalism as a Predictor of Support for Political Violence

Recent ideological shifts in the United States have exemplified growing concerns regarding the intersection of religious identity and political participation. This non-experimental, cross-sectional survey investigates the extent to which endorsement of White Christian Nationalism (WCN) predicts support for the mobilization of political violence. Utilizing the theoretical framework and operational definitions established in Taking America Back for God, this project defines WCN as a cultural framework merging American identity with an exclusionary form of Christian identity. The research employs validated scales to measure WCN endorsement and support for political violence among a target population. By quantifying this relationship, the study contributes to the literature on political radicalization and provides the empirical data necessary to further explore the conversation on contemporary threats to democratic stability.

Supervisor: Dr. Amanda Graham, School of Criminal Justice and Criminology

Amelie Juarez
Department of Political Science

U.S. Gun Policy and Its Social Impacts

The analysis of U.S. gun policy is crucial when understanding its impact on society. By doing so, we better understand solutions and legislation that have been passed in an effort to minimize gun violence and the issues that intersect with gun policy impacts. Although analyzing national data regarding gun deaths/injuries is crucial, by looking at Texas gun policy, we can better understand patterns and why certain populations are more affected by gun violence.

Supervisor: Dr. Sheriff Folarin, Department of Political Science

18. Setting the Scene: Lighting Design, Visual Novels, and Music Videos

LAMP 501 | 9:00–10:15 AM

Panel Chair: Matthew Clark Webb, School of Theatre, Dance, and Film

Mars Carter

School of Theatre, Dance, and Film

Demystifying Design: Shedding Light on the Lighting Design Process

This applied-arts capstone examines what goes into the process of theatrical lighting design, beginning at the creative research imagery phase, working through discussion with other members of the creative team, and ending with working with your own lighting team to execute your design that is cohesive with the other creatives' vision of the show. This paper will use firsthand experience within the field of lighting design and technology to express the needs of a production from its designer, as well as the needs of the designer from their assistants and other technical staff. Beginning with various assistant design positions and working up to fully realized lighting designs, the various requirements and challenges involved with realizing a lighting design will be described in detail. Additionally, this capstone aims to describe in detail the steps required to get involved in theatrical tech and design work within and beyond the university as a non-technical production major. A large barrier to access for technical work is getting the base level of understanding and experience to begin doing the work, so this paper will express all of the varying ways to begin accruing knowledge and experience from within a university setting to beyond it.

Supervisor: Matthew Webb, School of Theatre, Dance, and Film

Andelucia Ballard

Department of Counseling, Leadership, Adult Education, and School Psychology

KINGDOM OF REQUIEM Asset and Game Demo Showcase

KINGDOM OF REQUIEM is a royal-drama fantasy visual novel. It is centered around a group of young royals, their court, and an emperor who is seeking revenge against the entire Imperial World for the death of his family. The game features an expansive cast with individual storylines that emphasize the main narrative. This visual novel operates with a linear storyline; therefore, opportunities to make choices will showcase alternative conversations that do not ultimately affect the overall story. The official demo is set to be released in December, and the first installment of the game will come out in spring 2027.

Supervisor: Gabriel Olson, School of Art and Design

Liz Olaribigbe

School of Theatre, Dance, and Film

Discovering Me

This visual album is a personal exploration of self-discovery through music and the role that different genres, artists, and songs have played in shaping my identity. The project asks: How can the music that has influenced me reveal the different parts of who I am and how I have grown? Rather than focusing on one specific genre or sound, the album moves through the wide range of music that has accompanied me throughout different stages of my life. Ultimately, this project explores how music can reflect identity. It challenges the idea that a person has to fit into one sound, style, or definition and instead embraces the complexity of having many influences. By bringing together genres that may seem disconnected, the visual album makes visible the different pieces of myself that have developed through the music I have experienced. It celebrates the artists and sounds that shaped me and offers an opportunity to understand who I am beyond any single genre, experience, or version of myself. This is “Discovering Me.”

Supervisor: Deonte Warren, School of Theatre, Dance, and Film

19. Finding a Voice: Stories of Experience, Identity, and Healing

LAMP 501 | 10:30–11:45 AM

Panel Chair: Dr. Naomi Medina, Department of Psychology

Lain Lowery

Department of English

Inferno: The Pedestrian Nature of Orange

Inferno: The Pedestrian Nature of Orange is a collection of creative nonfiction essays deciphering the color orange and its subjective associations based on the writer's life experiences. Experimenting with forms such as the braided essay, memoir, and prose poetry, this work uses intimate memories of the writer's past to meditate on the static past and the moving present. The themes explore the human body, perseverance, spirituality, and how we choose to spend our time and energy in modern life. This collection also reflects on the color orange as a metaphor for energy, reaction, and proaction, evoking images like a beautiful sunset or the golden hour.

Supervisor: Kale Hensley, Department of English

Christina Rich

Department of Counseling, Leadership, Adult Education, and School Psychology

Little Girl Stay: A Story of Healing for the Hurting Child

A little girl struggles with distorted thinking symbolically shaped as a song after receiving a message that she is "bad." With her confidence deeply wounded, the little girl isolates herself by going away and mulling over the harmful schemas. She loses her voice and becomes uncertain of her value and ability to connect with others. When all seems lost, a friend offers hope to the little girl in the shape of a cookie. With each cookie, she becomes stronger by asking for what she needs. Now empowered, the little girl rewrites the song by connecting with her true sense of self and armoring up with what makes her feel safe. Based on Charles Horton Cooley's Looking Glass Theory, this illustrated children's picture book creates space for the reader to recognize the power of damaging words that loop in the mind often into adulthood and offers cognitive restorative healing. "Little Girl Stay" is an important mental health resource book for children struggling with adverse childhood experiences.

Supervisor: Dr. Naomi Medina, Department of Psychology

Abby Myers

Department of Psychology

The Power in Having No Power: The Hierarchy of Higher Education

Student movements have historically held power through persuasion and influence across the nation. They have been the purveyors of grassroots movements, prompting Supreme Court cases, challenging legislation, and creating landscapes of advocacy. If students at universities have been able to hold that much influence in their hands, how do new generations of college students continue to harness that power? This autobiographical-style narrative research paper has been composed to help students understand how they can effectively cause change while clarifying their actual position within the hierarchy of higher education. Throughout the project, the author recounts their personal journey as the Student Body President of one of the largest universities in the United States, working on state-level legislative changes, and watching politics unfold at the national level during a congressional internship. The aim is to address the relationship between higher education and local, state, and national politics, while providing insights into the political dynamics within a university. The narrative will explore several key questions: How does one navigate being the least qualified person in the room while still making a meaningful contribution? How do universities make decisions, allocate resources, and respond to student issues? How do varying levels of government oversight impact institutions of higher education and their policies?

Supervisor: Dr. Helen Lowman, Department of Political Science

20. Justice in Practice: Police Cameras, Language Barriers, Labor Trafficking, and True Crime

LAMP 502B | 9:00–10:15 AM

Panel Chair: Dr. Melanie Soderstrom, School of Criminal Justice and Criminology

Olivia Jacob

School of Criminal Justice and Criminology

Body-Worn Cameras and Police Accountability: Evaluating the Impact on Officer Behavior and the Use of Force

Body-worn cameras, otherwise known as BWCs, have become a very common criminal justice policy in police departments to improve police accountability and transparency. This policy paper will investigate the effectiveness of body-worn cameras, focusing on their impact on police behavior, accountability, and the use of force. Body-worn cameras are often presented as a tool that is used to increase public trust and reduce misconduct, but the effectiveness of this technology relies heavily on factors like agency policies, officer compliance, and the amount of discretion an officer has over when the cameras are activated. This paper will investigate the existing research that is available on the implementation of body-worn cameras and the outcomes of these policies to determine whether or not this technology is achieving its intended goal and what factors are influencing its effectiveness. Previous research found on body-worn cameras has shown mixed findings regarding their effectiveness. Some studies show a reduction in complaints and problematic police behavior. There is no research that has consistently shown that body-worn cameras reduce police use of force or that they are improving the public's perception of law enforcement. This paper will consider both the potential benefits as well as the limitations of body-worn cameras. This includes their role in increasing police accountability, changing officer behaviors, and reducing use-of-force incidents. This paper will also investigate the policy considerations that surround camera activation, officer compliance, and departmental oversight. This research aims to address whether or not body-worn cameras in policing are an effective criminal justice policy.

Supervisor: Dr. Kathleen Padilla, School of Criminal Justice and Criminology

Faruq Fakory

Department of Communication Studies

Investigating Translation Gaps in Courtrooms for Non-Native English Speakers

The United States legal system is built on the core promise of “equal justice under the law,” which is fundamentally tied to a defendant’s ability to understand their rights and be understood by criminal court actors during courtroom proceedings. However, for non-native English speakers, this promise relies on a “verbatim” standard of interpretation that often fails to account for dialectical nuances, cultural

context, and untranslatable expressions. While judicial proceedings assume translation is neutral, unaddressed translation barriers lead to “invisible errors” recorded only in English in court transcripts, leaving non-native English speakers vulnerable to misinterpretation, biased assessments of credibility, and potentially erroneous judicial outcomes. This paper investigates the systematic vulnerabilities of courtroom interpretation for non-native speakers. By analyzing state-by-state U.S. Census Bureau data on the number of individuals who speak a language other than English at home, demonstrating the large population potentially affected by these issues, this paper uses a qualitative, interdisciplinary approach to synthesize existing legal and linguistic literature, compare interpretation practices in high-stakes fields such as medicine, and introduce a Farsi-English glossary of context-dependent terminology. This research aims to demonstrate why translation gaps threaten justice in the courtroom and why further research is urgently needed to address these issues.

Supervisor: Dr. Melanie Soderstrom, School of Criminal Justice and Criminology

Gabriela Trejo

School of Criminal Justice and Criminology

Hidden Labor

The Texas Triangle is one of the country’s largest growing areas in terms of infrastructure development, creating a high demand for migrant workers in the region, especially following natural disasters. Sudden influxes of insurance capital create an immediate need for cleanup crews, drawing in unvetted subcontractors who rely on informal hiring processes and multi-layered subcontracting networks as a shield against corporate liability. Empirical data show that up to 22% of construction workers in post-disaster construction sites face conditions that meet the legal definitions of labor trafficking. Despite this high prevalence, local police departments rarely record these offenses. This paper examines why local law enforcement struggle to identify and report labor trafficking within the construction industry and highlights three important institutional issues: the heavy emphasis on sex trafficking frameworks in state-mandated Texas Commission on Law Enforcement (TCOLE) training modules, language barriers and victim fear, and the lack of formalized local-to-federal referral networks. By examining federal court dockets from United States v. Carl Eugene Hall, this project shows how employers use staffing agency contracts and paperwork manipulation to conceal ongoing workplace exploitation on job sites. Addressing these issues can discover strategies that could potentially improve state training mandates and help local police departments protect vulnerable workers.

Supervisor: Dr. Naomi Medina, Department of Psychology

Karina Zepeda

School of Criminal Justice and Criminology

Where Do We Go When We Die? A Qualitative Content Analysis of True Crime Entertainment and the Reality of Death Investigations

Death raises questions about what happens after life and what becomes of the body once a person dies. While philosophical and religious perspectives explore what may happen beyond death, medicolegal

death investigation focuses on determining the circumstances surrounding a person's death. Through true crime entertainment and investigative reporting, audiences are introduced to autopsies, forensic evidence, criminal investigations, and the professionals responsible for examining unexplained or suspicious deaths. However, these portrayals may emphasize dramatic cases and investigative breakthroughs while giving less attention to the complex procedures and institutional challenges involved in death investigation. This study will use qualitative content analysis to examine how death investigation practices and institutional challenges are represented across true crime entertainment and investigative media. Professional guidelines and government publications will provide a reference point for understanding recommended investigative procedures and responsibilities. The analysis will focus on themes related to autopsy decision-making, scene documentation, forensic evidence, interagency cooperation, professional responsibilities, and institutional limitations. It will also examine how dramatic storytelling and the presentation of forensic procedures influence the way death investigations are communicated to audiences. By examining the relationship between media portrayals and established professional guidance, this study seeks to identify patterns in how death investigations are presented to the public. Ultimately, the research explores the space between what audiences see through true crime entertainment and the professional realities of determining what happens when someone dies.

Supervisor: Dr. Scott Bowman, School of Criminal Justice and Criminology

21. Bakeries, Thrift Stores, and Town Centers: Planning for Local Vitality

LAMP 502B | 10:30–11:45 AM

Panel Chair: Dr. Peter Tschirhart, Honors College

Madeline Carpenter

School of Journalism and Mass Communication

Bobcat Thrift

Bobcat Thrift is a thrift store and accompanying website concept focused on reducing waste and making apartment necessities more affordable for students. It would allow students to sell their gently used items to new students rather than throw them away after they move out. This system would be geared toward serving students at Texas State University and it would be run by student workers. There would also be volunteer positions available for students interested in gaining service hours. I plan to complete research to determine the ideal marketing strategy for and define the financial structure of the project. I will also be building a website that will demonstrate how the store will work for both buyers and sellers.

Supervisor: Jon Zmikly, School of Journalism and Mass Communication

Tessa Gonzalez

Department of English

Passion Is Nothing Without Planning: Creating a Plan for a Small Bakery Business

This project will be aimed at forming an adaptable business plan for Confections by Tessa, a small student-run home baking business, with the express goal of preparing for ventures after graduation. While currently in partnership with the Texas State University Student-Made program, production and sale of goods will be altered once education at Texas State University is completed. Offering distinct products, unique flavor profiles, and seasonal packages within its selection of shelf-stable baked goods such as cookies, brownies, muffins, loaf cakes, and other delights, Confections by Tessa aims to expand into a viable commercial operation, and perhaps one day a retail location. However, with limited knowledge of an exact location of residence after completing university, this business plan will also contain an analysis of two markets of possible residence post-graduation: Edinburg, Texas, and Boulder, Colorado. This plan will have research-backed data meant to be utilized in the continuation and expansion of Confections by Tessa wherever operation and expansion may take place going forward.

Supervisor: Dr. Peg Richmond, Department of Management

John Adams
Ingram School of Engineering

Can Policy Recreate What History Produced? A Comparative Study of Frederick, Maryland, and Carmel, Indiana

This project investigates whether urban planning and policy can reproduce the qualities of a historically developed town. Through a comparative case study between Frederick, Maryland, a historic example, and Carmel, Indiana, a modern city that has made use of municipal policy and urban planning to generate that historic town architecture and feel, this project compares the outcomes of these two approaches. The project covers architectural cohesion, walkability, scale, business engagement, and public use by pedestrians and townsfolk. The research combines historical and policy analysis, demographic and economic data, and field observations including photographic documentation collected in both cities. Preliminary results show notable differences despite both cities possessing cohesive architectural design. Field observations found that Frederick is a dense and easily walkable small-feeling town, with a wide variety of businesses, public spaces, and busy pedestrian-filled streets. While Carmel produced successful traditionally inspired architectural characteristics, which would seemingly be associated with a historic town urban core, my field observations found a lack of walkability between destinations and significantly less pedestrian use of public space and sidewalks within those destinations. Preliminary analysis of the two cities' socioeconomic data and historic development is being conducted in part to determine the reason for such a disparity in outcomes. Carmel has a significantly higher median household income, and despite its higher population, a lower population density than Frederick. These differences, alongside my field observations, suggest that architectural cohesion alone may not explain the qualities associated with a successful traditional town. The continuing analysis therefore considers the impact of scale, density, walkability, and historical development in producing the different outcomes observed in Frederick and Carmel.

Supervisor: Dr. Peter Tschirhart, Honors College